



## **FACULTY OF PHYSIOTHERAPY**

Program & Subject:

**Bachelor of Physiotherapy - B.P.T.**

(4½ Year Degree Program)

### **INTRODUCTION:**

The Bachelor of Physiotherapy program shall be under the Faculty of physiotherapy. The name of the Degree program shall be Bachelor of Physiotherapy (or, Bachelor of Physical Therapy) – The Faculty of Physiotherapy is Marwadi University's foray into creating the finest healthcare professionals for the country. With the support of knowledgeable academicians, superlative top management, and strong clinical practice, we are confident of making a mark in this prestigious profession.

Faculty of Physiotherapy Marwadi University built a professional to play a role in health promotion and treatment of the injury. They gain in-depth knowledge of the body and how it works with specialized hands-on clinical skills to assess, diagnose and treat symptoms of disease, illness, and disability.

### **VISION:**

The vision of the Faculty of physiotherapy, Marwadi University is to be the recognized best in education and clinical practice.

### **MISSION:**

1. To deliver world-class, cross-disciplinary, and quality education in the field of Physiotherapy through a well-devised and synchronized delivery structure and system.
2. To serve the patients/clients with efficient and cost-effective care with professional and ethical standards of Physiotherapy practice.
3. To foster knowledgeable, responsible, and skilled professionals.

### **PROGRAM OUTCOMES:**

At the end of the program, graduates must be able to...

1. Do independent physiotherapy assessment and treatment for patient/client.

2. Work in conjunction with a multidisciplinary team to diagnose and treat movement dysfunctions as per red and yellow flags.
3. Develop skills for physical & functional diagnosis, treatment planning, management, and administration of physiotherapy treatment for patient support.
4. Find employment opportunities in Hospitals/Nursing homes/Sports Teams/Fitness Centers /Community Rehabilitation centers/Health planning boards/Health promotions services/Special Schools/Education Institutes/Industrial Sectors in both private and public sectors as well as in independent physiotherapy clinics.
5. Shall be able to pursue further qualifications to attain a senior position in the professional field and to keep abreast with the recent advances and new technology.
6. Ability to communicate effectively and flexibly in a manner that is appropriate for the patients and other healthcare professionals.
7. Acquaint with the basics of research, and involved in the research process.
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the Physiotherapy practice as provided by national and state councils.

**1. CRITERIA OF ELIGIBILITY FOR ADMISSION:**

- a) As per the rules of the Admission Committee for Professional Medical Educational Courses of Gujarat and/or the Government of Gujarat.
- b) A candidate applying for the degree of B.P.T being eligible for admission to the Physiotherapy College affiliated to UGC recognized University must have passed the Higher Secondary (10+2) or equivalent examination recognized by any Indian University or a duly constituted Board and passed in Physics, Chemistry and Biology, and English.

Or

Candidates who have studied abroad and have passed the equivalent examination as per the guidelines of the Association of Indian Universities to determine the eligibility and must have passed in the subjects: Physics, Chemistry, Biology, and English up to 12<sup>th</sup> Standard level.

- c) He /She has attained the age of 17 years as of 31st December of the concerned year.
- d) He/she should furnish at the time of submission of the application form, a certificate of Physical fitness from a registered medical practitioner that the candidate is physically fit to undergo the Physiotherapy course.
- e) A candidate fulfilling the above requirements will be provisionally admitted in the First Year of the B.P.T. Degree Program, as per the rules of the Admission Committee for Professional Medical Educational Courses of Gujarat and/or Government of Gujarat.

**2. DURATION OF COURSE:**

B.P.T is a 4 1/2 year regular & full-time degree Program. The 4½ years include **4 academic years for study and 6 months** (minimum 1144 hours) of the compulsory rotatory internship.

**3. MEDIUM OF INSTRUCTION:**

English shall be the medium of instruction for all the subjects of study and examination of the course.

**4. ADMISSION TO THE PROGRAMME:**

Admission granted by the Central Admission Committee appointed by the State Government to

any student shall be provisional till the Enrollment/ Registration/ Enlistment is made by the Marwadi University, and in case of admission is granted based on provisional eligibility certificate, the condition & instruction given by the Marwadi University should be complied within the time limit fixed by the University, otherwise, term kept and fees paid by such a student will be forfeited.

**5. READMISSION AFTER BREAK OF STUDY:**

All readmissions of candidates are subject to the approval of the Provost of Marwadi University.

**6. ASSESSMENT PROCEDURE/ EVALUATION PROCEDURE:**

- ❖ The complete academic performance of a student is evaluated in-house by the concerned teacher /department except in the case of practical work where an external examiner shall be nominated for the practical/ viva voce.
- ❖ The student's performance in each year of BPT, in general, is evaluated based on:
- ❖ Continuous Semester/Annual Evaluation (CSE)
- ❖ Internal Assessment (IA)
- ❖ End-year examination. (University Final Exam)

**7. SCHEDULE OF EXAMINATION:**

- ❖ The scheme of examination for the B.P.T course shall be divided into 4 professional examinations; each examination will be held at the end of each respective Academic year.
- ❖ There will be 1 internal examination (mid-year) after the completion of 4 months of the onset of the Academic year. There will be 1 Preliminary exam before the University exam.
- ❖ There will be a University examination through written paper and/or practical examination for 80% of the marks of the subject at the end of every Academic year.
- ❖ Internal evaluation is based on Continuous Semester/Annual Evaluation (CSE) and internal/ preliminary examination (IA), for 20% of the marks of the subject.
- ❖ Marwadi University will conduct supplementary exams for failed students after 4 months and before 6 months from the previous exam.

**8. ELIGIBILITY CRITERIA TO APPEAR IN UNIVERSITY EXAMINATION:**

- ❖ Attendance: A candidate must secure a minimum of 75% of attendance. A candidate is required to attend at least 75% of the total classes conducted in a year in all subjects prescribed for that year (separately), in theory, and practical/clinical to become eligible to appear for the University examination.
- ❖ No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition, etc.
- ❖ Filling of University examination form: Candidates desirous of appearing for University examination must forward their applications in the prescribed form to the registrar through the Principal of the Institutions on or before the date prescribed for the purpose.

**9. STUDENTS' ASSESSMENT:**

- ❖ The complete academic performance of a student is evaluated in-house by the concerned teacher/department except in the final exam of practical work where an external examiner shall be nominated for the practical/viva voce.
- ❖ The student's performance in each course, in general, is evaluated based on in-year

continuous assessment, internal assessment (preliminary examination), and end-year examination.

- ❖ An in-year Continuous Semester/Annual Evaluation (CSE) is spread through the duration of the course and is done by the teacher teaching the course with a weightage of 10%. The assessment is done through various means.

The performance of every student in each subject will be evaluated as follows:

Subject with only theory components is as follows:

| S<br>r<br>.<br>N<br>o<br>. | Assessment Tool                                                                                                                                                                                                                                                                          | Weightage |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1                          | ❖ IN-YEAR CONTINUOUS SEMESTER/ANNUAL EVALUATION (CSE) WHICH INCLUDES:<br>1.Attendance<br>2.Tutorials<br>3.Assignment<br>4.Surprise Test<br>5.Class Test<br>6.MCQ based quizzes<br>7.Presentations<br>8.Projects<br>9.Field visits<br>10.Seminars<br>11.Group discussions/activities etc. | TOTAL 20% |
| 2                          | INTERNAL ASSESSMENT WHICH INCLUDES (IA)<br>Internal &/Preliminary exam (compulsory) before University exam.                                                                                                                                                                              | 20%       |
| 3                          | END YEAR EXAMINATION (FINAL EXAM)<br>University examination through written paper and/or practical examination                                                                                                                                                                           | 50%       |

- Subjects with practical components

| S<br>r.<br>N<br>o. | Assessment Tool                                                                                            | Weightage |
|--------------------|------------------------------------------------------------------------------------------------------------|-----------|
| 1                  | INTERNAL ASSESSMENT WHICH INCLUDES<br>a) Internal/Preliminary practical exam (10%)<br>b) CSE/Journal (10%) | 50%       |
| 2                  | END YEAR EXAMINATION (FINAL EXAM)<br>University examination through practical examination                  | 50%       |

## 10. PASSING CRITERIA:

As laid by Marwadi University Guidelines from time to time.

**11. GENERAL INSTRUCTIONS FOR UNIVERSITY PRACTICAL EXAMINATION:**

- ❖ The practical examination should be taken and marks should be given by a pair of examiners only and not by a single examiner. For the practical exam of Medical subjects, the number of examiners is as per Marwadi University rules. One examiner should be from the other university.
- ❖ Examiners shall not keep any kind of rough or fair copy of any mark sheet with him/her number of students per examiner examined per day should not exceed 50.

**12. REASSESSMENT /REVIEW OF ANSWER PAPERS OF CANDIDATES:**

As per the regulations prescribed for review of answer papers by the Marwadi University.

**13. INTERNAL EVALUATION FOR REPEATERS:**

- a. A candidate who has been declared fail in University examination for either of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4th-year B.P.T is a repeater for said examination/paper/subject.
- b. The eligibility criteria for appearing for the University examination shall be applicable for repeaters. But the candidate may appear for the theory and practical held during that Academic year i.e., preliminary exam (I.A), for the improvement of internal marks for the subsequent University examination in the paper/papers he/she has failed. If a candidate does not wish to appear in a repeat internal examination, marks obtained in the previous internal examination will be counted as final marks.

**14. PROMOTION CRITERIA / CARRY OVER SYSTEM:**

Promotion Criteria/ Carry Over System is as per Marwadi University Guidelines.

**15. GRACE MARKS:**

The Grace marks may be awarded by the Marwadi University to a student, who has failed in any paper either theory or practical; but it is subject to the discretion of the Provost.

**16. DEFINITION OF TRIAL/ATTEMPT**

The first trial/attempt is deemed to take place when the candidate is due to appear as per the regulation of the University for the examination. Similarly, 2nd, 3rd, etc., trials relating to the subsequent examination. There is no limit to the number of trails in any year to pass the examination.

**17. EXEMPTION FROM RE-EXAMINATION:**

Candidates who have failed in the examination, but obtained pass marks in any subjects shall be exempted from re-examination in those subjects. Candidates who have failed in theory &/or practical in any subject will have to appear in respective components for that particular subject.

**18. COMPULSORY ROTATORY INTERNSHIP**

- a. Only after passing all the subjects in all years will he/she be allowed to undergo an internship. It includes a minimum of 1144 hours. The candidate will have to join the internship within 15 days of declaration of the 4th-year University examination result.
- b. The internships should be done in only Hospitals/Institutions recognized by the Gujarat State

Council for Physiotherapy (GSCPT). No candidate shall be awarded a degree certificate without successfully completing six months of Internship.

- c. The Internship should be rotatory and cover clinical branches concerned with Physiotherapy such as Orthopedics, Cardiothoracic including Intensive Care Unit (ICU), Neurology, Pediatrics, General Medicine, General Surgery, Obstetrics, Geriatrics, Women's health, Community Based Rehabilitation (CBR), and Gynecology both in-patient and out-patient services.
- d. On completion of all postings, the duly completed logbooks will be submitted to the Principal/Head of the program to be considered as having completed the internship program.

**19. DRESS-CODE:**

Professionalism with respect to dressing is encouraged throughout the course. It is each student's responsibility to have appropriate dressing during all class assignments and learning activities. Students are supposed to wear an apron compulsorily during practical and clinical hours.

**20. MIGRATION/TRANSFER OF CANDIDATES:**

The Provost shall have the powers to place any migration/transfer he/she is fit for grant of permission for migration/transfer to candidates undergoing a course of study in another University as prescribed by the University

**21. COURSE OF STUDY – SUBJECTS & HOURS DISTRIBUTION**

1 credit = 1 classroom lecture per week for 20 weeks (1 term) (makes 20 lectures in one term)

or

2 Practical/clinical hours per week for 20 weeks (1 term) (makes 40 practical hours in one term)

**FIRST YEAR B. PHYSIOTHERAPY**

| <b>Serial No.</b> | <b>Course Code</b> | <b>Course name</b>                                                         | <b>Theory Hours</b> | <b>Practical Hours</b> | <b>Total Hours</b> | <b>Credits</b> |
|-------------------|--------------------|----------------------------------------------------------------------------|---------------------|------------------------|--------------------|----------------|
| 1                 | 17PT0101           | Human Anatomy                                                              | 160                 | 120                    | 280                | 11             |
| 2                 | 17PT0102           | Human Physiology                                                           | 120                 | 120                    | 240                | 9              |
| 3                 | 17PT0103           | Biochemistry                                                               | 80                  | -                      | 80                 | 4              |
| 4                 | 17PT0104           | Psychology                                                                 | 80                  | -                      | 80                 | 4              |
| 5                 | 17PT0105           | Sociology                                                                  | 80                  | -                      | 80                 | 4              |
| 6                 | 17PT0112           | Exercise Therapy- 1 & Soft Tissue Mobilization                             | 120                 | 160                    | 280                | 10             |
| 7                 | 17PT0107           | Biomedical Physics                                                         | 80                  | 40                     | 120                | 5              |
| 8                 | 17PT0110           | Health Care Delivery System + Professional Practice & Ethics*              | 40                  | -                      | 40                 | 2              |
| 9                 | 17PT0108           | English*                                                                   | 40                  | -                      | 40                 | 2              |
| 10                | 17PT0109           | Computer applications*                                                     | -                   | 40                     | 40                 | 1              |
| 11                | 17PT0106           | Environment Studies*                                                       | 40                  | -                      | 40                 | 2              |
| 12                | 17PT0113           | Observational Clinical/ Community Orientation/ Clinical Visit/ Study Tour* | -                   | 120                    | 120                | 3              |
| Total             |                    |                                                                            | 840                 | 600                    | 1440               | 57             |

\*Not for a university exam.

## SECOND YEAR B. PHYSIOTHERAPY

| <b>Serial No.</b> | <b>Course Code</b> | <b>Course name</b>            | <b>Theory Hours</b> | <b>Practical Hours</b> | <b>Total Hours</b> | <b>Credits</b> |
|-------------------|--------------------|-------------------------------|---------------------|------------------------|--------------------|----------------|
| 1                 | 17PT0201           | Pathology                     | 80                  | -                      | 80                 | 4              |
| 2                 | 17PT0202           | Microbiology                  | 80                  | -                      | 80                 | 4              |
| 3                 | 17PT0203           | Pharmacology                  | 80                  | -                      | 80                 | 4              |
| 4                 | 17PT0204           | Kinesiology                   | 120                 | -                      | 120                | 6              |
| 5                 | 17PT0205           | Electrotherapy                | 120                 | 120                    | 240                | 9              |
| 6                 | 17PT0206           | Exercise Therapy- 2           | 120                 | 120                    | 240                | 9              |
| 7                 | 17PT0207           | Psychiatry                    | 40                  | -                      | 40                 | 2              |
| 8                 | 17PT0208           | Radiology/ENT/Ophthalmology*  | 40                  | -                      | 40                 | 2              |
| 9                 | 17PT0209           | Ethics & Allied Therapeutics* | 40                  | -                      | 40                 | 2              |
| 10                | 17PT0210           | Clinical Practice*            | -                   | 480                    | -                  | 12             |
| <b>Total</b>      |                    |                               | <b>720</b>          | <b>720</b>             | <b>1440</b>        | <b>54</b>      |

\*Not for a university exam.

### THIRD YEAR B. PHYSIOTHERAPY

| Serial No. | Course Code | Course name                                                                                                  | Theory Hours            | Practical Hours | Total Hours | Credits |
|------------|-------------|--------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-------------|---------|
| 1          | 17PT0301    | Medicine<br>(General Medicine & Skin)                                                                        | 100<br>(80+20)          | -               | 100         | 5       |
| 2          | 17PT0302    | Neurology & Pediatrics                                                                                       | 100<br>(80+20)          | -               | 100         | 5       |
| 3          | 17PT0303    | Surgery<br>(General Surgery, Plastic Surgery, Neurosurgery, Cardiothoracic Surgery, Obstetrics & Gynecology) | 160<br>(40+20+20+40+40) | -               | 160         | 8       |
| 4          | 17PT0304    | Physical & Functional Diagnosis                                                                              | 80                      | 80              | 160         | 6       |
| 5          | 17PT0305    | Orthopedics<br>(Traumatic & Non-traumatic)                                                                   | 80                      | -               | 80          | 4       |
| 6          | 17PT0306    | Preventive Healthcare and Community Medicine                                                                 | 80                      | -               | 80          | 4       |
| 7          | 17PT0307    | Professional Practice & Ethics + Evidence Based Practice & ICF*                                              | 40                      | -               | 40          | 2       |
| 8          | 17PT0308    | Clinical Hours*                                                                                              | -                       | 720             | 720         | 18      |
| Total      |             |                                                                                                              | 640                     | 800             | 1440        | 52      |

\*Not for a university exam.

#### FOURTH YEAR B.PHYSIOTHERAPY

| <b>Serial No.</b> | <b>Course Code</b> | <b>Course name</b>                                               | <b>Theory Hours</b> | <b>Practical Hours</b> | <b>Total Hours</b> | <b>Credits</b> |
|-------------------|--------------------|------------------------------------------------------------------|---------------------|------------------------|--------------------|----------------|
| 1                 | 17PT0401           | Physiotherapy in Musculoskeletal Conditions                      | 80                  | 40                     | 120                | 5              |
| 2                 | 17PT0402           | Physiotherapy in Neurological Conditions                         | 80                  | 40                     | 120                | 5              |
| 3                 | 17PT0403           | Physiotherapy in Cardio Pulmonary and Medical Surgical Condition | 80                  | 40                     | 120                | 5              |
| 4                 | 17PT0404           | Physiotherapy in Community Health and Bio- engineering           | 40                  | 20                     | 60                 | 2              |
| 5                 | 17PT0405           | Biostatistics and Research Methodology                           | 40                  | 0                      | 40                 | 2              |
| 6                 | 17PT0406           | Professional Practice and Ethics And Administrative Management   | 40                  | 0                      | 40                 | 2              |
| 7                 | 17PT0407           | Clinical Hours                                                   | 0                   | 960                    | 960                | 24             |
| Total             |                    |                                                                  | 360                 | 1100                   | 1460               | 45             |

## 22. SCHEME OF EXAMINATION: SUBJECTS AND DISTRIBUTION OF MARKS

| First Year B. Physiotherapy |                                                   |              |          |                 |          |                |
|-----------------------------|---------------------------------------------------|--------------|----------|-----------------|----------|----------------|
| S<br>r.<br>N<br>o.          | Subject                                           | Theory Marks |          | Practical Marks |          | Total<br>Marks |
|                             |                                                   | External     | Internal | External        | Internal |                |
| 1                           | Human Anatomy                                     | 80           | 20       | 80              | 20       | 200            |
| 2                           | Human Physiology                                  | 80           | 20       | 80              | 20       | 200            |
| 3                           | Biochemistry                                      | 40           | 10       | ----            | ----     | 50             |
| 4                           | Psychology                                        | 40           | 10       | ----            | ----     | 50             |
| 5                           | Sociology                                         | 40           | 10       | ----            | ----     | 50             |
| 6                           | Exercise Therapy- 1 &<br>Soft Tissue Mobilization | 80           | 20       | 80              | 20       | 200            |
| 7                           | Biomedical Physics                                | 40           | 10       | ----            | ----     | 50             |
| Total                       |                                                   | 400          | 100      | 240             | 60       | 800            |

| Second Year B. Physiotherapy |                    |              |          |                 |          |                |
|------------------------------|--------------------|--------------|----------|-----------------|----------|----------------|
| S<br>r.<br>N<br>o.           | Subject            | Theory Marks |          | Practical Marks |          | Total<br>Marks |
|                              |                    | External     | Internal | External        | Internal |                |
| 1                            | Pathology          | 40           | 10       | ----            | ----     | 50             |
| 2                            | Microbiology       | 40           | 10       | ----            | ----     | 50             |
| 3                            | Pharmacology       | 40           | 10       | ----            | ----     | 50             |
| 4                            | Exercise Therapy 2 | 80           | 20       | 80              | 20       | 200            |
| 5                            | Kinesiology        | 40           | 10       | ----            | ----     | 50             |
| 6                            | Psychiatry         | 40           | 10       | ----            | ----     | 50             |
| 7                            | Electrotherapy     | 80           | 20       | 80              | 20       | 200            |
| Total                        |                    | 360          | 90       | 160             | 40       | 650            |

| <b>Third Year B. Physiotherapy</b>     |                                                                                                             |                     |                 |                        |                 |                        |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------|-----------------|------------------------|-----------------|------------------------|
| <b>S<br/>r<br/>·<br/>N<br/>o<br/>·</b> | <b>Subject</b>                                                                                              | <b>Theory Marks</b> |                 | <b>Practical Marks</b> |                 | <b>Total<br/>Marks</b> |
|                                        |                                                                                                             | <b>External</b>     | <b>Internal</b> | <b>External</b>        | <b>Internal</b> |                        |
| 1                                      | Medicine<br>(General Medicine & Skin)                                                                       | 80                  | 20              | ----                   | ----            | 100                    |
| 2                                      | Neurology & Pediatrics                                                                                      | 80                  | 20              | ----                   | ----            | 100                    |
| 3                                      | Surgery<br>(General Surgery, Plastic Surgery, Neurosurgery, Cardiothoracic Surgery Obstetrics & Gynecology) | 80                  | 20              | ----                   | ----            | 100                    |
| 4                                      | Physical & Functional Diagnosis                                                                             | 80                  | 20              | 80                     | 20              | 200                    |
| 5                                      | Orthopedic<br>(Traumatic & Non-traumatic)                                                                   | 80                  | 20              | ----                   | ----            | 100                    |
| 6                                      | Preventive Healthcare and Community Medicine                                                                | 40                  | 10              | ----                   | ----            | 50                     |
| <b>Total</b>                           |                                                                                                             | <b>440</b>          | <b>110</b>      | <b>80</b>              | <b>20</b>       | <b>650</b>             |

| <b>Fourth Year B. Physiotherapy</b>    |                                                                  |                     |                 |                        |                 |                        |
|----------------------------------------|------------------------------------------------------------------|---------------------|-----------------|------------------------|-----------------|------------------------|
| <b>S<br/>r<br/>·<br/>N<br/>o<br/>·</b> | <b>Subject</b>                                                   | <b>Theory Marks</b> |                 | <b>Practical Marks</b> |                 | <b>Total<br/>Marks</b> |
|                                        |                                                                  | <b>External</b>     | <b>Internal</b> | <b>External</b>        | <b>Internal</b> |                        |
| 1                                      | Physiotherapy in Musculoskeletal Conditions                      | 80                  | 20              | 80                     | 20              | 200                    |
| 2                                      | Physiotherapy in Neurological Conditions                         | 80                  | 20              | 80                     | 20              | 200                    |
| 3                                      | Physiotherapy in Cardio Pulmonary and Medical Surgical Condition | 80                  | 20              | 80                     | 20              | 200                    |
| 4                                      | Physiotherapy in Community Health and Bio- engineering           | 80                  | 20              | 80                     | 20              | 200                    |
| 5                                      | Biostatistics and Research Methodology                           | 40                  | 10              | ----                   | ----            | 50                     |

|       |     |    |     |    |     |
|-------|-----|----|-----|----|-----|
| Total | 360 | 90 | 320 | 80 | 850 |
|-------|-----|----|-----|----|-----|

### 23. LECTURE OF QUESTION PAPERS

Paper-style for 80 marks subjects for University (External) examination

| Duration: 3 Hours        |              |                  |
|--------------------------|--------------|------------------|
| Que. 1 Long Answer       | 02 x 10 = 20 | (Any 2 out of 3) |
| Que. 2 Short Answer      | 02 x 05 = 10 | (Any 2 out of 3) |
| Que. 3 Very Short Answer | 05 x 02 = 10 | (Any 5 out of 6) |
| Que. 4 Long Answer       | 02 x 10 = 20 | (Any 2 out of 3) |
| Que. 5 Short Answer      | 02 x 05 = 10 | (Any 2 out of 3) |
| Que. 6 Very Short Answer | 05 x 02 = 10 | (Any 5 out of 6) |

Paper-style for 40 marks subjects for University (External) examination

| Duration: 2 Hours        |              |                  |
|--------------------------|--------------|------------------|
| Que. 1 Long Answer       | 02 x 10 = 20 | (Any 2 out of 3) |
| Que. 2 Short Answer      | 02 x 05 = 10 | (Any 2 out of 3) |
| Que. 3 Very Short Answer | 05 x 02 = 10 | (Any 5 out of 6) |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>ANATOMY</b>                   |
| <b>COURSE CODE</b>    | <b>17PT0101</b>                  |
| <b>COURSE CREDITS</b> | <b>11</b>                        |

### Objective:

- 1 It is designed to provide students with the working knowledge of the structure of the human body which is essential foundation for their clinical studies
- 2 To understand the regional anatomy in detail.
- 3 To understand anatomical changes right from embryonic period till old age.
- 4 To understand histological features of various organs.
- 5 To understand its application in medical science.
- 6 To apply the concept of functional Anatomy in physiotherapy practice.
- 7 To acquire the knowledge of structure of human body in general.
- 8 To understand the regional anatomy in detail
- 9 To understand anatomical changes right from embryonic period till old age
- 10 To understand histological features of various organs
- 11 To understand its application in medical science
- 12 To apply the concept of functional Anatomy in physiotherapy practice

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Acquire the knowledge of structure of human body in general.
- 2 Understand the regional anatomy in detail.
- 3 Anatomical changes right from embryonic period till old age
- 4 Understand histological features of various organs.
- 5 Understand its application in medical science.
- 6 Apply the concept of functional Anatomy in physiotherapy practice.

**Pre-requisite of course:** A basic understanding of human biology – bones, muscles and organs is often a fundamental prerequisite.

### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 160                 | 0                     | 120                    | 50         | 30        | 20         | 50          | 50               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Contact<br>Hours |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>GENERAL ANATOMY</b><br>Introduction and Anatomical terms, skin, superficial fascia and deep fascia, 1.3 CVS, Portal system, collateral circulation & arteries, Lymphatic system, Osteology, Myology, Syndesmology, Nervous system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20               |
| 2                  | <b>HISTOLOGY</b><br>Cell, Epithelia, Connective tissue general, Cartilage, Bones, Muscles, Nerves, Blood and phagocytic system, Lymph and lymphatic system, Blood vessels, Skin and its appendages, Central nervous system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10               |
| 3                  | <b>GENERAL EMBRYOLOGY</b><br>Spermatogenesis, Structure of Spermatozoon, Oogenesis, Ovarian follicle, Fertilization, Formation of germ layers, Placental development, Brachial arches, Development of skeletal system, Development of locomotor system, Development of nervous system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10               |
| 4                  | <b>MYOLOGY, OSTEOLOGY &amp; ARTHROLOGY</b><br>Fascia & muscles of scalp and face, Muscles of mastication, Temporomandibular joint, Muscles of orbit & related nerves, Superficial and lateral cervical muscle, platysma, trapezius, SCM, Anterior triangle of neck-suprahyoid & infrahyoid, Anterior and lateral vertebral muscles, Cervical plexus, Cranial nerve (1st to 6th) (7th & 8th), Cranial nerve (9th, 10th, 11th, 12th), Sub occipital triangle & sub occipital muscles, Joints of vertebral column to cranium, Muscles of thorax and movement of respiration, Joints of thorax including sternochondral & chondrocostal joints, Muscles of abdomen, Muscles of pelvis, Muscles of perineum, Vertebral joint, Joints of pelvis (lumbosacral, sacrococcygeal, pubic symphysis), Deep muscles of back, Muscles connecting upper limb to vertebral column with regional structures, Scapular muscles including regional structures, Muscles of arm, Axilla and brachial plexus, Joints of shoulder girdle, Shoulder joint, Anterior antebrachial muscles (front of forearm) with regional structure, Posterior antebrachial muscles (back of forearm) with regional structures, Elbow joint & cubital fossa, Radioulnar joint (superior, middle and inferior), The retinacula, fascia and synovial sheath of wrist and hand, Muscles of hand, Radiocarpal / wrist joint, Other joints of hand, Muscles connecting lower limb to vertebral column with regional structures, Muscles of iliac region (psoas muscle) and lumbar plexus, Anterior femoral muscles (front of thigh) including regional structures, Medial femoral muscles (adductor compartment) including regional structures, Muscles of gluteal region including regional structures, Posterior femoral muscles (back of thigh) including regional structures, Hip joint, Anterior crural muscles including regional structures, Lateral crural muscles including regional structures, Posterior crural muscles including regional structures, Knee joint, Popliteal fossa, Muscles of foot, Tibiofibular joint (superior, middle and inferior), Talocrural joint (ankle joint), Joints of foot & Arches | 20               |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 5                          | <b>NERVOUS SYSTEM</b><br>Introduction to nervous system & meanings, Spinal cord & peripheral nerves and vertebral canal, Brain stem-1, Brain stem-2, Cerebellum, Diencephalon with basal ganglia, Limbic system with olfactory region, Cerebrum & functional areas, Spinal tracts & overview of CNS – I, Spinal tracts & overview of CNS – II | 12                       |
| 6                          | <b>RESPIRATORY SYSTEM</b><br>Thoracic cage & Air passages, Respiratory organs - lungs, pleura, bronchial tree, broncho-pulmonary segments, Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm, Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action             | 8                        |
| 7                          | <b>CARDIOVASCULAR SYSTEM</b><br>Blood, lymph and tissue fluid- characteristic, composition, function, The heart – position, shape and parts; main arteries, veins, capillaries, Lymph circulation                                                                                                                                             | 20                       |
| 8                          | <b>DIGESTIVE SYSTEM</b><br>Anatomy of digestive organs– Oesophagus, Stomach, Intestine, Rectum etc, Digestive glands, Liver, Pancreas, Gall bladder                                                                                                                                                                                           | 20                       |
| 9                          | <b>URINARY SYSTEM</b><br>Anatomy of urinary organs, kidneys, ureters, urinary bladder, urethra in males and females etc, Types of bladder especially in paraplegics                                                                                                                                                                           | 10                       |
| 10                         | <b>ENDOCRINE SYSTEM</b><br>Glands -classification, sites and secretion, Hormones                                                                                                                                                                                                                                                              | 8                        |
| 11                         | <b>REPRODUCTIVE SYSTEM</b><br>Brief outline of genital organs, Outline of male and female reproductive system                                                                                                                                                                                                                                 | 12                       |
| 12                         | <b>SPECIAL SENSORY ORGANS &amp; SENSATIONS</b><br>Emphasis on skin, ear and eyes .Less detail on smell and taste                                                                                                                                                                                                                              | 10                       |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                               | <b>160</b>               |

#### **Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                               | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>Dissection of upper Limb</b><br>arm , forearm, hand                                                                                                                                      | 15                       |
| 2                          | <b>Dissection of Lower Limb</b><br>thigh region, leg, foot                                                                                                                                  | 15                       |
| 3                          | <b>Identification of anterolateral abdominal wall, posterior abdominal wall &amp; thoracic cage.</b><br>upper thorax , thoracic organs, abdominal wall , gluteal region , upper /lower back | 20                       |

### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                           | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 4                  | <b>Anatomical position &amp; description of all bones</b><br>anatomical positions: , description of upper limb bones, description of lower limb bones, description if axial skeletal bones, description of skull | 20               |
| 5                  | <b>Surface marking in cadaver and living body</b><br>surface marking in cadaver, surface marking in living body                                                                                                  | 20               |
| 6                  | <b>Radiological examination of upper limb, lower limb &amp; other special X-rays.</b><br>X-ray reading of upper limb, X-ray description of lower limb, X-ray description of chest and others                     | 10               |
| 7                  | <b>In BRAIN: Identification of all parts and various sections at different levels.</b><br>identification of different parts of brain: forebrain, midbrain, hindbrain                                             | 10               |
| 8                  | <b>In HISTOLOGY PRACTICAL: Identification of basic tissues of body.</b><br>identification of different connective tissues                                                                                        | 10               |
| <b>Total Hours</b> |                                                                                                                                                                                                                  | <b>120</b>       |

### Textbook :

- 1 Human Anatomy and General anatomy handbook, B.D. Chaurasia, Vol.1, 2, 3 , CBS publications, 2023

### References:

- 1 Textbook of Anatomy, Textbook of Anatomy, Inderbir Singh, Jaypee Publications, 2022
- 2 Handbook of Osteology, Handbook of Osteology, Poddar, Scientific Book Company, 2018
- 3 Principles of anatomy and physiology, Principles of anatomy and physiology, Tortora, Harper& Row, 2018
- 4 Cunningham's Manual of Practical Anatomy, Cunningham's Manual of Practical Anatomy, Cunningham, Oxford Publications, 2023
- 5 Clinical Anatomy for Medical Students, Clinical Anatomy for Medical Students, Richard Snell, Lippincott, Williams & Wilkins., 2011
- 6 Anatomy & Physiology, Anatomy & Physiology, Ross & Wilson's, Churchill Livingstone, 2014
- 7 Gray's Anatomy, Gray's Anatomy, -, Elsevier Publications, 2023
- 8 Grant's atlas of anatomy, Grant's atlas of anatomy, Anne MR, -, 2023

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

|                                                           |
|-----------------------------------------------------------|
| Distribution of Theory for course delivery and evaluation |
|-----------------------------------------------------------|

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory + Practical

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>PHYSIOLOGY</b>                |
| <b>COURSE CODE</b>    | <b>17PT0102</b>                  |
| <b>COURSE CREDITS</b> | <b>9</b>                         |

### Objective:

- 1 To give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues; respiration; blood vessels; circulation; cardiac cycle; systemic circulation; gastrointestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system.
- 2 To understand the contribution of various organs & systems in maintaining homeostasis and body functions.
- 3 To understand and study in detail the physiology of the various systems of the body including functional physiology of the cell, blood, neuromuscular, cardiovascular, and pulmonary systems, nervous system, special senses, excretory system, digestive system, reproductive system, and endocrine system at a microscopic and macroscopic level.
- 4 To understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting, and ascent to high altitude, and how they can sometimes fail.
- 5 To understand and study in detail the physiology of the various systems of the body including functional physiology of the cell, blood, neuromuscular, cardiovascular, and pulmonary systems, nervous system, special senses, excretory system, digestive system, reproductive system, and endocrine system at a microscopic and macroscopic level.
- 6 To understand the role of hormones, enzymes, and other different types of cells in the human body.
- 7 To understand the contribution of various organs & systems in maintaining homeostasis and body functions.
- 8 To involve a detailed study of the physiology of the various systems of the body including functional physiology of the cell, blood, neuro-muscular, cardiovascular, and pulmonary systems, nervous system, special senses, excretory system, digestive system, reproductive system, and endocrine system at a microscopic and macroscopic level.
- 9 To understand the role of hormones, enzymes, and other different types of cells in the human body
- 10 To understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting, and ascent to high altitude, and how they can sometimes fail.

**Objective:**

- 11 To relate the concept of human physiology in physiotherapy application including exercise physiology.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the contribution of various organs & systems in maintaining homeostasis and body functions.
- 2 To involve a detailed study of the physiology of the various systems of the body including functional physiology of the cell, blood, neuro-muscular, cardiovascular, and pulmonary systems, nervous system, special senses, excretory system, digestive system, reproductive system, and endocrine system at a microscopic and macroscopic level.
- 3 Understand the role of hormones, enzymes, and other different types of cells in the human body.
- 4 Understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting, and ascent to high altitude, and how they can sometimes fail.
- 5 Relate the concept of human physiology in physiotherapy application including exercise physiology.

**Pre-requisite of course:** A basic understanding of human biology and functioning of systems is often a fundamental prerequisite.

**Teaching and Examination Scheme**

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 120          | 0              | 120             | 50  | 30 | 20  | 50   | 50        |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Contact Hours |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>GENERAL PHYSIOLOGY</b><br>cell: morphology , organelles: their structures and functions, transport mechanism across cell membrane, body fluids: distribution and composition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10            |
| 2               | <b>BLOOD</b><br>Introduction: Composition and functions of blood., Plasma: Composition, formation, functions. Plasma proteins., RBC: count and its variations. Erythropoiesis-stages, factors regulating. Reticulo-endothelial system (in brief). Haemoglobin-structure, function and derivatives Anemia (in detail), types of Jaundice. Blood indices, PCV, ESR., WBC: Classification. Morphology, functions, count, its variation of each. Immunity., Platelets: Morphology, functions, count, its variations. Hemostatic mechanisms: Blood coagulation-factors, mechanisms. Their disorders Anticoagulants, Blood Groups: Landsteiner's law. Types, significance, determination, Erythroblastosis foetalis., Blood Transfusion: Cross matching. Indications and complications., Lymph: Composition, formation, circulation and functions. | 10            |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 3                  | <b>CARDIOVASCULAR SYSTEM</b><br>Introduction: Physiological anatomy and nerve supply of the heart and blood vessels. Organization of CVS. Cardiac muscles: Structure, Ionic basis of action potential and pacemaker potential. Properties., Conducting system: Components. Impulse conduction Cardiac Cycle: Definition. Phases of cardiac cycle. Pressure and volume curves. Heart sounds—causes, character. ECG: Definition, Different types of leads. Waves and their causes. P-R interval. Heart block., Cardiac Output: Definition. Normal value. Determinants. Stroke volume and its regulation. Heart rate and its regulation. Their variations. Cardiovascular reflex., Arterial Blood Pressure: Definition. Normal values and its variations. Determinants., Peripheral resistance. Regulation of BP., Hemorrhage and shock., Regional Circulation: Coronary, Cerebral and Cutaneous circulation., Cardio-vascular changes during exercise.                                                                                                                                                                                                                                                                                                                                                        | 15               |
| 4                  | <b>RESPIRATORY SYSTEM</b><br>Introduction: Physiological anatomy—Pleura, tracheo-bronchial tree, alveolus, Respiratory membrane and their nerve supply. Dead Space: Types and their definition. Functions of respiratory system. Respiratory muscles., Mechanics of breathing: Intra-pleural and Intra-pulmonary pressure changes during respiration. Chest expansion. Lung compliance: Normal value, pressure-volume curve, factors affecting compliance and its variations. Surfactant—Composition, production, functions. RDS., Spirometry: Lung volumes and capacities. Timed vital capacity and its clinical significance, PEFR, Maximum ventilation volume, Respiratory minute volume., Pulmonary Circulation. Ventilation-perfusion ratio and its importance., Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport— Different forms, oxygen –haemoglobin dissociation curve. Factors affecting it., Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation., Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy. Acclimatization Hype-rcapnoea, Asphyxia, Cyanosis—types and features., Disorders of Respiration: Dyspnoea, Orthopnoea. Hy, Respiratory changes during exercise. | 15               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 5                  | <b>DIGESTIVE SYSTEM</b><br>Introduction: Physiological anatomy and nerve supply of alimentary canal. Enteric nervous system., Salivary Secretion: Saliva Composition. Functions. Regulation. Mastication (in brief). Swallowing: Definition. Different stages. Function., Stomach: Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility. Gastric emptying. Vomiting. Pancreatic Secretion: Composition, production, function. Regulation., Stomach: Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility. Gastric emptying. Vomiting. Pancreatic Secretion: Composition, production, function. Regulation., Liver: Functions of liver. Bile secretion: Composition, functions and regulation. Gall bladder: Functions., Intestine: Succus entericus: Composition, function and regulation of secretion. Intestinal motility and its function and regulation., Mechanism of Defecation.                                                                                                      | 12               |
| 6                  | <b>NUTRITION</b><br>Digestion, absorption and metabolism of carbohydrates., Digestion, absorption and metabolism of fats., Digestion, absorption and metabolism of proteins., Vitamins, sources, functions and resources., Balanced diet in different age groups and occupation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8                |
| 7                  | <b>ENDOCRINE SYSTEM</b><br>Introduction: Hormone. Classification, mechanism of action, function of hormones., Pituitary Gland: Anterior Pituitary and Posterior Pituitary hormones: Secretory cells action on target cells, regulation of each hormone. Disorders: gigantism, acromegaly, dwarfism, diabetes insipidus. Physiology of growth and development hormonal and other influences. Pituitary-hypothalamus relationship., Thyroid Gland: Thyroid hormone and calcitonin: secretory cells, synthesis, storage action and regulation of secretion. Disorders- myxedema, cretinism, grave's disease., Parathyroid hormones: secretory cell, regulation of secretion. Disorders- hypothyroidism and hyperthyroidism., Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenaline., Adrenal Gland: Adrenal Cortex: Secretory cells, synthesis, action, regulation of secretion of aldosterone, cortisol and androgens., Endocrine Pancreas: Secretory cells, action, regulation of secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorders- diabetes mellitus., Calcitrol, thymus and pineal gland (in brief) | 15               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 8                  | <b>REPRODUCTIVE SYSTEM</b><br>Introduction: Physiological anatomy reproductive organs. Sex determination. Sex differentiation. Disorder, Male Reproductive System: Functions of testes. Pubertal changes in males. Spermatogenesis. Testosterone: action. Regulation of secretion. Semen., Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis. Hormones: estrogen and progesterone-action, Menstrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause., Pregnancy: Pregnancy tests. Physiological changes during pregnancy. Functions of placenta. Lactation. Contraception method.                                                                                       | 5                |
| 9                  | <b>EXCRETORY SYSTEM</b><br>introduction: Physiological anatomy. Nephrons–cortical and juxtamedullary. Juxtaglomerular apparatus. Renal blood flow and its regulation. Functions of kidneys., Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR–normal value and factors affecting. Renal clearance. Creatinine clearance., Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics., Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics., Acid-Base balance (very brief), Artificial Kidney: Principle of hemodialysis., Skin and temperature regulation | 5                |
| 10                 | <b>NEUROMUSCULAR PHYSIOLOGY</b><br>Structure of neuron, membrane potential and generation of action potential, nerve impulse conduction, saltatory conduction., Neuromuscular junction and drugs affecting on it, myasthenia gravis, lambert eaton syndrome., Degeneration and regeneration., Types of muscles and their gross structures., Strength duration curve, stimulus and chronaxie rheobase., Structure of sarcomere-basis of muscle contraction, starlings law, changes during muscle contraction., Electrical- biphasic and mono-phasic action potential., Isometric and isotonic contractions. Chemical, thermal and physical changes., Motor unit and its properties, Nature of voluntary contraction. Fatigue.                               | 5                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 11                 | <b>NERVOUS SYSTEM</b><br>Introduction: Organization of CNS–central and peripheral nervous system. Functions of nervous system., Synapse: Functional anatomy, classification, Synaptic transmission., Sensory Mechanism: Sensory receptors: function, classification and properties. Sensory pathway: The ascending tracts–Posterior column tracts, lateral spino-thalamic tract and the anterior spino- thalamic tract–their origin, course, termination and functions. The trigeminal pathway.Sensory cortex.Somatic sensations: crude touch, fine touch, tactile localization, tactile discrimination, stereognosis, vibration sense, kinesthetic sensations.Pain sensation: mechanism of pain. Cutaneous pain–slow and fast pain, hyperalgesia, deep pain, Visceral pain, referred pain. Gate control theory of pain. Tabes dorsalis, sensoryataxia, Motor Mechanism: Motor Cortex. Motor pathway: The descending tracts– pyramidal tracts, extrapyramidal tracts–origin, course, termination and functions. Upper motor neuron and lower motor neuron, Reflex Action: Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes. Stretch reflex–structure of muscle spindle, pathway, higher control and functions. Inverse stretch reflex. Muscle tone–definition, and properties hypotonia, atonia and hypertonia. UMN and LMN., Spinal cord Lesions: Complete transaction and Hemisection of the spinalcord., Cerebellum: Functions. Cerebellar ataxia., Posture and Equilibrium: Postural reflexes–spinal, medullary, midbrain and cerebral reflexes, Thalamus and Hypothalamus: Nuclei, functions. Thalamic syndrome., Reticular Formation and Limbic System: Components and Functions. Basal Ganglia: Structures included and functions. Parkinson’s disease. | 15               |
| 12                 | <b>SPECIAL SENSES</b><br>Vision: Introduction: Functional anatomy of eyeball. Functions of cornea, iris, Pupil, aqueous humor–glaucoma, lens–cataract, vitreous humor, rods and cones. Photopic vision. Scotopic vision., Visual Pathway and the effects of lesions., Refractive Errors: myopia, hypermetropia, presbyopia and astigmatism, Visual Reflexes: Accommodation, Pupillary and Light. Visual acuity and Visual field, Light adaptation. Dark adaptation. Color vision–color blindness. Nyctalopia, Audition: Physiological anatomy of the ear. Functions of external ear, middle ear and inner ear. Structure of Cochlea and organ of corti. Auditory pathway. Types of Deafness. Tests for hearing. Audiometry., Taste: Taste buds. Primary tastes. Gustatory pathway., Smell: Olfactory membrane. Olfactory pathway, Vestibular Apparatus: Crista ampullaris and macula. Functions. Disorders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5                |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>120</b>       |

### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                             | Contact<br>Hours |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>NERVE MUSCLE PHYSIOLOGY</b><br>nerve muscle physiology, gastro-cnemius muscle sciatic nerve prep, action potential etc, effect of temperature on s.m.c, Effect of Load on Skeletal Muscle Contraction           | 25               |
| 2                  | <b>CARDIO-VASCULAR SYSTEM</b><br>ECG, BP, radial pulse, Spirometry/Respiratory Efficiency Test, Examination of CVS and Respiratory system                                                                          | 25               |
| 3                  | <b>INSTRUMENTS</b><br>recording body temperature                                                                                                                                                                   | 20               |
| 4                  | <b>HAEMATOLOGY</b><br>Total red Cell Count, Total red Cell Count, Cells in Peripheral blood film, Differential WBC count, arneth count, absolute count, blood grouping, bleeding time/clotting time, blood PCV,ESR | 30               |
| 5                  | <b>CENTRAL NERVOUS SYSTEM</b><br>Sensory examination, motor examination, cranial nerve examination                                                                                                                 | 20               |
| <b>Total Hours</b> |                                                                                                                                                                                                                    | <b>120</b>       |

### Textbook :

- 1 Human Physiology, Sembulingam, Jaypee Brothers, 2023

### References:

- 1 Concise Medical Physiology, Concise Medical Physiology, Chaudhari, New Central Book Agency, 2016
- 2 Textbook of Medical Physiology, Textbook of Medical Physiology, Guyton and hall, Elsevier Publication, 2017
- 3 Human Physiology, Human Physiology, Chatterjee. Vol: 1 & 2, Medical & Allied Agency, 2020
- 4 Practical Physiology, Practical Physiology, Vijaya Joshi, Vora Medical Publication. , 2018
- 5 A Textbook of Practical Physiology, A Textbook of Practical Physiology, Ghai C L, Jaypee Brothers, 2018
- 6 Medical Physiology for undergraduate student, Medical Physiology for undergraduate student, Indu Khurana, Elsevier Publication, 2022

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                             |

**Instructional Method:**

- 1 Theory+Practicals

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>BIOCHEMISTRY</b>              |
| <b>COURSE CODE</b>    | <b>17PT0103</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

### Objective:

- 1 Able to know the different kind of metabolic pathways in our body  
basic nutrition values what we have to take daily intake  
basic knowledge about vitamins, hormones, minerals, proteins, lipids, carbohydrates and enzymes.  
they able to know cell membrane system, dna and rna and their functions.
- 2 To understand the basics and clinical aspects of enzymes and regulation of enzymatic activity  
and diagnostic use of enzymes.
- 3 To understand to apply clinical biochemistry tests like blood, liver, and renal functions and their importance in body functions.
- 4 To acquire knowledge in brief about the clinical biochemistry, with special reference to the liver and renal function tests, blood study for lipid profile, metabolism of fat, carbohydrates, proteins, bone minerals, electrolyte balance, water balance acid-base, and acid-base balance.
- 5 To Describe the structure and function of the cell in brief.
- 6 To Describe the normal functions of different components of food.
- 7 To Describe basal metabolic rate and factors affecting basal metabolic rate with special reference to obesity.
- 8 To Describe nutritional aspects of carbohydrates, lipids, proteins, vitamins, and minerals and their metabolism with special reference to obesity.
- 9 To Understand the basics and clinical aspects of enzymes and regulation of enzymatic activity and diagnostic use of enzymes.
- 10 To Describe in detail the biochemical aspects of muscle contraction.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Describe the structure and function of the cell in brief.
- 2 Describe the normal functions of different components of food.
- 3 Describe basal metabolic rate and factors affecting basal metabolic rate with special reference to obesity.
- 4 Describe nutritional aspects of carbohydrates, lipids, proteins, vitamins, and minerals and their metabolism with special reference to obesity.
- 5 Understand the basics and clinical aspects of enzymes and regulation of enzymatic activity and diagnostic use of enzymes.
- 6 Describe in detail the biochemical aspects of muscle contraction.

**Pre-requisite of course:** A basic understanding of human biology and inorganic chemistry is often a fundamental prerequisite.

#### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 0               | 25  | 15 | 10  | 0    | 0         |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contact Hours |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>BIOCHEMICAL CHARACTERISTICS IF LIVING MATER</b><br>Biochemistry, morphology of cell, Membrane structure and function, Functions of intracellular organs                                                                                                                                                                                                                                                                                                                | 10            |
| 2               | <b>NUCLEIC ACID</b><br>DNA definition, structure, RNA definition, structure , catabolism of purines –gout                                                                                                                                                                                                                                                                                                                                                                 | 5             |
| 3               | <b>PROTEINS AND AMINO ACIDS</b><br>Chemistry, definition, classification of amino – acids, protein, Metabolism, digestion and absorption, decarboxylation, deamination, transmethylation, transamination and their importance and detoxification of ammonia including urea cycle. , Neurotransmitters & Plasma proteins including immunoglobulins, Hemoglobin, Myoglobin, their functions, Haemoglobinopathies, thalassemias, Structural proteins: Collagen, Elastin      | 5             |
| 4               | <b>ENZYMES</b><br>Definitions, classification, factors, Coenzymes, Inhibition and type of inhibitors, Isoenzymes, Clinical and therapeutic uses of enzymes                                                                                                                                                                                                                                                                                                                | 5             |
| 5               | <b>CARBOHYDRATES</b><br>Chemistry, definition, classification with examples, Function of mucopolysaccharide, Reducing properties of sugars of clinical and diagnostic importance (eg: Benedict's test, Barfoed's test, etc), Metabolism, digestion and absorption of carbohydrates, glycosis – aerobic and anaerobic, energetics and regulation, Krebs's cycle, its energetics regulation Gluconeogenesis, Hormonal regulation of blood sugar level and diabetes mellitus | 5             |
| 6               | <b>LIPIDS</b><br>Chemistry, definition, classification and function, Metabolism, digestion and absorption of lipids, beta oxidation of fatty acids and its energetics regulation of fat metabolism in adipose tissue, ketone bodies formation and its utilization, cholesterol and importance of lipoproteins.                                                                                                                                                            | 5             |
| 7               | <b>VITAMINS</b><br>Definition, classification, functions, Deficiency symptoms, RDA                                                                                                                                                                                                                                                                                                                                                                                        | 5             |
| 8               | <b>HORMONES</b><br>HORMONES                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5             |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                    | <b>Contact<br/>Hours</b> |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 9                          | <b>METABOLISM</b><br>Introduction of metabolism, Metabolism of carbohydrates, Lipid & amino acids                                                                                                                                                                                | 5                        |
| 10                         | <b>NUTRITION</b><br>Importance of nutrition, nutritional aspects of Carbohydrates, Proteins, Fats and Fibers, Classification of fibers, calorimetry, energy values, respiratory quotient, BMR, PEM, Balanced diet                                                                | 5                        |
| 11                         | <b>BC OF CONNECTIVE TISSUE, NERVE, MUSCLE TISSUE</b><br>Biochemistry of connective tissues, Biochemistry of nerve tissue and muscle                                                                                                                                              | 5                        |
| 12                         | <b>WATER, ELECTROLYTE, ACID BASE BALANCE, MINERALS</b><br>Phosphate, calcium and iron. Magnesium fluoride, Zinc, Copper, Selenium, Molybdenum RDA, iodine sources, absorption, transport, excretion, function and disorders., Acid – base balance, water and electrolyte balance | 5                        |
| 13                         | <b>CHEMISTRY OF BIOLOGICAL MATERIALS</b><br>Chemistry of biology materials, Biochemistry of connective tissue – Collagen, Glycoprotein, Proteo-glycans                                                                                                                           | 5                        |
| 14                         | <b>PHYSIOCHEMICAL PHENOMENON</b><br>Physicochemical Phenomenon.                                                                                                                                                                                                                  | 5                        |
| 15                         | <b>COMMON PROCEDURES</b><br>Liver function test, Renal function test                                                                                                                                                                                                             | 5                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                  | <b>80</b>                |

#### **Textbook :**

- 1 Essentials of Biochemistry, U. Satyanarayan, Elsevier Health Sciences Biochemistry, 2018
- 2 Medical Biochemistry for Physiotherapy students , Harpreet Kaur, Jagmohan Singh, Jaypee Publications. , 2008

#### **References:**

- 1 Textbook of Medical Bio-Chemistry, Textbook of Medical Bio-Chemistry, Dr M. N. Chatterjea, Jaypee Publication. , 2012
- 2 Textbook of Biochemistry for medical students, Textbook of Biochemistry for medical students, DM Vasudevan:, Jaypee Publication., 2013
- 3 Medical Biochemistry, Medical Biochemistry, N. Mallikarjuna Rao, New Age International Publication. , 2010

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

|                                                           |
|-----------------------------------------------------------|
| Distribution of Theory for course delivery and evaluation |
|-----------------------------------------------------------|

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>PSYCHOLOGY</b>                |
| <b>COURSE CODE</b>    | <b>17PT0104</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

### Objective:

- 1 To provide the understanding about various behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups.
- 2 To Define the term psychology and its importance in the health delivery system and gain knowledge of psychological maturation during human development and growth and alteration during the aging process.
- 3 To Understand behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional, and language development, communication, and interaction skills appropriate to various age groups.
- 4 To Understand the importance of the psychological status of the person in the health and diseases, environmental and emotional influence on the mind and personality.
- 5 To Acquire the knowledge as to how to deal with the patient.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Define the term psychology and its importance in the health delivery system and gain knowledge of psychological maturation during human development and growth and alteration during the aging process.
- 2 Understand behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional, and language development, communication, and interaction skills appropriate to various age groups.
- 3 Understand the importance of the psychological status of the person in the health and diseases, environmental and emotional influence on the mind and personality.
- 4 Acquire the knowledge as to how to deal with the patient.

**Pre-requisite of course:** A basic understanding of human behaviour, thoughts, emotions, and mental processes are often a fundamental prerequisite.

### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 80                  | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                        | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>UNIT 1-THE ART AND SCIENCE OF PSYCHOLOGY</b><br>Beginning the study of psychology& Subfields of psychology, Methods of psychology, Evolution, genetics, behavior, nature and nurture, development of behavior-early,cognitive,social                                                                       | 5                |
| 2                  | <b>EVOLUTION ,GENETICS AND BEHAVIOR</b><br>Genetics & Behavior, Nature& Nurture                                                                                                                                                                                                                               | 5                |
| 3                  | <b>THE DEVELOPMENT OF BEHAVIOR</b><br>Early Development, Cognitive Development, Social Development                                                                                                                                                                                                            | 5                |
| 4                  | <b>UNIT 2- THE PRINCIPLES OF LEARNING</b><br>Beginning the study of Learning, Classical Conditioning, Operant Conditioning, Cognitive Learning                                                                                                                                                                | 2                |
| 5                  | <b>THINKING AND PROBLEM SOLVING</b><br>The Thinking Process, Solving Problems, How We Learn Concepts                                                                                                                                                                                                          | 3                |
| 6                  | <b>DRIVES AND MOTIVATION</b><br>The Nature of Motivation, Primary Motives, Social Motives, Need, Hierarchy theory of Maslow                                                                                                                                                                                   | 5                |
| 7                  | <b>AROUSAL,EMOTION AND AWARENESS</b><br>Physiological basis of arousal & emotion., Emotional feelings & Situations, Altered Feelings & Awareness                                                                                                                                                              | 5                |
| 8                  | <b>THE SENSES</b><br>Sensory Mechanisms, Vision., Hearing.                                                                                                                                                                                                                                                    | 5                |
| 9                  | <b>PERCEPTION</b><br>Objective Perception, Perceptual Constancies, Depth Perception , Influences on Perception                                                                                                                                                                                                | 5                |
| 10                 | <b>PSYCHOLOGICAL TESTING</b><br>Uses of Tests, Intelligence & Aptitude Tests, Differences in Intelligence, Personality tests.                                                                                                                                                                                 | 5                |
| 11                 | <b>PERSONALITY</b><br>What is Personality?, Theories of Personality, The Shaping of Personality., Coping Behavior                                                                                                                                                                                             | 5                |
| 12                 | <b>MEMORY: PHASES OF MEMORY</b><br>Short term storage, memory and perception thinking etc, Forgetting testimony and recall of events, Memory and ageing                                                                                                                                                       | 5                |
| 13                 | <b>BEHAVIOR DISORDERS AND THEIR TREATMENT</b><br>Defining the Behavior Disorders, Psychoneurotic Reactions, Psychotic Reactions, Personality Disorders, Psychotherapies., Behavior Modification                                                                                                               | 5                |
| 14                 | <b>ATTITUDE AND PREJUDICE</b><br>The Nature of Attitudes, Prejudice & Discrimination, Development of Attitudes, Social Movements                                                                                                                                                                              | 5                |
| 15                 | <b>INTERPERSONAL BEHAVIOR</b><br>Experimental analysis on social interaction, studies of the interview situation , Behaviour in formal and informal groups, Group norms and roles, Leadership in formal and informal groups, group moral, Behaviour therapy, behaviour modification techniques, token economy | 5                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                      | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 16                         | <b>STRESS</b><br>Stress and response., Disorders., Coping with stressors, Four maxims, Meditational yoga                                                                                                                                                                                                                           | 5                        |
| 17                         | <b>PAIN</b><br>Physiological and psychological pain, Types of pain, Pain measurement                                                                                                                                                                                                                                               | 2                        |
| 18                         | <b>PSYCHOTHERAPY AND COUNSELING</b><br>Goals, Psychodynamic therapy, Humanistic therapy, Behavior therapy- Relaxation training (Jacobson training), Hypnosis, Biofeedback, Behavior modification therapies (BMT), Cognitive therapy- Elli's rational/ emotive therapy, Beck's cognitive, Meichenbaum's self-instructional training | 3                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                    | <b>80</b>                |

#### **Textbook :**

- 1 Introduction to psychology, Morgan and King, Tata McGraw-Hill. , 2014
- 2 Psychology for Physiotherapists , Thangamani Ramalingam A, Jaypee Publications, 2017

#### **References:**

- 1 Psychology for Physiotherapists , Psychology for Physiotherapists , Naomi Dunkin, London : Macmillan, 1981
- 2 Beginning Psychology, Beginning Psychology, Charles Stangor, Flat World Knowledge, 2012

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                                 |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-------------------------------------------------|
| <b>Remember /<br/>Knowledge</b>                           | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order<br/>Thinking /<br/>Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                            |

#### **Instructional Method:**

- 1 Theory

#### **Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>SOCIOLOGY</b>                 |
| <b>COURSE CODE</b>    | <b>17PT0105</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

### Objective:

- 1 To introduce the student to the basic sociological concepts, principles and social processes, social institutions in relation to the individual family and community and the various social factors affecting the family in rural and urban communities.
- 2 To understand the basic sociological concepts, principles and social process, social institutions about the individual family and community, and the various social factors affecting the family in the rural and urban communities in India.
- 3 To understand the various social factors affecting health and diseases.
- 4 To define the term sociology and its importance in the health delivery system.
- 5 To understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and community and the various social factors affecting the family in the rural and urban communities in India.
- 6 To understanding the various social factors affecting health and diseases.
- 7 To understand the effects of disease on a patient's behaviour affected by social factors and how to deal with a patient.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Define the term sociology and its importance in the health delivery system.
- 2 Understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and community and the various social factors affecting the family in the rural and urban communities in India.
- 3 Understanding the various social factors affecting health and diseases.
- 4 Understand the effects of disease on a patient's behaviour affected by social factors and how to deal with a patient.

**Pre-requisite of course:** A basic knowledge about different cultures, beliefs, and social determinants of health is often a fundamental prerequisite.

### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 80                  | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                       | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>INTRODUCTION</b><br>Meaning–definition and scope of sociology. Its relation with anthropology, psychology, social psychology and ethics, Methods of sociology–case study, social serve, questionnaire interview and opinion Methods, Importance of its study with special reference to health care professionals | 10                       |
| 2                          | <b>SOCIAL FACTORS IN HEALTH AND DISEASE</b><br>The meaning and nature of socialization, The role of social factors in health and illness                                                                                                                                                                            | 10                       |
| 3                          | <b>SOCIALIZATION</b><br>Meaning and nature of socialization, Primary, secondary and anticipatory socialization, Agencies of socialization                                                                                                                                                                           | 10                       |
| 4                          | <b>SOCIAL GROUPS</b><br>Concepts of social groups, Influence of formal and informal groups on health and sickness, Role of primary groups and secondary groups in the hospital and rehabilitation settings                                                                                                          | 15                       |
| 5                          | <b>FAMILY</b><br>The family-Meaning, Definition & Function, Types & Changing family patterns., Influence of family on individual health, family and nutrition, the effect of sickness on family and psychosomatic diseases and their importance to physiotherapy.                                                   | 15                       |
| 6                          | <b>COMMUNITY</b><br>Rural community–meaning and features–health hazards of rural ties, Urban community–meaning and features–health hazards of urbanities                                                                                                                                                            | 5                        |
| 7                          | <b>CULTURE AND HEALTH</b><br>Concept of culture, Culture and behavior., Cultural meaning of sickness., Culture and Health Disorders                                                                                                                                                                                 | 5                        |
| 8                          | <b>SOCIAL CHANGE</b><br>Meaning of social changes, Factors of social changes, Human adaptation and social change, Social change and stress, Social change and deviance., Social change and health program, The role of social planning in the improvement of rehabilitation                                         | 2                        |
| 9                          | <b>SOCIAL PROBLEMS OF DISABLED</b><br>Consequences of the following social problems in relation to sickness and disability, remedies to prevent this problem, Population explosion, Poverty and unemployment, Beggary, Juvenile delinquency, Prostitution, Alcoholism, Problems of women in employment              | 3                        |
| 10                         | <b>SOCIAL SECURITY</b><br>Social security and social legislation in relation to disabled                                                                                                                                                                                                                            | 2                        |
| 11                         | <b>SOCIAL WORKER</b><br>Meaning of social work, role of a medical social worker                                                                                                                                                                                                                                     | 3                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                     | <b>80</b>                |

**Textbook :**

- 1 Sociology for Physiotherapists, Dibyendunarayan Bid, Jaypee Publication., 2006
- 2 Textbook of Sociology for Physiotherapy Students, KP Neeraja, Jaypee Publication., 2005

**References:**

- 1 An introduction to sociology, An introduction to sociology, Sachdeva and Bhushan, Kitab Mahal Publication. , 2020
- 2 Text Books of Sociology for Graduates Nurses and Physiotherapy Students, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, Indrani T K., Jaypee Brothers, 2006

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>ENVIRONMENTAL STUDIES</b>     |
| <b>COURSE CODE</b>    | <b>17PT0106</b>                  |
| <b>COURSE CREDITS</b> | <b>2</b>                         |

**Objective:**

- 1 To be aware of the environment around us and develop an understanding of sustainable development Acquire a basic scientific understanding of environmental issues and their possible solutions
- 2 To Be aware of the environment around us and develop an understanding of sustainable development Acquire a basic scientific understanding of environmental issues and their possible solutions.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Be aware of the environment around us and develop an understanding of sustainable development Acquire a basic scientific understanding of environmental issues and their possible solutions.

**Pre-requisite of course:**STUDENTS SHOULD HAVE BASIC IDEAS REGARDING ENVIROMENTAL EFFECTS ON HEALTH.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                            | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES</b><br>Definition, scope and importance , Need for public awareness | 5                    |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 2                  | <b>NATURAL RESOURCES</b><br>Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people., Water resources: Use and over-utilization of surface and ground water, Floods, drought, conflicts over water, dams-benefits and problems., Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies, Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water Logging, salinity, case studies, Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies, Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification, Role of an individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles. | 5                |
| 3                  | <b>ECOSYSTEM</b><br>Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers. , Energy flow in the ecosystem. , Ecological succession. , Food chains, food webs and ecological pyramids. , Introduction, types, characteristic features, structure and function of the following ecosystem: • Forest ecosystem • Grassland ecosystem • Desert ecosystem • Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5                |
| 4                  | <b>BIODIVERSITY AND ITS CONSERVATION</b><br>Introduction – Definition: genetic, species and ecosystem diversity, Bio-geographical classification of India , Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values , Biodiversity at global, National and local levels. , India as a mega-diversity nation , Hot-spots of biodiversity. , Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. , Endangered and endemic species of India , Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity                                                                                                                                                                                                                                                                                                                                                                                                                 | 5                |
| 5                  | <b>ENVIRONMENTAL POLLUTION</b><br>Definition, Cause, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards, Solid waste Management: Causes, effects and control measures of urban and Industrial wastes, Role of an individual in prevention of pollution, Pollution case studies, Disaster management: floods, earthquake, cyclone and landslides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 6                          | <b>SOCIAL ISSUES AND THE ENVIRONMENT</b><br>From Unsustainable to Sustainable development , Urban problems related to energy , Water conservation, rain water harvesting, watershed management , Resettlement and rehabilitation of people; its problems and concerns, Case Studies , Environmental ethics: Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion, nuclear , Accidents and holocaust. Case Studies, Wasteland reclamation, Consumerism and waste products, Environment Protection Act. l) Air (Prevention and Control of Pollution) Act. m) Water (Prevention and control of Pollution) Act n) Wildlife Protection Act o) Forest Conservation Act p) Issues involved in enforcement of environmental legislation. q) Public awareness | 5                        |
| 7                          | <b>HUMAN POPULATION AND THE ENVIRONMENT</b><br>Population growth, variation among nations. , Population explosion – Family Welfare Programme, Environment and human health, Human Rights, Value Education, HIV/AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health, Case Studies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5                        |
| 8                          | <b>FIELD WORK</b><br>Visit to a local area to document environmental assetsriver/ forest/grassland/hill/mountain, Visit to a local polluted site- Urban/Rural/Industrial/Agricultural, Study of common plants, insects, birds, Study of simple ecosystems-pond, river, hill slopes, etc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>40</b>                |

#### **Textbook :**

- 1 Environmental Biology, Agarwal, K.C., Nidhi Publications Ltd., 2001
- 2 Marine Pollution, Clark R.S., Clanderson Press Oxford, 2001

#### **References:**

- 1 Environmental Science, Environmental Science, Miller T G. Jr, Wadsworth Publishing Co, 2010
- 2 Fundamentals of Ecology, Fundamentals of Ecology, Odum, EP., WB Saunders Co., 1971
- 3 Essentials of ecology, Essentials of ecology, Townsend C, Harper J and Michael Begon, Blackwell Science , 2008

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

|                                                           |
|-----------------------------------------------------------|
| Distribution of Theory for course delivery and evaluation |
|-----------------------------------------------------------|

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 THEORY

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>BIOMEDICAL PHYSICS</b>        |
| <b>COURSE CODE</b>    | <b>17PT0107</b>                  |
| <b>COURSE CREDITS</b> | <b>5</b>                         |

### Objective:

- 1 To understand the concept and basic principles to know electrotherapy equipment is given under this topic. The student will be taught about physics related to electrotherapy and application on human body tissues.
- 2 To understand the physics principles & Laws of Electricity, Electromagnetic Spectrum & ultrasound.
- 3 To describe effects of environmental & man-made electromagnetic fields at the cellular level & risk factors on prolonged exposure.
- 4 To describe the main electrical supply, electric shock –precautions.
- 5 To enumerate types & production of various therapeutic electrical currents. Describe the panel diagrams of the machines.
- 6 To describe in brief, certain common electrical components such as transistors, valves, capacitors, transformers, etc. & the simple instruments used to test/calibrate these components (such as a potentiometer, oscilloscope, etc.) of the circuitry & will be able to identify such components.
- 7 To describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & the significance of various media used to reduce skin resistance.
- 8 To understand the fundamentals of physics, its relation in Physiotherapy sciences, and basic physical principles of sound, light, and heat and their application in the physiotherapy field.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Apply knowledge of fundamental laws of motion general physics and Apply knowledge of rotation motion and SHM to solve problems of dynamics. Interpret the fundamentals of energy and mechanical properties of matter
- 2 Apply the knowledge of acoustics and optics and its applications in various fields
- 3 Apply the concepts of kinematics of gases, heat and thermodynamics
- 4 Apply knowledge of physics in other branches of science to solve biomedical problems
- 5 Interpret the concepts of electric and magnetic field.  
Recognize the importance and applications of capacitance and inductance
- 6 apply the concept of electromagnetism in the treatment.

**Pre-requisite of course:** TO LEARN ASPECTS OF BIOMECHANICAL PHYSICS

### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 40              | 40  | 5  | 5   | 0    | 0         |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Contact Hours |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>GENERAL MECHANICS AND PROPERTIES OF MATTER</b><br>Force – Definition, unit, resolution of forces, Newton’s laws of motion. Types of motion, direction and quantity of motion, Speed, Velocity, Work, Energy and Power., Force of gravity, centre of gravity, line of gravity and base. Axes and planes of movement and gravity, Reaction forces, ground reaction force, Equilibrium, determination of equilibrium of a body, Inertia, Acceleration, Momentum and Torque., Friction – force of friction, static and dynamic friction, limit of friction, friction a necessity and evil., Simple machine – Lever, mechanical advantage, angle of pull, pulley, wheel and axle, fixed and movable pulley, pendulums, elasticity, spring properties of spring., Fluid mechanics – Viscosity, definition, coefficient of viscosity, streamline and turbulent flow, effect of temperature and pressure on viscosity. Principle of Archimedes, laws of floatation, hydrostatic pressure, buoyancy, surface tension, excess pressure in spherical liquefied drop. Physical property of water. |               |
| 2               | <b>HEAT AND TEMPERATURE</b><br>Heat transfer, properties of thermal radiation, Specific heat, thermal capacity, Energy conversion, I and II law of thermodynamics, physical effects of heat – expansion, evaporation, thermionic emission etc., Concept of heat and temperature, measurement of heat thermometry, thermometer. Method of measuring body temperature. Human body temperature, Biophysics of superficial heat and cold. Kirchoff’s law, Grothus’ law, Specific heat, thermal capacity, water equivalent, Newton’s law of cooling and specific heat by cooling specific heat of gases, Joule’s law of heat production. Enthalpy, entropy.                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |
| 3               | <b>WAVES AND SOUND</b><br>Sound: Origin of sound, Characteristics of sound waves (Intensity of Sound, loudness, pitch and frequency, noise, echo, Superposition of Sound Waves, Producing Sound), velocity of sound in air and water, effect of temperature, pressure, density of medium, humidity, wind on sound waves., Simple Harmonic Motion Revisited: Damping and Resonance, Wave Concepts, Traveling Waves, Waves at a Boundary: Interference, Standing Waves and Resonance, Determination of velocity of sound in air, vibration of string., The Human Ear: Physiology and Function, The Doppler Effect in Sound, Ultrasound, Ultrasonic – production and its application, Piezoelectricity., Frequencies of sound waves, Infrasonic, Normal hearing band and Ultrasonics, Reflection, Refraction and Attenuation of Sound waves, Acoustic Impedance, Interference of sound waves, Resonance, Echo, Doppler effect and Fresnel and Fraunhofer zones in Ultrasonics.                                                                                                              |               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 4                  | <b>MODERN OPTICS</b><br>Electromagnetic Spectrum: Electromagnetic Radiation: Laws Governing EMR, Laws of Reflection, Refraction, Absorption, Cosine law, Attenuation, Inverse square law. Grothus law etc., Light: Emission and absorption spectra. Electromagnetic spectrum. Laws of transmission, reflection, refraction, absorption. Internal reflection and fibre optics, Interference of light. LASER and its application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
| 5                  | <b>ELECTRICITY AND MAGNETISM</b><br>Structure of atom, Isotopes, States of matter; Compound formation- (covalent formation)., Static Electricity: Theories of Electricity, Production of Electric Charge, Characteristic of Charged body, Potential and Capacity, Potential Difference., Current Electricity: Energy sources for electricity, EMF, Resistance, Intensity, Ohm's Law, resistance in Series / Parallel, Devices for regulating Intensity (Types, Construction and working of Rheostat), Electric energy and power, Thermal Effects of Electric (Joule 's Law)., Magnetism: Nature, Type, Molecular Theory of Magnetism, Property of Magnet, Magnetic Effect of Electric Current, Electromagnets, Milli ampere meter & Voltmeter (Construction and working), Meters for measuring Ac., Capacitor / Condenser: Principles, Capacity (Measurement and factors determining), Types and Construction, Electric field, lines of force and characteristics of lines of force, Charging and discharging of the condenser, Duration of discharge, discharge through inductance, capacitive reactance and uses of condenser., Electro Magnetic Induction: Principles (Faraday's/Lenz's law), Production, Direction of Induced EMF, Strength of induced EMF, Types (Self and Mutual) and inductive reactance. Eddy Currents, Dynamo, Transformers (Functions, Types, Constrictions), Choke coil, Thermionic Valves (Diode and Triodes), Types of rectification (Half and full wave – Voltage halving and Westinghouse Bridge), Semi Conductors: Types, semiconductor diodes, Metal rectifier & Transistors, Integrated circuits (IC), Picture Circuitry boards (PCB)., Main Supply: Production of Electricity, Types, Distribution, Earthing, Types of Plugs & Switches. Fuse., Electric and electronic circuits: Oscillating circuit, Smoothing Circuit, surging circuit, CR circuit, multi vibrator circuit, faradic coils (lewis jones and smart bristow), panel diagram of electrical stimulator, Production of high frequency current by klystron, magnetron., Frequencies of Current – Low, Medium and High frequency currents and their characteristics, Biological Cell as a capacitor and resistor, frequency of current and its relation to capacitive reactance (resistance), Types of current – DC and AC, Sources of DC, Necessity for rectification of AC, Use of DC as a therapeutic current and its dangers, Electrical Skin Resistance, Electrolysis, acidic and alkaline reactions under anode and cathode, Electrolytic burns and its prevention 5, Shock: Types (Electric Shock, Earth Shock), Definition, Severity, Effects, Causes and Precautions. |                  |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|                                                           |                   |              |                |                 |                                         |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>ENGLISH</b>                   |
| <b>COURSE CODE</b>    | <b>17PT0108</b>                  |
| <b>COURSE CREDITS</b> | <b>2</b>                         |

**Objective:**

- 1 STUDENT SHOULD BE HAVING BASIC ABILITY TO READ AND UNDERSTAND ENGLISH.
- 2 To appreciate the value of the English language in professional life.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand, read and communicate in the English language grammatically correct English.
- 2 Appreciate the value of the English language in professional life.

**Pre-requisite of course:**STUDENT SHOULD BE HAVING BASIC ABILITY TO READ AND UNDERSTAND ENGLISH.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                         | <b>Contact Hours</b> |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction</b><br>Study techniques, Organization of effective note taking and logical processes of analysis and synthesis, Use of the dictionary , Enlargement of vocabulary , Effective diction | 5                    |
| 2                      | <b>Applied grammer</b><br>Correct usage , The structure of sentences, The structure of paragraphs , Enlargement of vocabulary                                                                         | 5                    |
| 3                      | <b>written composition</b><br>Precise writing and summarizing , Writing of Bibliography , Enlargement of vocabulary                                                                                   | 10                   |
| 4                      | <b>reading and comprehension</b><br>Reading and Comprehension: Review of selected materials and express oneself in one's words and enlargement of vocabulary                                          | 10                   |
| 5                      | <b>study of composition</b><br>Paragraph, essay, letter, summary, practice in writing                                                                                                                 | 5                    |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                        | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------|--------------------------|
| 6                          | <b>verbal communication</b><br>Discussions and summarization, debates, oral reports, use in teaching | 5                        |
| <b>Total Hours</b>         |                                                                                                      | <b>40</b>                |

#### **Textbook :**

- 1 Effective Communication Skills – Cornell Local Roads Program, New York LTAP Program, New York LTAP Program, 2023

#### **References:**

- 1 Effective Communication Skills – Cornell Local Roads Program, Effective Communication Skills – Cornell Local Roads Program, New York LTAP Program, New York LTAP Program, 2023
- 2 Improve Your Communication Skills , Improve Your Communication Skills , Alan Barker, Koganpage, Alan Barker, Koganpage, 2023

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                                 |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-------------------------------------------------|
| <b>Remember /<br/>Knowledge</b>                           | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order<br/>Thinking /<br/>Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                            |

#### **Instructional Method:**

- 1 Theory

#### **Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>COMPUTER APPLICATIONS</b>     |
| <b>COURSE CODE</b>    | <b>17PT0109</b>                  |
| <b>COURSE CREDITS</b> | <b>1</b>                         |

**Objective:**

- 1 To Understand the fundamentals of computers and their applications in clinical setups.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the fundamentals of computers and their applications in clinical setups.

**Pre-requisite of course:** To understand the concept of computer application

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 0                   | 0                     | 40                     | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                            | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction to data processing:</b><br>Features of computers. What are Hardware and Software, Advantages of using computers. Role and uses of computers. What is data processing?, Application areas of computers and common activities in data processing. Types of data processing, characteristics of application |                      |
| 2                      | <b>Hardware concepts</b><br>Architecture of computers – characteristics of discs, tapes, terminals, printers, network, Types of storage devices, Concept of damage. Application of networking concept of PC system care, floppy care, data care etc                                                                      |                      |
| 3                      | <b>Concept of software</b><br>Classification of software: System software, Application of software, Operating System, Computer System, computer virus, precautions against viruses, dealing with viruses, computers in medical electronics                                                                               |                      |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 4                          | <b>Basic anatomy of Computers</b><br>Principles of programming: Computer application – principles in scientific research, work processing, medicine, libraries, museum, education, information system, Data processing , Computers in Physical Therapy – Principles of EMG, Exercise testing equipment, Laser |                          |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                               |                          |

**Textbook :**

- 1 Computing Fundamentals, Faithe Wempen, Wiley Publications , 2015

**References:**

- 1 Microsoft Office 2019 all-in-one, Microsoft Office 2019 all-in-one, Peter Weverka, Wiley Publication., 2018

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                                 |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-------------------------------------------------|
| <b>Remember /<br/>Knowledge</b>                           | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order<br/>Thinking /<br/>Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                            |

**Instructional Method:**

- 1 Practical

**Supplementary Resources:**

- 1 NA

|                       |                                         |
|-----------------------|-----------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>         |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>        |
| <b>SEMESTER</b>       | <b>1</b>                                |
| <b>COURSE TITLE</b>   | <b>HEALTH CARE AND DELIEVERY SYSTEM</b> |
| <b>COURSE CODE</b>    | <b>17PT0110</b>                         |
| <b>COURSE CREDITS</b> | <b>1</b>                                |

**Objective:**

- 1 To understand basic health care delivery systems in India and abroad
- 2 To act for referral of patients depending on requirements in clinical practice.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand basic health care delivery systems in India and abroad.
- 2 Act for referral of patients depending on requirements in clinical practice.

**Pre-requisite of course:** TO HAVE BRIEF IDEA ABOUT HEALTH AND FACTORS AFFECTING HEALTH.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 20                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                       | <b>Contact Hours</b> |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction to healthcare delivery system</b><br>Healthcare delivery system in India at primary, secondary and tertiary care , Community participation in healthcare delivery system , Health system in developed countries, Private Sector , National Health Mission , National Health Policy , Issues in Health Care Delivery System in India | 5                    |
| 2                      | <b>National Health Programme</b><br>Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme                                                                                                                                                                                       | 5                    |
| 3                      | <b>Introduction to AYUSH system of medicine</b><br>Introduction to Ayurveda, Yoga and Naturopathy , Unani, Siddha , Homeopathy, Need for integration of various system of medicine                                                                                                                                                                  | 2                    |
| 4                      | <b>Health scenario of India</b><br>Health scenario of India- past, present and future                                                                                                                                                                                                                                                               | 3                    |
| 5                      | <b>Demography &amp; Vital Statistics</b><br>Demography – its concept , Vital events of life & its impact on demography , Significance and recording of vital statistics , Census & its impact on health policy                                                                                                                                      | 2                    |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                              | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 6                  | <b>Epidemiology</b><br>Principles of Epidemiology , Natural History of disease , Methods of Epidemiological studies , Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance | 3                |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                     | <b>20</b>        |

### Textbook :

- 1 Textbook of Preventive & Social Medicine, Dr K. Park, Dr K. Park, 2023
- 2 Textbook of Community Medicine, V. K. Mahajan, V. K. Mahajan, 2023
- 3 Physical Therapy Ethics, Donald L. Gabard, Mike W. Martin, F.A. Davis, Donald L. Gabard, Mike W. Martin, F.A. Davis, 2010

### References:

- 1 Population studies, Population studies, Asha Bhendre, Asha Bhendre, 2023
- 2 Effective communication methods , Effective communication methods , Asha Kaul , Asha Kaul , 2014

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                             |

### Instructional Method:

- 1 Theory

### Supplementary Resources:

- 1 NA

|                       |                                         |
|-----------------------|-----------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>         |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>        |
| <b>SEMESTER</b>       | <b>1</b>                                |
| <b>COURSE TITLE</b>   | <b>PROFESSIONAL PRACTICE AND ETHICS</b> |
| <b>COURSE CODE</b>    | <b>17PT0111</b>                         |
| <b>COURSE CREDITS</b> | <b>1</b>                                |

**Objective:**

- 1 To act for referral of patients depending on requirements in clinical practice.
- 2 To understand basic health care delivery systems in India and abroad.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Act for referral of patients depending on requirements in clinical practice.
- 2 Understand basic health care delivery systems in India and abroad.

**Pre-requisite of course:** A basic concept of professionalism is essential for professional practice and ethics.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 20                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                             | <b>Contact Hours</b> |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction to the history of physiotherapy</b><br>Introduction to the history of physiotherapy                                                       | 5                    |
| 2                      | <b>Orientation to the curriculum, clinical areas and geographical location</b><br>Orientation to the curriculum, clinical areas and geographical location | 5                    |
| 3                      | <b>Concept of morality &amp; ethics.</b><br>Concept of morality & ethics                                                                                  | 5                    |
| 4                      | <b>Concept of professionalism and professional dress code.</b><br>Concept of professionalism and professional dress code                                  | 5                    |
| <b>Total Hours</b>     |                                                                                                                                                           | <b>20</b>            |

**Textbook :**

- 1 Textbook of Preventive & Social Medicine, DR K Park, Dr K Park, 2020

**References:**

- 1 Population studies, Population studies, Asha Bhendre, Asha Bhendre, 2014
- 2 Effective communication methods, Effective communication methods, Asha Kaul, Asha Kaul, 2016
- 3 Hospital Administration , Hospital Administration , Tabish, Tabish, 2015
- 4 Medical Ethics, Medical Ethics, CM Francis, CM Francis, 2010

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory class

**Supplementary Resources:**

- 1 NA

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                          |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                         |
| <b>SEMESTER</b>       | <b>1</b>                                                 |
| <b>COURSE TITLE</b>   | <b>EXERCISE THERAPY-1 &amp; SOFT TISSUE MOBILIZATION</b> |
| <b>COURSE CODE</b>    | <b>17PT0112</b>                                          |
| <b>COURSE CREDITS</b> | <b>10</b>                                                |

**Objective:**

- 1 To provide knowledge about principles and effects of exercise as a therapeutic modality and will learn the techniques in the restoration of physical functions.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the basic mechanical principles and effect of exercise, therapeutic modality in the restoration of physical function.
- 2 Describe and acquire the skills of application and demonstration of the use of various tools of the therapeutic gymnasium and various starting and derived positions.
- 3 Describe the movements and its Classification, Principles, Technique & Uses.
- 4 Describe the physiological and therapeutic effect of various movements and demonstrate in various anatomical planes.
- 5 Acquire the skills of application of various massage manipulations and describe the physiological effects, therapeutic uses, merits – demerits of the same.

**Pre-requisite of course:** To understand the concept of exercise science and therapeutic massage

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 120                 | 0                     | 160                    | 80         | 10        | 10         | 80          | 20               |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                     | <b>Contact Hours</b> |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction to exercise therapy</b><br>Introduction to exercise therapy, medical terminology, joint movement terminology, force, pulley and its types, pulley and its types, COG, LOG, Angle of pull, springs |                      |
| 2                      | <b>Physiological effects and uses of exercise.</b><br>Physiological effects and uses of exercise, acute effects, chronic adaptation, uses of exercises                                                            |                      |
| 3                      | <b>Use of apparatus in exercise therapy</b><br>Use of apparatus in exercise therapy.                                                                                                                              |                      |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 4                  | <b>Joint movement</b><br>Joint movement - Terminology, Axis, planes, levers, fundamental starting positions, muscle work, derived positions, muscle work, pelvic tilt and its muscle work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |
| 5                  | <b>Fundamental starting positions</b><br>Fundamental starting positions and Muscle work, derived positions and Muscle work, Pelvic tilt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |
| 6                  | <b>Classification of movements</b><br>Classification of movements, Types of Muscle work, Active movements - Definition, types, techniques, effects and uses, Free exercise, classification, Technique and effects of free exercise, free exercises - application for shoulder, neck, hip and knee joints, techniques of mobilization for stiff joints, Passive movements - Definition, types, techniques of relaxed passive movements and uses, comparison of both movements., Application of resistance to develop endurance and power, progression of exercises, angle of pull, types of muscle work, exercises - free resisted, assisted - use of gadget apparatus, Resisted Exercises - Techniques and types of resistance, , SET system (Heavy resisted exercises) Oxford method, Delorme method, Macqueen's method. |                  |
| 7                  | <b>Measurement of joint movements</b><br>goniometry types of goniometer, bubble and gravity goniometer., Measurements of ROM of all joints, Causes of restriction of range of movement, Distinguish between skin, muscles, Capsular contractures., Capsular pattern, End feel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |
| 8                  | <b>Breathing</b><br>Breathing - Mechanism of breathing (normal), , Muscles of respiration, changes in thoracic cage during process of respiration , Pursued lip breathing -- significance., Glossopharyngeal Breathing - significance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |
| 9                  | <b>Group work</b><br>Group work-Criteria of selection of patients, advantages and disadvantages of group class exercises., Home exercises , Trick movements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
| 10                 | <b>Normal gait cycle</b><br>Normal gait cycle – Phases of gait                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |
| 11                 | <b>Measurement of limb length</b><br>Measurement of limb length, methods of measurements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |
| 12                 | <b>Maintenance of record</b><br>Maintenance of record-volume, range of motion, resistance, limb length. Girth measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |
| 13                 | <b>Introduction of massage</b><br>Introduction-brief history, definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 14                 | <b>classification of massage</b><br>classification., Physiological effects and therapeutic uses, contra - indications., Preparation of patient, basic points to be considered before and during massage procedure., Technique, effects and uses of each manipulation and contra-indications. Practice of soft tissue manipulation in subjects., Specific effects of certain manipulations, Massage for arm, Massage for leg, Massage for face, Massage for upper back, Massage for oedema, Massage for scar, Massage for tendinitis, Massage for fibrosis (tight fascia), Mobilization of soft tissues, Mobilization of joints , Mobilization for fluid collection. |                  |
| 15                 | <b>suspension therapy</b><br>introduction, types,apparatus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |

#### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                   | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>Suspension therapy</b><br>Suspension therapy - definitions of suspension and point of suspension, types of suspension, pulleys and use of pulleys in suspension therapy, application of suspension therapy either to increase the joint range or to increase muscle power.                                                                                                                                                            |                  |
| 2                  | <b>Crutch walking</b><br>Crutch walking - Types of crutch walking, Use of parallel bars in pre-crutch walking stage, balance exercises for crutch walking, phase of walking, gait training, group of muscles responsible during crutch walking., Progression in crutch walking, measurement of crutches, walking aids canes, walkers, tripods , types of crutches, crutch - walking on even surface, slopes, climbing up the stair case. |                  |
| 3                  | <b>measurement of joint ROM</b><br>upper limb ROM , spinal ROM, lower limb ROM                                                                                                                                                                                                                                                                                                                                                           |                  |
| 4                  | <b>study tour/visit</b><br>visit to physiotherapy center, visit to geriatric home, physiotherapy camp                                                                                                                                                                                                                                                                                                                                    |                  |
| 5                  | <b>starting and derived positions</b><br>starting positions, derived positions                                                                                                                                                                                                                                                                                                                                                           |                  |
| 6                  | <b>active exercises</b><br>free exercises, assisted exercises, resisted exercises                                                                                                                                                                                                                                                                                                                                                        |                  |

**Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 7                          | <b>techniques of massage</b><br>preparation of patient, basic points to be considered before and during massage, techniques, effects and uses of each manipulation and contra indications. Practice of soft tissue manipulations in subjects., specific effect of certain manipulations, massage of arms, leg, neck, upper back, face, massage for oedema, scar, tendinitis, fibrosis (tight fascia), mobilization of soft tissues, joints and fluid collection. |                          |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                                 |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-------------------------------------------------|
| <b>Remember /<br/>Knowledge</b>                           | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order<br/>Thinking /<br/>Creative</b> |
|                                                           |                   |              |                |                 |                                                 |

|                       |                                        |
|-----------------------|----------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>        |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>       |
| <b>SEMESTER</b>       | <b>1</b>                               |
| <b>COURSE TITLE</b>   | <b>OBSERVATIONAL CLINICAL PRACTICE</b> |
| <b>COURSE CODE</b>    | <b>17PT0113</b>                        |
| <b>COURSE CREDITS</b> | <b>3</b>                               |

**Objective:**

- 1 To get orientation OPD and its functioning.
- 2 To Understand different types of electrical modalities and its application.
- 3 To Understand different types of exercise therapy instruments and its application.
- 4 To Understand importance of record keeping.
- 5 To Able to read patients file.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 To get orientation OPD and its functioning.
- 2 Understand different types of electrical modalities and its application.
- 3 Understand different types of exercise therapy instruments and its application.
- 4 Understand importance of record keeping.
- 5 Able to read patients file.

**Pre-requisite of course:** TO HAVE BASIC IDEA ABOUT PHYSIOTHERAPY AND BRIEF KNOWLEDGE ABOUT ANATOMY AND PHYSIOLOGY.

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 120             | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                           | <b>Contact Hours</b> |
|------------------------|---------------------------------------------------------|----------------------|
| 1                      | <b>orientation of OPD</b><br>ORIENTATION OF OPD DETAILS | 5                    |

**Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                       | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 2                          | <b>orientation of different exercise therapy instruments</b><br>sand bags, dumbbells, therabands, wallbar, mat, bolsters, tilt table, plinths, pedal cycle, parallel bars, stairs, slops, walkers, wheelchairs, suspension plinth, crutches, , quadriceps chair, wobble board, medicinal ball, rachet board, ropes , pulleys, wedge | 10                       |
| 3                          | <b>orientation of different electrotherapy instruments</b><br>brief introduction to electrotherapy instruments                                                                                                                                                                                                                      | 10                       |
| 4                          | <b>importance of exercise therapy instruments</b><br>detailed study of different exercise therapy instruments                                                                                                                                                                                                                       | 5                        |
| 5                          | <b>maintainance of records of data in OPD</b><br>description of data maintainance                                                                                                                                                                                                                                                   | 5                        |
| 6                          | <b>importance of data in OPD</b><br>significance of data in OPD                                                                                                                                                                                                                                                                     | 5                        |
| 7                          | <b>Sports</b><br>indoor sports activities, outdoor sports activities                                                                                                                                                                                                                                                                | 20                       |
| 8                          | <b>library</b><br>reading in library                                                                                                                                                                                                                                                                                                | 20                       |
| 9                          | <b>Vital Measurements</b><br>Vitals Measurement - Blood Pressure Measurement (Digital and Manual Sphygmomanometer) - Pulse Rate Measurement - Respiratory Rate Measurement - Temperature Measurement - SPO2 Measurement                                                                                                             | 12                       |
| 10                         | <b>Reflex assessment</b><br>Superficial reflex , Deep reflex                                                                                                                                                                                                                                                                        | 5                        |
| 11                         | <b>Sensory Examination</b><br>Superficial, Deep and Cortical sensations)                                                                                                                                                                                                                                                            | 5                        |
| 12                         | <b>Cranial Nerve Examination</b><br>Assessment of cranial nerves.                                                                                                                                                                                                                                                                   | 5                        |
| 13                         | <b>Bony Landmark Palpation ( Surface Anatomy)</b><br>For Upper and Lower Limbs.                                                                                                                                                                                                                                                     | 5                        |
| 14                         | <b>Girth Measurement</b><br>For upper limb and lower limb.                                                                                                                                                                                                                                                                          | 2                        |
| 15                         | <b>Head Circumference Measurement</b><br>Head circumference measurement and its significance.                                                                                                                                                                                                                                       | 2                        |
| 16                         | <b>Visit to the rehabilitation center/ ICU</b><br>Observation of various apparatus used in ICU.                                                                                                                                                                                                                                     | 2                        |
| 17                         | <b>One camp organized along with first year students in nearby villages</b><br>Camp visit, Visit to old age home.                                                                                                                                                                                                                   | 2                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                     | <b>120</b>               |

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

|                       |                                               |
|-----------------------|-----------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>               |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>              |
| <b>SEMESTER</b>       | <b>1</b>                                      |
| <b>COURSE TITLE</b>   | <b>MENTAL TOUGHNESS CERTIFICATION PROGRAM</b> |
| <b>COURSE CODE</b>    |                                               |
| <b>COURSE CREDITS</b> | <b>0</b>                                      |

**Course Outcomes:** After completion of this course, student will be able to:

**Pre-requisite of course:** mental toughness development through the mentoring session

#### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 8                   | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                            | <b>Contact Hours</b> |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>MENTAL TOUGHNESS CERTIFICATION PROGRAM</b><br>MTCP, Power of Cognitive Skills, Stay Committed towards the purpose of your life, Control your emotions for Wellness, Self Belief – Unleash the power within you, Evaluation & Feedback |                      |
| <b>Total Hours</b>     |                                                                                                                                                                                                                                          |                      |

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|                                                           |                   |              |                |                 |                                         |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>SPORTS</b>                    |
| <b>COURSE CODE</b>    |                                  |
| <b>COURSE CREDITS</b> | <b>0</b>                         |

**Objective:**

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Course Outcomes:** After completion of this course, student will be able to:

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Pre-requisite of course:** To understand the body mechanics with the help of sports activities

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 40              | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                          | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------|----------------------|
| 1                      | <b>sports activities -indoor</b><br>indoor activities  | 20                   |
| 2                      | <b>sports activities-outdoor</b><br>outdoor activities | 20                   |
| <b>Total Hours</b>     |                                                        | <b>40</b>            |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|                                                           |                   |              |                |                 |                                         |

**Instructional Method:**

- 1 Field based activities

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>1</b>                         |
| <b>COURSE TITLE</b>   | <b>LIBRARY</b>                   |
| <b>COURSE CODE</b>    |                                  |
| <b>COURSE CREDITS</b> | <b>0</b>                         |

**Course Outcomes:** After completion of this course, student will be able to:

**Pre-requisite of course:** To develop the reading skills for academic improvement

#### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 0                   | 0                     | 40                     | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                            | <b>Contact Hours</b> |
|------------------------|----------------------------------------------------------|----------------------|
| 1                      | Reading session in library<br>reading session in library |                      |
| <b>Total Hours</b>     |                                                          |                      |

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|                                                           |                   |              |                |                 |                                         |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>PATHOLOGY</b>                 |
| <b>COURSE CODE</b>    | <b>17PT0201</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

### Objective:

- 1 Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.
- 2 To acquire the knowledge of concepts of cell injury and changes produced thereby in different tissues and organs; capacity of the body in healing process
- 3 To recall the etio-pathogenesis, the pathological effects and the clinico-pathological correlation of common infection and non infectious disease
- 4 To acquire the knowledge of concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body
- 5 To correlate normal and altered morphology of different organ systems in different diseases needed for understanding disease process and their clinical significance (with special emphasis to Neuro-Musculoskeletal and Cardio Vascular -Respiratory systems)
- 6 To acquire knowledge of common immunological disorders and their resultant effects on the human body
- 7 To understand in brief, about the hematological diseases and investigations necessary to diagnose them and determine their prognosis.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Acquire the knowledge of concepts of cell injury and changes produced thereby in different tissues and organs; capacity of the body in healing process
- 2 Recall the etio-pathogenesis, the pathological effects and the clinico-pathological correlation of common infection and non infectious disease
- 3 Acquire the knowledge of concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body
- 4 Correlate normal and altered morphology of different organ systems in different diseases needed for understanding disease process and their clinical significance (with special emphasis to Neuro-Musculoskeletal and Cardio Vascular -Respiratory systems)
- 5 Acquire knowledge of common immunological disorders and their resultant effects on the human body
- 6 Understand in brief, about the hematological diseases and investigations necessary to diagnose them and determine their prognosis.

**Pre-requisite of course:** A basic understanding of human anatomy and physiology is often a fundamental prerequisite.

### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 0               | 25  | 15 | 10  | 0    | 0         |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Contact Hours |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>General Pathology</b><br>Importance of pathology in physiotherapy, Definition of health, pathological basis of health, disease, Inflammation: general aspects, types, Tissue repair: wound healing, fracture, Cell injury-degeneration: physical and chemical irritants; ionizing radiations –cellulitis, Disturbances of circulation: edema, thrombosis, embolism, Necrosis, gangrene, Growth cellular adaptation: atrophy, hypertrophy, hyperplasia, Cellular ageing, Tumors: definitions, classification, etiology and spread, Infection: acute/chronic, AIDS, Blood: anaemia, definition, classification, etiology, laboratory investigations ,blood picture, hemorrhagic disorders(causes and classification), Auto immune disorders: RA, SLE | 15            |
| 2               | <b>Systemic pathology- Respiratory system</b><br>Bronchitis, bronchial asthma, emphysema, pneumonia, Ca of lung                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5             |
| 3               | <b>Systemic pathology-Cardiovascular system</b><br>Rheumatic heart disease, myocardial infarction, atherosclerosis, congenital heart diseases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5             |
| 4               | <b>Alimentary system</b><br>TB intestine, peptic ulcer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5             |
| 5               | <b>Liver</b><br>Hepatitis, cirrhosis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5             |
| 6               | <b>Central nervous system</b><br>Meningitis, encephalitis, cerebral hemorrhage, CNS tumor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5             |
| 7               | <b>Peripheral nerves</b><br>Neuritis, neuralgia, GB syndrome, neuropathies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5             |
| 8               | <b>Bones and joints</b><br>Osteomyelitis, osteoarthritis, septic arthritis, gout arthritis, osteomalacia, Bone tumors - giant cell tumor, osteosarcoma, Ewing's                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10            |
| 9               | <b>Muscle &amp; neuro-muscular disorders</b><br>Muscle disorders including poliomyelitis, myopathies and myasthenia gravis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10            |
| 10              | <b>Skin</b><br>Scleroderma, psoriasis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5             |
| 11              | <b>Urinary system</b><br>Nephritis, glomerulonephritis, nephrotic syndrome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5             |

| Contents :<br>Unit | Topics                                                                    | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------|------------------|
| 12                 | <b>Endocrine system</b><br>Thyroid: thyroiditis, thyroid tumors, diabetes | 5                |
| <b>Total Hours</b> |                                                                           | <b>80</b>        |

#### Textbook :

- 1 Textbook of pathology, Harsh Mohan, Jaypee Brothers, 2000
- 2 General Pathology, Bhende - , Popular Prakashan Pvt. Limited, 1976
- 3 General Pathology review, Dr M L Gupta, Ninad Publications, 2009
- 4 Textbook of Pathology, B.N. Dutta. , Jaypee Brothers, 2004

#### References:

- 1 Pathologic basis of disease, Pathologic basis of disease, Cortran, Kumar, Robbins, Elsevier, 2020
- 2 General and systemic pathology , General and systemic pathology , James C. E. Underwood & Simon S. Cross, Churchill Livingstone Elsevier, 2009
- 3 BOYDS TEXTBOOK OF PATHOLOGY, BOYDS TEXTBOOK OF PATHOLOGY, J.R. Bhardwaj, Prabal Deb, Wolters Kluwer, 2013
- 4 Anderson's Pathology , Anderson's Pathology , Damjanov MD PhD, Ivan; Linder MD, James, Mosby, 1995

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                        |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------------|
| Remember /<br>Knowledge                                   | Understand | Apply | Analyze | Evaluate | Higher order<br>Thinking /<br>Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                                   |

#### Instructional Method:

- 1 Classroom Teaching -Theory

#### Supplementary Resources:

- 1 -

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>MICROBIOLOGY</b>              |
| <b>COURSE CODE</b>    | <b>17PT0202</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

**Objective:**

- 1 To have sound knowledge of the agents responsible for causing human infections, pertaining to CNS, CVS, Musculo-skeletal and Respiratory system.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Have sound knowledge of the agents responsible for causing human infections, pertaining to CNS, CVS, Musculo-skeletal and Respiratory system.

**Pre-requisite of course:** A basic understanding in biology is usually a prerequisite for microbiology. This may include courses in general biology, cell biology, and genetics.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 80                  | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                   | <b>Contact Hours</b> |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>General Bacteriology</b><br>Introduction, historical background, Basics of morphology and physiology of bacteria, Staining of bacteria, Sterilization and disinfection, Cultivation and culture media                                                                                                                        | 10                   |
| 2                      | <b>Systemic Bacteriology</b><br>Gram positive cocci: Staphylococci, Streptococci and Pneumococci, Gram negative cocci: Gonococci and Meningococci, Gram negative bacilli: Typhoid, Cholera, Dysentery, Gram positive bacilli: Aerobic: Diphtheria, Tuberculosis, Leprosy, Syphilis - Anaerobic: Tetanus, Gas gangrene, Botulism | 15                   |
| 3                      | <b>General Virology</b><br>Poliomyelitis, Rabies, Introduction to Blood born Viral infection, Demonstration of tests: Diagnosis of AIDS, hepatitis B & C, Corona, Herpes                                                                                                                                                        | 10                   |
| 4                      | <b>Immunology</b><br>Immunity, Antigen and Antibodies, Agglutination, Precipitation, Basic of hypersensitivity reactions                                                                                                                                                                                                        | 10                   |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                      | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 5                  | <b>Parasitology</b><br>Introduction to important parasitic infections, Malaria, Amoebiasis, Round worm and hook worm                                                                                                                        | 10               |
| 6                  | <b>Mycology</b><br>Introduction to important fungal infections, Candidiasis, Ring worm, Scabies                                                                                                                                             | 5                |
| 7                  | <b>Applied Microbiology</b><br>Infection of bones / joints, Infection of burns case, Serological test – interpretation of ASO, RA, VDRL, CRP, Widal, ELISA (HIV, HB sag), Demonstration gross / microscopic appearance of various parasites | 10               |
| 8                  | <b>Aseptic universal precautions &amp; practices</b><br>Biomedical waste and universal precautions                                                                                                                                          | 5                |
| 9                  | <b>PRACTICALS: (Demonstration only)</b><br>Staining, Microscopy, Sterilization, Media, Stool sample, Serology tests                                                                                                                         | 5                |
| <b>Total Hours</b> |                                                                                                                                                                                                                                             | <b>80</b>        |

#### Textbook :

- 1 Microbiology for Physiotherapy students, B.S. Nagoba, BI Publication Pvt. Ltd., 2009

#### References:

- 1 Essentials of Medical Microbiology, Essentials of Medical Microbiology, Rajesh Bhatia, Rattan Lal Ichhpujani, Jaypee Digital, 2008
- 2 Essentials of Medical Microbiology, Essentials of Medical Microbiology, Apurba Sankar Sastry, Sandhya Bhat K, Jaypee Digital, 2019
- 3 Textbook of Microbiology, Textbook of Microbiology, DR Arora , CBS Publishers & Distributors, 2020
- 4 A Textbook Of Microbiology, A Textbook Of Microbiology, P. Chakraborty, New Central Book Agency (P) Limited, 2013
- 5 Ananthanarayan and Paniker's Textbook of Microbiology, Ananthanarayan and Paniker's Textbook of Microbiology, Ananthanarayan and Paniker, Orient Blackswan, 2006

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                             |

**Instructional Method:**

- 1 Classroom Teaching - Theory

**Supplementary Resources:**

- 1 -
- 2 <https://www.osmosis.org/answers/enteric-bacteria>
- 3 [https://www.osmosis.org/learn/Staphylococcus\\_aureus](https://www.osmosis.org/learn/Staphylococcus_aureus)
- 4 [https://www.osmosis.org/learn/Osteomyelitis\\_\(pediatrics\):\\_Clinical\\_sciences](https://www.osmosis.org/learn/Osteomyelitis_(pediatrics):_Clinical_sciences)
- 5 <https://www.osmosis.org/learn/Poliovirus>
- 6 [https://www.osmosis.org/learn/Mycobacterium\\_tuberculosis\\_\(Tuberculosis\)](https://www.osmosis.org/learn/Mycobacterium_tuberculosis_(Tuberculosis))
- 7 [https://www.osmosis.org/learn/Antibody\\_classes](https://www.osmosis.org/learn/Antibody_classes)

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>PHARMACOLOGY</b>              |
| <b>COURSE CODE</b>    | <b>17PT0203</b>                  |
| <b>COURSE CREDITS</b> | <b>4</b>                         |

**Objective:**

- 1 Describe pharmacological effects of commonly used drugs by patients referred for physiotherapy; list their indications adverse reactions, precautions to be taken and contraindications
- 2 Identify whether the pharmacological effect of the drug interferes with the therapeutic response of physiotherapy and vice-versa
- 3 Indicate the use of analgesics and anti-inflammatory agents with special reference to movement disorders focusing on consideration of efficacy and safety for individual needs
- 4 Get the awareness of other essential and commonly used drugs by patients, and the bases for their use and common as well as serious adverse reaction
- 5 To apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
- 6 To understand the concepts of general pharmacology.
- 7 To understand the pharmacological actions of different categories of drugs.
- 8 To explain the mechanism of drug action at the organ system/subcellular/ macromolecular levels.
- 9 To apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
- .
- 10 To understand the adverse effects, contraindication of drugs.
- 11 To understand the concepts of general pharmacology
- 12 To understand the pharmacological actions of different categories of drugs
- 13 To explain the mechanism of drug action at the organ system/subcellular/ macromolecular levels
- 14 To apply the basic pharmacological knowledge in the prevention and treatment of various diseases
- 15 To understand the adverse effects, contraindication of drugs

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the concepts of general pharmacology
- 2 Understand the pharmacological actions of different categories of drugs
- 3 Explain the mechanism of drug action at the organ system/subcellular/ macromolecular levels
- 4 Apply the basic pharmacological knowledge in the prevention and treatment of various diseases

**Course Outcomes:** After completion of this course, student will be able to:

- 5 Understand the adverse effects, contraindication of drugs

**Pre-requisite of course:** A good understanding of applied human anatomy and applied physiology is important and a background in chemistry is required.

#### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 0               | 25  | 15 | 10  | 0    | 0         |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Contact Hours |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>General Principles</b><br>Introduction and scope of pharmacology (definitions), sources of drugs , Routes of drug administration , Pharmacokinetics: drug absorption and bioavailability, drug distribution, drug metabolism, drug excretion, biological half life ( $t_{1/2}$ ) and steady state concentration etc. , Pharmacodynamics: site of drug action, mechanism/s of drug action including receptor concept , Adverse drug reactions and drug interactions – pharmaco vigilance , Factors influencing drug actions, dosage etc , Concepts of essential drugs and rational drug therapy | 5             |
| 2               | <b>Drug acting on peripheral nervous system (autonomic nervous system)</b><br>Adrenergic agonists and antagonists , Cholinergic agonists and antagonists , Skeletal muscle relaxants                                                                                                                                                                                                                                                                                                                                                                                                              | 5             |
| 3               | <b>Autacoids and related drugs</b><br>Histamine and antihistaminic drugs , 5-HT and antagonists, ACE inhibitors and angiotensin, antagonists , Prostaglandins, Nonsteroidal anti-inflammatory drugs (NSAID)s, Drug therapy of Rheumatoid arthritis, Gout, Osteoarthritis etc.                                                                                                                                                                                                                                                                                                                     | 10            |
| 4               | <b>Drugs for respiratory disorders</b><br>Drug therapy of cough , Drug therapy of common respiratory infections: pharyngitis, tonsillitis, sinusitis, laryngitis etc. , Drug therapy of bronchial asthma, COPDs – effect of long term administration of such drugs                                                                                                                                                                                                                                                                                                                                | 10            |
| 5               | <b>Drugs for cardiovascular diseases</b><br>. Drugs used in management of hypertension , Angina pectoris, congestive heart failure, cardiac arrhythmias, shock etc. , Diuretics                                                                                                                                                                                                                                                                                                                                                                                                                   | 5             |
| 6               | <b>Drugs used in central nervous system (CNS) disorders</b><br>Introduction to CNS pharmacology , Alcohol , Sedatives and hypnotics, antianxiety drugs , Antiepileptic drugs , Opioid analgesics , Antidepressants, antipsychotics , General and local anaesthetic agents , Drug abuse , Drugs used in treatment of parkinsonism                                                                                                                                                                                                                                                                  | 10            |
| 7               | <b>Insulin and other antidiabetic drugs</b><br>Insulin and other antidiabetic drugs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5             |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 8                          | <b>Drugs affecting calcium metabolism</b><br>Drugs used in the treatment of osteoporosis, Glucocorticosteroids and anabolic steroids                                                                                          | 5                        |
| 9                          | <b>Chemotherapy</b><br>General principles and classification , Antitubercular drugs , Antileprosy drugs                                                                                                                       | 5                        |
| 10                         | <b>Other chemotherapeutic drugs</b><br>Antibacterial drugs: Sulfonamides, cotrimoxazole, fluoroquinolones, beta lactam antibiotics, aminoglycosides, tetracyclines, chloramphenicol, macrolide antibiotics, misc. antibiotics | 5                        |
| 11                         | <b>Endocrine pharmacology</b><br>Thyroid and antithyroid drugs, Female sex hormones                                                                                                                                           | 5                        |
| 12                         | <b>Drugs used in gastro intestinal disorders</b><br>Diarrhea, Vomiting, Constipation, Peptic ulcer                                                                                                                            | 5                        |
| 13                         | <b>Miscellaneous drugs</b><br>Drugs used in management of anemia , Immunomodulators, vaccines and sera                                                                                                                        | 5                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                               | <b>80</b>                |

#### Textbook :

- 1 Essentials of Medical Pharmacology, KD Tripathi, Jaypee Publication., 2023
- 2 Pharmacology for Physiotherapy students , Padmaja Udaykumar, Jaypee Publication., 2011
- 3 Pharmacology & Pharmacotherapeutics, R. S. Satoskar, S. D. Bhandarkar & Nirmala N. Rege, Popular Prakashan, 2009

#### References:

- 1 Clinical Pharmacology , Clinical Pharmacology , D.R. Laurence, PN Bennet, MJ Brown, Elsevier Health Sciences, 1997
- 2 Goodman & Gilman's the pharmacological basis of therapeutics, Goodman & Gilman's the pharmacological basis of therapeutics, Brunton LL, Knollmann BC, McGraw Hill, 2022
- 3 Basic and Clinical Pharmacology, Basic and Clinical Pharmacology, Bertram G Katzung, McGraw-Hill Education, 2020

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

|                                                           |
|-----------------------------------------------------------|
| Distribution of Theory for course delivery and evaluation |
|-----------------------------------------------------------|

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Classroom Teaching - Theory

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>KINESIOLOGY</b>               |
| <b>COURSE CODE</b>    | <b>17PT0204</b>                  |
| <b>COURSE CREDITS</b> | <b>6</b>                         |

**Objective:**

- 1 Acquire the skill of assessment of isolated and group muscle strength subjectively and objectively.
- 2 To use these methods for evaluation and treatment of disorders of the Musculoskeletal system.
- 3 To analyze normal human movement from a global perspective, integrating biomechanics, force, muscle mechanics and motor control theory.
- 4 To experience quantitative methods of movement analysis using various methods.
- 5 To apply the analytic methods to specific examples of normal human motor performance.
- 6 To use these methods for evaluation and treatment of disorders of the Musculoskeletal system
- 7 To apply the analytic methods of different muscles and its effects on specific joints in the human body.
- 8 To acquire the knowledge about locomotion and its kinetic -kinematic analysis.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Analyze normal human movement from a global perspective, integrating biomechanics, force, muscle mechanics and motor control theory.
- 2 Experience quantitative methods of movement analysis using various methods.
- 3 Apply the analytic methods to specific examples of normal human motor performance.
- 4 Use these methods for evaluation and treatment of disorders of the Musculoskeletal system.
- 5 Apply the analytic methods of different muscles and its effects on specific joints in the human body.
- 6 Acquire the knowledge about locomotion and its kinetic -kinematic analysis.

**Pre-requisite of course:** An in-depth knowledge of human anatomy and physiology is crucial for kinesiology, and an understanding of basic physics & fundamentals of exercise therapy, especially mechanics and forces, is required.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 120                 | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Contact<br>Hours |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>General bio-mechanics</b><br>General bio-mechanics: Kinematics and Introduction to Kinetics, Description of motion (Kinematics) Types of motion, laws of motion, location of motion, direction of motion, magnitude of motion, Analysis of force (Kinetic) Definition of force, magnitude of force, point of application, direction of force, Components of force, composite effects of two or more forces, torque, Force of friction, force of inertia, force of gravity, equilibrium, Work 1. Lever: definition, orders of lever, anatomical lever, levers in Physiotherapy 2. Anatomical pulley, anatomical wheel & axis, Principles of stability Base of support, height, mass of body, the impact of forces (e.g. Gravity), segmentation, visual factors, psychological factors, physiological factors, Mechanism of joint motion a) Types of joints, structure of joints, joint function and motion, Materials Used in Human Joints b) General Properties of Connective Tissue c) General Changes with Disease, Injury, Immobilization, Exercise, and Overuse on joints, Mechanics of muscle action Classification of muscle, functional characteristics of muscle, line of pull, length-tension relationship, types of muscle contractions, group action of muscles, angle of pull, action of two joint muscle, Effects of Immobilization, Injury, and Aging on muscle | 15               |
| 2                  | <b>Skilled Movements</b><br>Rope climbing, cycling, running, ballistic and volitional movements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5                |
| 3                  | <b>Impetus</b><br>Impetus to external objects and receiving impetus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                |
| 4                  | <b>Locomotion</b><br>Normal gait analysis: definition of gait, phases of normal gait, normal gait with kinetic and kinematics, abnormal pathological gaits, gait training                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5                |
| 5                  | <b>Biomechanics of joints</b><br>Kinetics, kinematics and patho-mechanics of joint – hip , Kinetics, kinematics and patho-mechanics of joint – knee, Kinetics, kinematics and patho-mechanics of joint – ankle and foot complex, Kinetics, kinematics and patho-mechanics of joint – shoulder, Kinetics, kinematics and patho-mechanics of joint – elbow, Kinetics, kinematics and patho-mechanics of joint – wrist and hand complex, Kinetics, kinematics and patho-mechanics of – TM joint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 70               |
| 6                  | <b>Biomechanics of spinal column</b><br>Spinal curves, articulations of spinal column joints, non contractile soft tissue of column, IV disc, ligaments, movements of spinal column and muscle mechanics, intrinsic equilibrium of spine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5                |
| 7                  | <b>Biomechanics of pelvic complex</b><br>Pelvis at rest, in standing body and in motion, patho mechanics of pelvis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5                |
| 8                  | <b>Biomechanics of thorax</b><br>Movements between ribs and vertebrae, sternum and ribs, patho mechanics of respiration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                     | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 9                  | <b>Postural strain and occupational hazards</b><br>use of body mechanics at home, at school and work, recreation, particular application of body mechanics for patients, physiotherapists and other staff. | 5                |
| 10                 | <b>Kinetics and kinematics of ADL</b><br>Supine to sitting, Sitting to standing, Squatting, Climbing up and down, pushing, pulling, overhead activities, walking, running, jogging.                        | 5                |
| <b>Total Hours</b> |                                                                                                                                                                                                            | <b>120</b>       |

#### Textbook :

- 1 Joint structure and function, Cynthia Norkin, Jaypee Brothers, 2020

#### References:

- 1 Therapeutic Exercise Foundations and Techniques, Therapeutic Exercise Foundations and Techniques, Colby & Kisner, F.A. Davis, 2022
- 2 Principles of exercise therapy, Principles of exercise therapy, Dena Gardiner, LONDON G. BELL AND SONS, LTD, 1919
- 3 Clinical kinesiology, Clinical kinesiology, Brunnstrom, F.A. Davis , 2012
- 4 Muscles: Testing and Function with Posture and Pain, Muscles: Testing and Function with Posture and Pain, Florence Peterson Kendall, Lippincott Williams & Wilkins, 2005
- 5 Kinesiology: The Mechanics & Pathomechanics of human movement , Kinesiology: The Mechanics & Pathomechanics of human movement , Carol A. Otis, :Lippincott Williams & Wilkins, 2009
- 6 Kinesiology Scientific Basis of Human Motion, Kinesiology Scientific Basis of Human Motion, Katharine F. Wells, Kathryn Luttgens, Saunders, 1976
- 7 The Physiology of the Joints, The Physiology of the Joints, Ibrahim Adalbert Kapandji, Handspring Publishing, 2019

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                             |

#### Instructional Method:

- 1 Classroom teaching - Theory

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>PSYCHIATRY</b>                |
| <b>COURSE CODE</b>    | <b>17PT0207</b>                  |
| <b>COURSE CREDITS</b> | <b>2</b>                         |

**Objective:**

- 1 Enumerate various psychiatric disorders with special emphasis to movement, pain and ADL & describe the various causative factors and methods of assessment and management
- 2 To describe various psychiatric disorders with special emphasis on movement/pain and ADLs and describe the methods of assessment and management.
- 3 To acquire the knowledge as to how to deal with the patient.
- 4 To enumerate various psychiatric disorders with special emphasis to movement, pain and ADL & describe the various causative factors and methods of assessment and management.
- 5 To acquire the knowledge in brief about the pathological and etiological factors, common signs and symptoms and management of various psychiatric conditions.
- 6 To describe in brief the various treatment modalities commonly used.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Enumerate various psychiatric disorders with special emphasis to movement, pain and ADL & describe the various causative factors and methods of assessment and management
- 2 Acquire the knowledge in brief about the pathological and etiological factors, common signs and symptoms and management of various psychiatric conditions
- 3 Describe in brief the various treatment modalities commonly used.

**Pre-requisite of course:** A good understanding of human psychology is essential for Psychiatry.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                    | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Mental health</b><br>a) Normal Mental Health b) Criteria of normality or matured personality c) Factors contributing to normal mental health. | 5                    |
| 2                      | <b>Study of Abnormal Personality:</b><br>a) Neurotic b) Hysterical c) Psychotic d) Paranoid e) Schizoid f) Psychopathic etc.                     | 4                    |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 3                          | <b>General Etiological Factors</b><br>Hereditary b) Genetical Constitutional c) Acquired d) Traumatic e) Infective f) Toxic g) Degenerative h) Social and Environmental including pathogenic family patterns i) Precipitating causes j) Frustration and conflicts                                                                                                                                                                                                                                                                                                                                                            | 4                        |
| 4                          | <b>Symptomatology and Treatment of Psychoses</b><br>Functional - Functional Schizophrenic, reaction group, simple, paranoid, catatonic, hebephrenic paranoid state, paranoia, juvenile, schizophrenia, autistic thinking, dementia, Organic - Toxic confused states, senile psychoses, arteriosclerotic, degenerative, G.P.I.,ffective Disorders: Dynamics of Mania, hypomania, chronic mania, M.P.D. Involutional depression, senile depression, postpartum depressive reactions, reactive and neurotic depression, endogenous depression, suicide (egoistic, Altruistic, Anomic) Epileptic Disorders: Epileptic Psychoses. | 4                        |
| 5                          | <b>Neurosis</b><br>Symptomatology, diagnosis and treatment and psychodynamics of anxiety state, hysteria, conversion reaction, dissociative reaction, dual personality, obsessional neurosis, phobias, hypochondriasis, neurasthenia and mental fatigue.                                                                                                                                                                                                                                                                                                                                                                     | 5                        |
| 6                          | <b>Mental Retardation</b><br>a) Definition, b) Etiological factors - Prenatal, postnatal, infective, hormonal, congenital., Types of mental retardation, clinical types- microcephaly, hydrocephalus, mongot, family idiocy, phenylketonuria etc. Symptomatology of various grades of retardation, differential diagnosis and treatments.                                                                                                                                                                                                                                                                                    | 5                        |
| 7                          | <b>Child Psychology</b><br>Behavior disorders - Nail biting, Enuresis, Truancy, Thumb sucking, Speech difficulties, Pica, Vomiting, Anorexia, delinquency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4                        |
| 8                          | <b>Introduction to dynamics of Psychophysical disorders</b><br>Asthma, skin rashes, hypertension, bowel disorders., Introduction to treatment in psychiatry - E.C.T., Insulin, coma therapy., Drug therapy - Tranquilizer, Mood elevators, hypnotics and sedatives, Psychotherapy - Deep and superficial, individual and group, expressive, suppressive, environmental manipulation, re-educative., Psychodrama, Psychoanalysis, Play Therapy                                                                                                                                                                                | 4                        |
| 9                          | <b>Physiotherapy in Psychiatry</b><br>Role of Physiotherapy in Psyciatric conditions in brief                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>40</b>                |

#### **Textbook :**

- 1 A short textbook of Psychiatry, Niraj Ahuja, Jaypee Publications, 2010

**References:**

- 1 Psychiatry and Behavioural Science , Psychiatry and Behavioural Science , David Baron, Temple University Press., 2008
- 2 Shorter Textbook of Psychiatry, Shorter Textbook of Psychiatry, Paul Harrison, Oxford University Press, 2017

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Classroom teaching - Theory

|                       |                                    |
|-----------------------|------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>    |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>   |
| <b>SEMESTER</b>       | <b>2</b>                           |
| <b>COURSE TITLE</b>   | <b>RADIOLOGY/ENT/OPHTHALMOLOGY</b> |
| <b>COURSE CODE</b>    | <b>17PT0208</b>                    |
| <b>COURSE CREDITS</b> | <b>2</b>                           |

**Objective:**

- 1 To identify the differences between normal and abnormal X rays of extremities, spine and chest and also in specific conditions like OA
- 2 To understand other radio imaging techniques like MRI, CT, USG etc
- 3 To apply the use of interpretation of radiography findings for assessment and treatment of the patients.
- 4 To describe the anatomy and physiology of hearing and the use of audiometry in the assessment of hearing and understand diseases of E.N.T. emphasis on otitis media, Bell's palsy, sinusitis and rhinitis.
- 5 To describe Common eye diseases, vitamin A deficiency, Eye lesion in leprosy and disorders of ocular movements in myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Identify the differences between normal and abnormal X rays of extremities, spine and chest and also in specific conditions like OA
- 2 Understand other radio imaging techniques like MRI, CT, USG etc
- 3 Apply the use of interpretation of radiography findings for assessment and treatment of the patients.
- 4 Describe the anatomy and physiology of hearing and the use of audiometry in the assessment of hearing and understand diseases of E.N.T. emphasis on otitis media, Bell's palsy, sinusitis and rhinitis
- 5 Describe Common eye diseases, vitamin A deficiency, Eye lesion in leprosy and disorders of ocular movements in myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases.

**Pre-requisite of course:** Identify common chest conditions together with basic traumatic, infective, inflammatory and degenerative conditions and bony skeletal 2. Read CT, MRI of different joints At the end of the course the candidate will be able to: Identify common ear, nose, throat conditions At the end of the course, the students will be able to 1. Acquire knowledge of structure and function of the eye 2. Describe etiology, patho-physiology, sign and symptoms and clinical evaluation of common ophthalmic conditions related to Physiotherapy

### Teaching and Examination Scheme

| Theory Hours    | Tutorial Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|----|-----|------|---------------|
| 40              | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0               | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |     |    |     |      | Contact Hours |
| 1               | <b>Radiology</b><br>Introduction to Radiology, Importance of Radiology in Physiotherapy, X-rays of fractures of different bones in the body, X-rays of different stages of fracture healing, X-rays of different Orthopedic conditions - Osteoarthritis, Rheumatoid arthritis, Cervical & lumbar spondylosis, foot deformities etc., X-rays of common chest conditions, C.T Scan, M.R.I., Angiography, 3D reconstruction of bones & joints                                                                                                                                                                                                                                                                                              |                 |     |    |     |      | 15            |
| 2               | <b>ENT</b><br>Anatomy & Physiology of Hearing: Assessment & Management of Hearing Loss 2. Introduction to Disease of ENT: Otitis media, Sinusitis & Rhinitis 3. Facial Nerve Palsy: Causes & Management 4. Larynx & Associated functional paralysis with tracheostomy & Care of tracheostomy 5. Vertigo: Causes, Assessment & Management.                                                                                                                                                                                                                                                                                                                                                                                               |                 |     |    |     |      | 10            |
| 3               | <b>Ophthalmology</b><br>Common eye diseases, including Refractory errors, conjunctivitis, and trachoma. 2. Cataract and glaucoma. 3. Squint and ptosis. 4. Eye lesions in leprosy, including causes treatment and complications of lagophthalmos. 5. Causes, clinical features and treatment of disorders of ocular movement occurring in diseases such as myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases. 6. Causes, clinical features, treatment and prognosis in inflammatory disorders, vitamin A deficiency, emphasis on preventable causes and prophylactic measures. 7. Definition of blindness, and visual disability evaluation, investigative procedures used for testing visual failures. |                 |     |    |     |      | 15            |
| Total Hours     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |     |    |     |      | 40            |

#### Textbook :

- 1 Chest X-ray interpretation, Michael Darby, JP Medical Ltd, 2012
- 2 Bone and joint imaging, Donald Resnick, Elsevier, 2019

#### References:

- 1 Principles and practice of medicine, Principles and practice of medicine, Davidson, Churchill Livingstone Publication, 2018
- 2 Harrison's Principles of Internal Medicine, Harrison's Principles of Internal Medicine, Anthony S., McGraw-Hill Education Australia, 2022

#### Suggested Theory Distribution:

DR. ASHISH DHIRAJLAL KAKKAD (PT)

Digitally signed by (Name of HOD)

DR. ASHISH DHIRAJLAL KAKKAD (PT)

Digitally signed by (Name of Dean/ Principal)

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>ETHICS</b>                    |
| <b>COURSE CODE</b>    | <b>17PT0209</b>                  |
| <b>COURSE CREDITS</b> | <b>2</b>                         |

**Objective:**

- 1 To be able to understand the moral values and meaning of ethics
- 2 To acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
- 3 To be able to develop psychomotor skills for physiotherapist patient relationship.
- 4 To Skill to evaluate and make decision for plan of management based on sociocultural values and referral practice

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Able to understand the moral values and meaning of ethics
- 2 Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
- 3 Be able to develop psychomotor skills for physiotherapist patient relationship.
- 4 Skill to evaluate and make decision for plan of management based on sociocultural values and referral practice

**Pre-requisite of course:** At the end of the course the candidate will be able to: 1. Be able to understand the moral values and meaning of ethics 2. Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals. 3. Be able to develop psychomotor skills for physiotherapist patient relationship. 4. Skill to evaluate and make decision for plan of management based on sociocultural values and referral practice. 5. Be able to develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals 6. Be able to develop bedside behavior, respect & maintain patients' confidentiality.

**Teaching and Examination Scheme**

| <b>Theory Hours</b>    | <b>Tutorial Hours</b>                                                                                                                                     | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b>     |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|-----------|------------|-------------|----------------------|
| 40                     | 0                                                                                                                                                         | 0                      | 0          | 0         | 0          | 0           | 0                    |
| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                             |                        |            |           |            |             | <b>Contact Hours</b> |
| 1                      | <b>Ethical code of concept</b><br>Ethical code of concept , Physiotherapist-patient relationship, Interviews – Types of interview, skills of interviewing |                        |            |           |            |             | 10                   |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Contact<br>Hours |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 2                  | <b>Evidence Based Practice</b><br>Introduction to Evidence Based Practice Definitions, Evidence Based Practice, Evidence Based Physiotherapy Practice, Concepts of Evidence based Physiotherapy Awareness, consultation, judgment, creativity, Development of Evidence based knowledge The individual professional, professionals within a discipline, professionals across disciplines, Evidence Based Practitioner The reflective practitioner, the E model                                | 15               |
| 3                  | <b>Allied therapeutics</b><br>1. Acupuncture and acupressure: definition, principles, techniques, physiological and therapeutic effects, contraindications and dangers, Introduction to Naturopathy, Magneto therapy, Yoga Sana - pranayama and their scientific study, Dry needling (DN) a) Introduction, b) General practice c) Guidelines, d) Safety, e) Principles, f) Hygiene, g) Patient-skin preparation, h) Correlation with acupuncture, i) Electrical stimulation and dry needling | 15               |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>40</b>        |

#### Textbook :

- 1 Practical evidence-based Physiotherapy , Sir Iain Chalmers , Elsevier, 2019
- 2 Guide to Evidence-Based Physical Therapist Practice , Jewell Dianne , Jones & Bartlett Learning, 2010

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 30.00      | 25.00 | 15.00   | 10.00    | 0.00                             |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>CLINICAL PRACTICE</b>         |
| <b>COURSE CODE</b>    | <b>17PT0210</b>                  |
| <b>COURSE CREDITS</b> | <b>12</b>                        |

**Objective:**

- 1 To diagnose, treat and advice the patients/clients with various conditions

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Diagnose, treat and advice the patients/clients with various conditions

**Pre-requisite of course:** To understand the basics of assessment and treatment plan.

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 480             | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                       | <b>Contact Hours</b> |
|------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Clinical practices</b><br>To understand the assessment and treatment plan of the patients in clinical practices. | 480                  |
| <b>Total Hours</b>     |                                                                                                                     | <b>480</b>           |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>ELECTROTHERAPY</b>            |
| <b>COURSE CODE</b>    | <b>17PT1205</b>                  |
| <b>COURSE CREDITS</b> | <b>9</b>                         |

**Objective:**

- 1 To know the principles, production, physiological effects, therapeutic uses, merits/ demerits, technique and effects of electrotherapy as a therapeutic modality in the restoration of physical function in conditions like nerve injuries.
- 2 Able to list the indications and contraindications of various types of electrotherapy, demonstrate different techniques and describe their effects.
- 3 To apply different electrotherapeutic modality to patients.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Know the principles, production, physiological effects, therapeutic uses, merits/ demerits, technique and effects of electrotherapy as a therapeutic modality in the restoration of physical function in conditions like nerve injuries.
- 2 List the indications and contraindications of various types of electrotherapy, demonstrate different techniques and describe their effects.
- 3 Apply different electrotherapeutic modality to patients.
- 4 Know the principles, production, physiological effects, therapeutic uses, merits/ demerits, technique and effects of electrotherapy as a therapeutic modality in the restoration of physical function in conditions like nerve injuries.

**Pre-requisite of course:** A basic understanding of human anatomy, physiology is essential for electrotherapy, and an understanding of basic physics principles is important for comprehending the physical properties of electrical currents, such as voltage, current, resistance, and impedance.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 120                 | 0                     | 120                    | 50         | 30        | 20         | 50          | 50               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>Low Frequency Currents</b><br>Faradic Current: Definition, Characteristic and modified faradic current, Parameters of faradic stimulation, Physiological and therapeutic effects of faradic-stimulation. Indication, Contra-indications and precautions, Techniques of stimulation- group muscle stimulation, Faradic foot bath, Faradism under pressure and pelvic floor muscle re-education., Galvanic Current: Introduction, types, characteristics, Parameters of stimulation, Physiological and therapeutic uses of stimulation, Precautions., Iontophoresis: Definition, principles of iontophoresis, physiological and therapeutic uses, indications, techniques of iontophoresis, principles of treatment, contraindications and dangers., Transcutaneous Electrical Nerve Stimulation (TENS): Definition, types, Theories of pain modulation emphasizing on “Pain gate” theory, techniques of treatment, indication and contraindications., Other Current: Sinusoidal current.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 25               |
| 2                  | <b>Medium Frequency Current</b><br>Interferential current: Definition, characteristics, physiological & therapeutic effects, techniques of application, indications, contraindications and precautions., Other Currents: Introduction to Russian current, Di-dynamic current, High Voltage Pulsed Galvanic Stimulation (HVPGS) and Micro-currents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15               |
| 3                  | <b>High-Frequency Current</b><br>Short Wave Diathermy (SWD): Introduction, physiological effects and Therapeutic effects, methods of application (capacitor field method and cable method etc.) Techniques of treatment, indication, contra-indications and dangers., Pulsed SWD: Definition, characteristics, mechanism of work, physiological effects and therapeutic effects, indications, techniques of application, principles of treatment and contra-indications., Ultrasonic Therapy (US): Introduction and characteristics, parameters, coupling media, therapeutic effects, indications contra-indications and dangers, testing of apparatus, techniques of application & dosage, Phonophoresis., Infrared Rays (IRR): Production of infrared rays, luminous and non-luminous generators, penetration, the technique of application, physiological effects and therapeutic uses of infrared rays, duration and frequency of treatment, indications and contraindications, dangers and precautions., Ultra Violet Rays (UVR): Production, test dose, physiological effects of UVR dosimetry in UVR. Psoralen UVA (PUVA), LASER: Introduction and characteristics, effects on tissue, therapeutic effects, principles of application, indications, contra-indications and dangers., Microwave Diathermy (MWD): Introduction and characteristics, physiological effects, therapeutics effects, techniques of application and principles of treatment, indications, contra-indications and dangers. | 25               |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Contact<br/>Hours</b> |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 4                          | <b>Electro-Diagnosis</b><br>Faradic-Galvanic (FG) Test., Strength Duration (SD) Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase., Nerve conduction velocity studies: Introduction, physiology and basics of its application and uses., Electromyography (EMG): Introduction, physiology and basics of its application and uses., Late Responses: F-wave, H-reflex.                                                                                                                                                                        | 15                       |
| 5                          | <b>Superficial Heating &amp; Cryotherapy</b><br>Superficial heat modalities: Paraffin Wax Bath, Heating pad, Moist heat, Fluidotherapy, Whirlpool bath: Construction, Method of application, Therapeutic uses, Indications & Contraindications., Cryotherapy: Definition, Principles, Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages., Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.                                                                                                                                                  | 20                       |
| 6                          | <b>Recent Advances</b><br>Computerization in electrotherapy., Combination therapy: Principles, therapeutic uses and indications like Ultrasound therapy with stimulation or Trans-Cutaneous Electrical Nerve Stimulation (TENS) etc., Advanced Therapies: High-intensity Laser Amplification by Stimulated Emission of Radiation (LASER), Shockwave, Pulsed Electromagnetic Energy (PEME), Long Wave Diathermy (LWD), Variable Muscle Stimulation, Spinal Decompression, Pneumatic Compression therapy, Functional Electrical Stimulation (FES), Virtual Reality (VR) training., Biofeedback: Introduction, principles, therapeutic effects, indications and contra-indications, techniques of treatment. | 20                       |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>120</b>               |

### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>Low Frequency Currents</b><br>Faradic Current: Definition, Characteristic and modified faradic current, Parameters of faradic stimulation, Physiological and therapeutic effects of faradic-stimulation. Indication, Contra-indications and precautions, Techniques of stimulation- group muscle stimulation, Faradic foot bath, Faradism under pressure and pelvic floor muscle re-education, Galvanic Current: Introduction, types, characteristics, Parameters of stimulation, Physiological and therapeutic uses of stimulation, Precautions, Iontophoresis: Definition, principles of iontophoresis, physiological and therapeutic uses, indications, techniques of iontophoresis, principles of treatment, contraindications and dangers., Transcutaneous Electrical Nerve Stimulation (TENS): Definition, types, Theories of pain modulation emphasizing on “Pain gate” theory, techniques of treatment, indication and contraindications, Other Current: Sinusoidal current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 25               |
| 2                  | <b>Medium Frequency Current</b><br>Interferential current: Definition, characteristics, physiological & therapeutic effects, techniques of application, indications, contraindications and precautions, Interferential current: Definition, characteristics, physiological & therapeutic effects, techniques of application, indications, contraindications and precautions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15               |
| 3                  | <b>High-Frequency Current</b><br>Short Wave Diathermy (SWD): Introduction, physiological effects and Therapeutic effects, methods of application (capacitor field method and cable method etc.) Techniques of treatment, indication, contra-indications and dangers., Pulsed SWD: Definition, characteristics, mechanism of work, physiological effects and therapeutic effects, indications, techniques of application, principles of treatment and contra-indications, Ultrasonic Therapy (US): Introduction and characteristics, parameters, coupling media, therapeutic effects, indications contra-indications and dangers, testing of apparatus, techniques of application & dosage, Phonophoresis, Infrared Rays (IRR): Production of infrared rays, luminous and non-luminous generators, penetration, the technique of application, physiological effects and therapeutic uses of infrared rays, duration and frequency of treatment, indications and contraindications, dangers and precautions., Ultra Violet Rays (UVR): Production, test dose, physiological effects of UVR dosimetry in UVR. Psoralen UVA (PUVA), LASER: Introduction and characteristics, effects on tissue, therapeutic effects, principles of application, indications, contra-indications and dangers., Microwave Diathermy (MWD): Introduction and characteristics, physiological effects, therapeutics effects, techniques of application and principles of treatment, indications, contra-indications and dangers. | 23               |

### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 4                  | <b>Electro-Diagnosis</b><br>Faradic-Galvanic (FG) Test., Strength Duration (SD) Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase., Nerve conduction velocity studies: Introduction, physiology and basics of its application and uses., Electromyography (EMG): Introduction, physiology and basics of its application and uses, Late Responses: F-wave, H-reflex                                                                                                                                                                        | 15               |
| 5                  | <b>Superficial Heating &amp; Cryotherapy</b><br>Superficial heat modalities: Paraffin Wax Bath, Heating pad, Moist heat, Fluidotherapy, Whirlpool bath: Construction, Method of application, Therapeutic uses, Indications & Contraindications., Cryotherapy: Definition, Principles, Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages., Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.                                                                                                                                                | 17               |
| 6                  | <b>Recent Advances</b><br>Computerization in electrotherapy, Combination therapy: Principles, therapeutic uses and indications like Ultrasound therapy with stimulation or Trans-Cutaneous Electrical Nerve Stimulation (TENS) etc., Advanced Therapies: High-intensity Laser Amplification by Stimulated Emission of Radiation (LASER), Shockwave, Pulsed Electromagnetic Energy (PEME), Long Wave Diathermy (LWD), Variable Muscle Stimulation, Spinal Decompression, Pneumatic Compression therapy, Functional Electrical Stimulation (FES), Virtual Reality (VR) training., Biofeedback: Introduction, principles, therapeutic effects, indications and contra-indications, techniques of treatment | 25               |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>120</b>       |

### Textbook :

- 1 Electrotherapy Explained: Principles & Practice, Val Robertson, John L. Low, Alex Ward, Ann Reed, Elsevier, 2008
- 2 Clayton's Electrotherapy Theory and Practice, Edward Bellis Clayton, Angela Forster, Nigel Palastanga, Baillière Tindall, 1985
- 3 Textbook of Electrotherapy, Jagmohan Singh, Jaypee Brothers, Medical Publishers, 2017

### References:

- 1 Basics of Electrotherapy - Subhash Khatri
- 2 Clinical electrotherapy - Nelson & Currier
- 3 Clinical electrophysiology: Electrotherapy & electrophysiological testing – Andrew J. Robinson & Lynn Snyder Mackler

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

### Instructional Method:

- 1 Theory + Practical

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>EXERCISE THERAPY 2</b>        |
| <b>COURSE CODE</b>    | <b>17PT1206</b>                  |
| <b>COURSE CREDITS</b> | <b>9</b>                         |

### Objective:

- 1 To understand principles and procedures, indications, contraindications and precautions, appropriate methods of application of each of the assessment strategy and treatment techniques hands-on and on models with Application of different exercise therapeutic modality to patients.
- 2 To Provide high quality, ethical, effective, and cost-efficient practices by students and gain expertise in the exercise prescription to patients.
- 3 To understand principles and procedures, indications, contraindications and precautions, appropriate methods of application of each of the assessment strategy and treatment techniques hands-on and on models with Application of different exercise therapeutic modality to patients.
- 4 To understand the effect of exercise therapeutic modality in the restoration of physical function.
- 5 To describe the physiological and therapeutic effects of various movements and acquire the skills of using various tools of the therapeutic gymnasium.
- 6 To describe the biophysical properties of connective tissue and the effect of biomedical loading and factors which influence the muscle strength and mobility of articular and periarticular soft tissue.
- 7 To acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively
- 8 To analyze normal human posture and its associated problems, its management.
- 9 To describe and demonstrate various therapeutic exercise with its technique: including chest P.T. on self and also acquire the skill of application on model.
- 10 To demonstrate general fitness, exercise and shall gain fitness for oneself

### Course Outcomes: After completion of this course, student will be able to:

- 1 Describe the biophysical properties of connective tissue and the effect of biomedical loading and factors which influence the muscle strength and mobility of articular and periarticular soft tissue.
- 2 Acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively
- 3 Analyze normal human posture and its associated problems, its management.
- 4 Describe and demonstrate various therapeutic exercise with its technique: including chest P.T. on self and also acquire the skill of application on model.
- 5 Demonstrate general fitness, exercise and shall gain fitness for oneself

**Pre-requisite of course:** A strong understanding of human anatomy and physiology is essential for exercise therapy.

### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 120          | 0              | 120             | 50  | 30 | 20  | 50   | 50        |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                               | Contact Hours |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>Stretching</b><br>Definitions related to stretching, types of contractures and differentiation properties of soft tissues affecting elongation and aims of stretching, Manual and mechanical stretching, Cycle mechanical stretching, indications and aims of stretching, Principles and contraindications                                                                                        | 12            |
| 2               | <b>Continuous Passive Movement (CPM) unit</b><br>Definition, Method of application, Indications, Contra-indications , Precautions                                                                                                                                                                                                                                                                    | 4             |
| 3               | <b>Traction</b><br>Types, Effects, Principles of application for cervical and lumbar spine, Traction to soft tissues of joints – gliding movements                                                                                                                                                                                                                                                   | 4             |
| 4               | <b>Mobilization</b><br>Causes of restriction of Range of Motion (R.O.M.), Prevention of restrictions, Techniques of mobilization of various joints of limbs to mobilize joint R.O.M. through functional diagonal patterns, Joint mobilization; manipulation-definition, Types, Joint shapes, Types of motion, Stretching, Glides, Compression, Traction, Indications, Contraindications, Precautions | 12            |
| 5               | <b>Advance soft tissue Mobilization</b><br>Basic principles of Muscle Energy Techniques (MET), Myofascial Release Techniques (MFR), Positional Release Therapy (PRT), Neural Tissue Mobilization (NTM)                                                                                                                                                                                               | 6             |
| 6               | <b>Manual Muscle Testing (M.M.T.)</b><br>Uses, Fundamental principles, Anatomical and physiological basis, Oxford scale of muscle gradation, Principles of isolation, substitution, stabilization, Grading procedure for muscles of upper and lower extremities (group and individual), Neck and trunk, Voluntary control of movement gradation by Bobath, Brunnstrom                                | 12            |
| 7               | <b>Crawling exercises</b><br>Principles, Types, Effects & Uses.                                                                                                                                                                                                                                                                                                                                      | 5             |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 8                  | <b>Progressive Resisted Exercise (PRE) /Strengthening of muscles</b><br>Principles involved to prevent muscle wasting, Rood's technique of initiating muscle contraction, Progressive strengthening of muscles (loads assisted and resisted exercises), Use of equipment, Reeducation of muscles and restoration of functions, The practice of strengthening of muscles of limbs; Neck, Trunk and face, Emphasis on hand and foot muscles, Quadriceps, Glutei, Triceps, Deltoid and face muscles, Use of manual and mechanical resistance, Contraindications, Plyometrics, Muscle Energy Techniques (MET), Dynamic exercise: Concentric and eccentric, Dynamic exercise-Constant versus variable resistance, Isokinetic exercise, Open chain and closed chain exercise, De-Lormes, Oxford, Mac Queen, circuit weight training, Multiple angle isometrics, isokinetic regimens | 5                |
| 9                  | <b>Proprioceptive Neuromuscular Facilitation (PNF)</b><br>Introduction , Principles, Basic procedures for Facilitation, Basis techniques of PNF patterns: Arm, Leg, Neck, Head and trunk, Face, Techniques for emphasis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7                |
| 10                 | <b>Relaxation</b><br>Muscle tone, Postural tone, General and local relaxation techniques of relaxation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15               |
| 11                 | <b>Neuromuscular coordination</b><br>Factors governing co-ordination, Principles of re-education, Frenkel's exercises and its techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6                |
| 12                 | <b>Balance</b><br>Background and concept, Key Terms and Definitions, Balance Control, Sensory Systems and Balance Control, Motor Strategies for Balance Control, Balance Control under Varying Conditions, Impaired Balance: Sensory Input Impairments Sensorimotor Integration, Biomechanical and Motor Output Deficits, Deficits with Aging, Deficits from Medications, Health and Environmental Factors                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7                |
| 13                 | <b>Functional Re-education</b><br>Mat activities for the re-education of hemiplegics, paraplegics and cerebral palsy, Walking re-education in neurological and orthopedic conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4                |
| 14                 | <b>Aerobic exercises</b><br>Physiological effects and therapeutic uses, Fitness testing, Stress testing for healthy and convalescent individuals, Pharmacological aspects of exercises.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10               |
| 15                 | <b>Postural Drainage</b><br>Indications and Contraindications, Forced Expiration Technique (FET), Assistive devices, Techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5                |
| 16                 | <b>Hydrotherapy</b><br>Physiological properties of water and hydrodynamics, Physiological and applications of Bad- Ragaz Technique, Indications and contraindications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4                |

| Contents :<br>Unit | Topics                                                                                                    | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------|------------------|
| 17                 | <b>Yoga-Asana, Pranayama and their scientific uses</b><br>Yoga-Asana, Pranayama and their scientific uses | 2                |
| <b>Total Hours</b> |                                                                                                           | <b>120</b>       |

### Suggested List of Experiments:

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                               | Contact<br>Hours |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>Stretching</b><br>Definitions related to stretching, types of contractures and differentiation properties of soft tissues affecting elongation and aims of stretching, Manual and mechanical stretching, Cycle mechanical stretching, indications and aims of stretching, Principles and contraindications                                                                                        | 15               |
| 2                  | <b>Continuous Passive Movement (CPM) unit</b><br>Definition, Method of application, Indications, Contra-indications , Precautions                                                                                                                                                                                                                                                                    | 2                |
| 3                  | <b>Mobilization</b><br>Causes of restriction of Range of Motion (R.O.M.), Prevention of restrictions, Techniques of mobilization of various joints of limbs to mobilize joint R.O.M. through functional diagonal patterns, Joint mobilization; manipulation-definition, Types, Joint shapes, Types of motion, Stretching, Glides, Compression, Traction, Indications, Contraindications, Precautions | 15               |
| 4                  | <b>Advance soft tissue Mobilization</b><br>Basic principles of Muscle Energy Techniques (MET), Myofascial Release Techniques (MFR), Positional Release Therapy (PRT), Neural Tissue Mobilization (NTM)                                                                                                                                                                                               | 6                |
| 5                  | <b>Manual Muscle Testing (M.M.T.)</b><br>Uses, Fundamental principles, Anatomical and physiological basis, Oxford scale of muscle gradation, Principles of isolation, substitution, stabilization, Grading procedure for muscles of upper and lower extremities (group and individual), Neck and trunk, Voluntary control of movement gradation by Bobath, Brunnstrom                                | 15               |
| 6                  | <b>Crawling exercises</b><br>Principles, Types, Effects & Uses                                                                                                                                                                                                                                                                                                                                       | 3                |

**Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 7                          | <b>Progressive Resisted Exercise (PRE) /Strengthening of muscles</b><br>Principles involved to prevent muscle wasting, Rood's technique of initiating muscle contraction, Progressive strengthening of muscles (loads assisted and resisted exercises), Use of equipment, Reeducation of muscles and restoration of functions, The practice of strengthening of muscles of limbs; Neck, Trunk and face, Emphasis on hand and foot muscles, Quadriceps, Glutei, Triceps, Deltoid and face muscles, Use of manual and mechanical resistance, Contraindications, Plyometrics, Muscle Energy Techniques (MET), Dynamic exercise: Concentric and eccentric, Dynamic exercise-Constant versus variable resistance, Isokinetic exercise, Open chain and closed chain exercise, De-Lormes, Oxford, Mac Queen, circuit weight training, Multiple angle isometrics, isokinetic regimens | 8                        |
| 8                          | <b>Proprioceptive Neuromuscular Facilitation (PNF)</b><br>Introduction , Principles, Basic procedures for Facilitation, Basis techniques of PNF patterns: Arm, Leg, Neck, Head and trunk, Face, Techniques for emphasis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15                       |
| 9                          | <b>Relaxation</b><br>Muscle tone, Postural tone, General and local relaxation techniques of relaxation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3                        |
| 10                         | <b>Neuromuscular coordination</b><br>Factors governing co-ordination, Principles of re-education, Frenkel's exercises and its techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6                        |
| 11                         | <b>Balance</b><br>Background and concept, Key Terms and Definitions, Balance Control, Sensory Systems and Balance Control, Motor Strategies for Balance Control, Balance Control under Varying Conditions, Impaired Balance: Sensory Input Impairments Sensorimotor Integration, Biomechanical and Motor Output Deficits, Deficits with Aging, Deficits from Medications, Health and Environmental Factors                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                        |
| 12                         | <b>Functional Re-education</b><br>Mat activities for the re-education of hemiplegics, paraplegics and cerebral palsy, Walking re-education in neurological and orthopedic conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8                        |
| 13                         | <b>Aerobic exercises</b><br>Physiological effects and therapeutic uses, Fitness testing, Stress testing for healthy and convalescent individuals, Pharmacological aspects of exercises                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6                        |
| 14                         | <b>Postural Drainage</b><br>Indications and Contraindications, Forced Expiration Technique (FET), Assistive devices, Techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7                        |
| 15                         | <b>Yoga-Asana, Pranayama and their scientific uses</b><br>Yoga-Asana, Pranayama and their scientific uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>120</b>               |

**Textbook :**

- 1 Principles of Exercise Therapy , Dena Gardiner, CBS Publication., 2005
- 2 Therapeutic Exercise Foundations and Techniques, Kisner & Colby, Jaypee Publication., 2017
- 3 Daniels and Worthingham's Muscle Testing , Daniel and Worthingham, Elsevier Health Sciences, 2013
- 4 PNF in Practice An Illustrated Guide, Susan S. Adler, Dominiek Beckers, Math Buck, Springer Berlin Heidelberg, 2007
- 5 Practical Exercise Therapy, Margaret Hollis, Blackwell Sciences Publication, 1999

**References:**

- 1 Muscle testing - Kendall
- 2 PNF - Knott and Voss
- 3 Muscle Energy Technique - Leon Chaitow.
- 4 Tidy's Physiotherapy – Stuart Porter
- 5 The Myofascial Release Manual. - Carol J. Manheim

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 30.00             | 25.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory + Practical

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>2</b>                         |
| <b>COURSE TITLE</b>   | <b>SPORTS</b>                    |
| <b>COURSE CODE</b>    |                                  |
| <b>COURSE CREDITS</b> | <b>0</b>                         |

**Objective:**

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Course Outcomes:** After completion of this course, student will be able to:

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Pre-requisite of course:** To understand the body mechanics with the help of sports activities

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 40              | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                          | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------|----------------------|
| 1                      | <b>sports activities -indoor</b><br>indoor activities  | 20                   |
| 2                      | <b>sports activities-outdoor</b><br>outdoor activities | 20                   |
| <b>Total Hours</b>     |                                                        | <b>40</b>            |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
|                             |                   |              |                |                 |                                         |

**Instructional Method:**

- 1 Field based activities

**Supplementary Resources:**

- 1 NA

|                       |                                               |
|-----------------------|-----------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>               |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>              |
| <b>SEMESTER</b>       | <b>3</b>                                      |
| <b>COURSE TITLE</b>   | <b>MEDICINE (GENERAL MEDICINE &amp; SKIN)</b> |
| <b>COURSE CODE</b>    | <b>17PT0301</b>                               |
| <b>COURSE CREDITS</b> | <b>5</b>                                      |

**Objective:**

- 1 To be able to describe the principles of management at the medical intensive care unit including the practice of first aid/Cardiopulmonary Resuscitation (CPR)
- 2 To Acquire the knowledge of Etiology, Pathophysiology, signs and symptoms and management in brief, of the infectious diseases, cardiovascular and respiratory disorders, auto-immune conditions, endocrinal disorder and nutritional disorder.
- 3 To Acquire the knowledge in medicine that is required to be practised in the community and at all levels of the health care system.
- 4 To Understand relevant investigations which will help to know about the important medical conditions.
- 5 To Able to describe the principles of management at the medical intensive care unit including the practice of first aid/Cardiopulmonary Resuscitation (CPR)

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Acquire the knowledge of Etiology, Pathophysiology, signs and symptoms and management in brief, of the infectious diseases, cardiovascular and respiratory disorders, auto-immune conditions, endocrinal disorder and nutritional disorder.
- 2 Acquire the knowledge in medicine that is required to be practised in the community and at all levels of the health care system.
- 3 Understand relevant investigations which will help to know about the important medical conditions.
- 4 Able to describe the principles of management at the medical intensive care unit including the practice of first aid/Cardiopulmonary Resuscitation (CPR)

**Pre-requisite of course:** A basic understanding of human anatomy, physiology, pathology, basic medical terminologies of pharmacology is often a fundamental prerequisite.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 100                 | 0                     | 0                      | 50         | 30        | 20         | 0           | 0                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>Respiratory Diseases</b><br>Lung function tests, Pneumonia, Interstitial Lung Disease (ILD), Cystic fibrosis, Respiratory failure, Upper Respiratory Tract Infection (URTI), Pulmonary oedema, Pulmonary embolism, lung abscess, COPD (Bronchiectasis, Emphysema, Chronic Bronchitis), Asthma, Pleural effusion, Pneumothorax, Empyema                                                                                                                                                                                                      | 18                       |
| 2                          | <b>Cardio Vascular Diseases</b><br>Rheumatic fever, Valvular lesions, Congestive cardiac failure, Ischemic heart diseases (Angina pectoris and myocardial infarction) stress test, Cardiac arrest, Peripheral vascular diseases (TAO, Raynaud's disease), Cardiomyopathy, Congenital heart disease, Myocarditis, hypertension                                                                                                                                                                                                                  | 18                       |
| 3                          | <b>Endocrinal Disorders</b><br>Diabetes mellitus, Obesity, Thyroid disorder                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6                        |
| 4                          | <b>Gastrointestinal Disorders</b><br>Peptic ulcer, Pancreatitis, Dysenteries and Diarrhea, Inflammatory bowel diseases, Jaundice, Cirrhosis of liver                                                                                                                                                                                                                                                                                                                                                                                           | 5                        |
| 5                          | <b>Infectious Disease</b><br>Tuberculosis, Malaria, Typhoid, Infective hepatitis, Tetanus, Covid-19, Mucormycosis                                                                                                                                                                                                                                                                                                                                                                                                                              | 10                       |
| 6                          | <b>Rheumatology</b><br>Rheumatoid arthritis, Ankylosing spondylitis, Gout, Osteoarthritis, Spondyloarthritis, Systemic lupus erythematosus, Polyarteritis nodosa, Mixed connective tissue disorders, Scleroderma.                                                                                                                                                                                                                                                                                                                              | 10                       |
| 7                          | <b>Blood disorder</b><br>Anaemia, Hemophilia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4                        |
| 8                          | <b>Nutritional Disorder</b><br>Vitamins and their deficiencies, Disorders including rickets and osteomalacia                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5                        |
| 9                          | <b>Skin conditions</b><br>Structure and functions of normal skin, primary and secondary skin lesions, Scabies and pediculosis., Fungal infections of the skin: Dermatophytosis, Pityriasis, Versicolor, Candidiasis., Bacterial infections of skin-impetigo / Boil., Viral infections of skin-Herpes zoster., Eczema, Dermatitis, Allergies., Psoriasis, Acne, Alopecia, Vitiligo, Leukoderma., Leprosy / Lepra - reaction/Physiotherapy in leprosy, Sexually transmitted diseases: Syphilis: primary & secondary,, Gonorrhea,, Cancroid, AIDS | 20                       |
| 10                         | <b>Urogenital System</b><br>Structure and functions of kidneys including physiology of micturition, Acute and chronic renal failure, glomerulo-nephritis, pyelonephritis                                                                                                                                                                                                                                                                                                                                                                       | 4                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>100</b>               |

**Textbook :**

- 1 Textbook of medicine by Golwala, Golwala, Jaypee Brothers Medical Publishers, 2020

**References:**

- 1 Textbook of medicine by Golwala, 18th edition
- 2 Principles and practice of medicine by – Davidson, 20th Edition, Churchill Livingstone Publication
- 3 Practical medicine by – P J Mehta, 20th Edition.
- 4 P.C.DAS and P.K. DAS textbook of Medicine, 6th Edition, Current Books International Publication.
- 5 ACP Medicine by – Davis C Dale, 2004-2005 Edition, Churchill Livingstone Publication
- 6 Dermatology and sexually transmitted disease, Neena Khanna
- 7 ABC of dermatology. P. K. Buxton

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 25.00                                                     | 25.00      | 20.00 | 10.00   | 20.00    | 0.00                             |

**Instructional Method:**

- 1 Lectures in classroom and observe and analyze the patients in clinical postings

**Supplementary Resources:**

- 1 <https://www.youtube.com/c/osmosis/videos>
- 2 [https://www.youtube.com/results?search\\_query=nucleus+video](https://www.youtube.com/results?search_query=nucleus+video)

|                       |                                   |
|-----------------------|-----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>   |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>  |
| <b>SEMESTER</b>       | <b>3</b>                          |
| <b>COURSE TITLE</b>   | <b>NEUROLOGY &amp; PEDIATRICS</b> |
| <b>COURSE CODE</b>    | <b>17PT0302</b>                   |
| <b>COURSE CREDITS</b> | <b>5</b>                          |

**Objective:**

- 1 To Understand the basic neurological conditions which commonly cause disability and their management.
- 2 To Know the etiology, Classification, Pathology, Clinical Features, Relevant Investigations, Complications, Surgical & Non-Surgical Management of various Neurological Conditions.
- 3 To Understand the importance of various investigations like haematological, biochemical, electrophysiological & radio imaging investigations in diagnosis as well as in the management of neuro conditions
- 4 To Describe the normal development and growth of a child
- 5 To Describe neuromuscular, Musculoskeletal and cardiopulmonary conditions in children and also acquire the skill of clinical examination of a child concerning neurological musculoskeletal and respiratory functions.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the basic neurological conditions which commonly cause disability and their management.
- 2 Know the etiology, Classification, Pathology, Clinical Features, Relevant Investigations, Complications, Surgical & Non-Surgical Management of various Neurological Conditions.
- 3 Understand the importance of various investigations like haematological, biochemical, electrophysiological & radio imaging investigations in diagnosis as well as in the management of neuro conditions
- 4 Describe the normal development and growth of a child
- 5 Describe neuromuscular, Musculoskeletal and cardiopulmonary conditions in children and also acquire the skill of clinical examination of a child concerning neurological musculoskeletal and respiratory functions.

**Pre-requisite of course:** A basic understanding of human neuro-anatomy, physiology, pathology, basic medical terminologies of pharmacology is often a fundamental.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 100                 | 0                     | 0                      | 50         | 30        | 20         | 0           | 0                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>Lesions and diseases of various areas of the brain</b><br>Pyramidal system, , Extra-pyramidal system, , Cerebellar system, , Spinal cord, , Upper and lower motor neuron, , Cranial nerves, , Brachial plexus, , Lumbosacral plexus and peripheral nerves.                                                                                                                                                                                   | 10                       |
| 2                          | <b>Causes, Clinical features, management of various conditions:</b><br>Unconscious patient, , Hemiplegia, , Paraplegia, Quadriplegia, , Cerebral diplegia, Spastic child, , Foot drop and wrist drop.                                                                                                                                                                                                                                           | 10                       |
| 3                          | <b>Disorders of cerebral circulation.</b><br>Disorders of cerebral circulation                                                                                                                                                                                                                                                                                                                                                                  | 10                       |
| 4                          | <b>Infections</b><br>Encephalitis, , Meningitis, , Poliomyelitis, , Transverse myelitis, , Slow viral diseases.                                                                                                                                                                                                                                                                                                                                 | 10                       |
| 5                          | <b>Diseases of Peripheral nerves</b><br>Peripheral neuropathy, , Other neuropathies.                                                                                                                                                                                                                                                                                                                                                            | 5                        |
| 6                          | <b>Muscle disorders:</b><br>Myopathy, polymyositis, , Muscular dystrophies., Muscular dystrophies.                                                                                                                                                                                                                                                                                                                                              | 10                       |
| 7                          | <b>Degenerative diseases</b><br>Parkinsonism, , Myasthenia gravis,, Motor neuron diseases, , Spinocerebellar degenerations and diseases of anterior horn cell,, Dementia.                                                                                                                                                                                                                                                                       | 10                       |
| 8                          | <b>Costo-clavicular syndrome</b><br>Costo-clavicular syndrome                                                                                                                                                                                                                                                                                                                                                                                   | 2                        |
| 9                          | <b>Demyelinating disorders including multiple sclerosis</b><br>Multiple sclerosis, Other diseases                                                                                                                                                                                                                                                                                                                                               | 5                        |
| 10                         | <b>The basic concept of electrophysiology and electromyography</b><br>The basic concept of electrophysiology and electromyography                                                                                                                                                                                                                                                                                                               | 5                        |
| 11                         | <b>Giddiness and vertigo</b><br>Giddiness and vertigo                                                                                                                                                                                                                                                                                                                                                                                           | 3                        |
| 12                         | <b>Growth and development of a child</b><br>Growth and development of a child from birth to 12 years, including physical, social, adaptive development.                                                                                                                                                                                                                                                                                         | 1                        |
| 13                         | <b>The maternal and neonatal factors contributing to high-risk pregnancy</b><br>The maternal and neonatal factors contributing to high-risk pregnancy, the neonate, inherited diseases, maternal infections - viral and bacterial, maternal diseases incidental to pregnancy, induced hypertension, chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy, bleeding in the mother at any trimester. | 1                        |
| 14                         | <b>Community programs</b><br>Community programs: International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism, the immunization schedule for children.                                                                                                                                                                                                                  | 1                        |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                          | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 15                 | <b>Cerebral Palsy</b><br>Etiology - prenatal, perinatal and postnatal causes, pathogenesis, types of cerebral palsy (classification), findings on examination, general examination, examination of C.N.S., musculoskeletal system, respiratory system, G.I. Tract and nutritional status.                                                       | 2                |
| 16                 | <b>Downs syndrome, Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions.</b><br>Downs syndrome, Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions                                                                                                | 2                |
| 17                 | <b>Prevention: Appropriate management of high-risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.</b><br>Prevention: Appropriate management of high-risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.                                                                   | 1                |
| 18                 | <b>Muscular Dystrophy</b><br>Various forms, modes of inheritance and clinical manifestation, physical findings concerning disabilities, progression of various forms and prognosis, treatment goals in forms that are not fatal.                                                                                                                | 2                |
| 19                 | <b>Spina Bifida</b><br>Meningomyelocele: Development, clinical features - lower limbs, Bladder and bowel complications – Urinary Tract Infection (UTI), Hydrocephalus, medical management.                                                                                                                                                      | 2                |
| 20                 | <b>Still's Disease</b><br>Classification, pathology, in brief, physical findings, course and prognosis, treatment, prevention and correction of the deformity.                                                                                                                                                                                  | 2                |
| 21                 | <b>Acute C.N.S. infections</b><br>Classification (Bacterial and Viral), the acute illness, C.N.S. sequel leading to mental retardation, blindness, deafness, speech defect, motor paralysis, bladder and bowel problems, seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties. | 2                |
| 22                 | <b>Arnold Chiari Malformation, Basilar Impression, Klippel-Feil Syndrome, Achondroplasia, Cerebral Malformation, Autism, Dandi Walker Syndrome</b><br>Arnold Chiari Malformation, Basilar Impression, Klippel-Feil Syndrome, Achondroplasia, Cerebral Malformation, Autism, Dandi Walker Syndrome                                               | 2                |
| 23                 | <b>Normal diet of newborn and child</b><br>List dietary calorie, fat, protein, mineral and vitamin requirement in normal child and a child with malnutrition. childhood obesity. Etiology, findings, and treatment of rickets, vitamin D deficiency and resistant rickets.                                                                      | 1                |
| 24                 | <b>Lung infections</b><br>Clinical findings, complications and medical treatment of bronchiectasis                                                                                                                                                                                                                                              | 1                |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                                                                                 | <b>100</b>       |

**Textbook :**

- 1 Physical Rehabilitation , O' Sullivan, Jaypee Medical , 2016

**References:**

- 1 Neurology and neurosurgery illustrated, Lindsay
- 2 Textbook of medicine by Golwala, 18th edition
- 3 Practical Medicine by P J Mehta
- 4 Physical rehabilitation, Susan B. O'Sullivan
- 5 Clinical Neuroanatomy by Vishram Singh, Latest Edition, Elsevier
- 6 Cash's Textbook of Neurology for Physiotherapists by Patricia A. Downie, Latest Edition, Jaypee Publication
- 7 Physiotherapy in Neuro-conditions by Gladys Samuel Raj, Latest edition, Jaypee Publication

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 10.00                                                     | 20.00             | 25.00        | 25.00          | 10.00           | 10.00                                   |

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>3</b>                         |
| <b>COURSE TITLE</b>   | <b>SURGERY</b>                   |
| <b>COURSE CODE</b>    | <b>17PT0303</b>                  |
| <b>COURSE CREDITS</b> | <b>8</b>                         |

### Objective:

- 1 To Able to describe preoperative evaluation, surgical indications and various surgical approaches in various abdominal, neurological & cardiothoracic conditions.
- 2 To remember surgical approaches in the form of line diagram and will be able to describe the components of soft tissue, cut to reach the target tissue and possible post operative complications in the movement & posture.
- 3 To Describe the management of head injury, spinal surgeries, intracranial tumors, peripheral nerve injury, pain, wound, ulcer, burns.
- 4 To Describe the normal and abnormal physiological events during puberty, labour, postnatal stage and menopause.
- 5 To Discuss the various complications during pregnancy and management.
- 6 To Acquire the skill of examination of pelvic floor muscles and also a pregnant woman.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Able to describe preoperative evaluation, surgical indications and various surgical approaches in various abdominal, neurological & cardiothoracic conditions.
- 2 To remember surgical approaches in the form of line diagram and will be able to describe the components of soft tissue, cut to reach the target tissue and possible post operative complications in the movement & posture.
- 3 Describe the management of head injury, spinal surgeries, intracranial tumors, peripheral nerve injury, pain, wound, ulcer, burns.
- 4 Describe the normal and abnormal physiological events during puberty, labour, postnatal stage and menopause.
- 5 Discuss the various complications during pregnancy and management.
- 6 Acquire the skill of examination of pelvic floor muscles and also a pregnant woman.

**Pre-requisite of course:** A basic understanding of human anatomy, physiology, pathology and pharmacology, is often a fundamental prerequisite.

### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 160                 | 0                     | 0                      | 50         | 30        | 20         | 0           | 0                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Contact<br/>Hours</b> |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>Acute infections</b><br>Acute infections: Inflammatory fever, bacteremia, septicemia, pyemia, toxemia. Specific types - Cellulitis - sites lymphangitis, abscess with special reference to hand infection, carbuncle.                                                                                                                                                                                                                                       | 6                        |
| 2                          | <b>Specific types</b><br>Specific types continued: Tetanus, gas gangrene, hospital infection, cross-infection with modes of spread and prevention, General survey of chronic inflammations, Syphilis (reference to other venereal diseases) leprosy, actinomycosis.                                                                                                                                                                                            | 6                        |
| 3                          | <b>General survey of trauma, pathology and clinical features of wound repair</b><br>General survey of trauma, pathology and clinical features of wound repair: primary, secondary and tertiary wound healing, Clean wounds, contaminated wounds and infectious wounds, Principles of treatment, survey of factors affecting wound healing, Ulcers and gangrene, Post-operative complications of abdominal surgery specifically chest, wound infection, oedema. | 6                        |
| 4                          | <b>Burns as a specific type of severe trauma</b><br>Burns as a specific type of severe trauma: classification, early and late complications, management & reconstructive surgery - skin grafting as an example of the plastic procedure.                                                                                                                                                                                                                       | 6                        |
| 5                          | <b>Types of skin grafting</b><br>Types of skin grafting: take of grafting - healing of grafting, Post-operative care of plastic surgery with the specific role of physiotherapy.                                                                                                                                                                                                                                                                               | 6                        |
| 6                          | <b>Outline of surgical disorders of brain-head injuries</b><br>Outline of surgical disorders of brain-head injuries: A general survey of surgical disorders of the spine and spinal cord problem of paraplegia, malignancy - spread and its behaviour, various abdominal incisions, abdominal drainage tubes, catheters and nasogastric tubes, ward demonstration for an hour a day for one week.                                                              | 6                        |
| 7                          | <b>Anesthesia</b><br>Anesthesia, O.T. demonstrations.                                                                                                                                                                                                                                                                                                                                                                                                          | 6                        |
| 8                          | <b>Neck, skin contractures and correction.</b><br>Neck, skin contractures and correction.                                                                                                                                                                                                                                                                                                                                                                      | 6                        |
| 9                          | <b>Problems of trauma to hand and their management.</b><br>Problems of trauma to hand and their management.                                                                                                                                                                                                                                                                                                                                                    | 6                        |
| 10                         | <b>Principles of cineplasty</b><br>Principles of cineplasty: tendon transplant, cosmetic surgery types of grafts, surgery of hands with emphasis on management of traumatic and leprosy hand.                                                                                                                                                                                                                                                                  | 6                        |
| 11                         | <b>Breast – Surgery</b><br>Breast – Surgery                                                                                                                                                                                                                                                                                                                                                                                                                    | 6                        |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Contact<br>Hours |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 12                 | <b>Neurophysiology- Neurophysiology, basis of tone, disorders of tone and posture, bladder control, muscle contraction, movement and pain with clinical features and management</b><br>Congenital and childhood disorders - hydrocephalus spina bifida, Trauma - Broad localization, first aid and management of squal of head injury and spinal cord injury., Diseases of the Spinal Cord - Craniovertebral junction anomalies, syringomyelia, cervical and lumbar disc disease, tumors., Peripheral nerve disorders - Peripheral nerve injuries, localization & management., Entrapment neuropathies., Intracranial tumors - Broad classification, signs and symptoms., Pre-operative Assessment and indications and contraindication for neurosurgery in intracranial tumors., Management of pain, electrical stimulation of the brain and spinal cord., Miscellaneous. | 6                |
| 13                 | <b>Basic anatomy chest wall, trachea and bronchial tree, lungs and bronchopulmonary segments, pleura and mediastinum.</b><br>Basic anatomy chest wall, trachea and bronchial tree, lungs and bronchopulmonary segments, pleura and mediastinum.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                |
| 14                 | <b>Physiology and mechanics of breathing and use of mechanical breathing - ventilator: (respirators).</b><br>Physiology and mechanics of breathing and use of mechanical breathing - ventilator: (respirators).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                |
| 15                 | <b>Investigation of lung diseases including endoscopies.</b><br>Investigation of lung diseases including endoscopies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3                |
| 16                 | <b>Chest injury.</b><br>Chest injury.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3                |
| 17                 | <b>Common suppurative diseases of lung - Bronchiectasis, lung abscess.</b><br>Common suppurative diseases of lung - Bronchiectasis, lung abscess.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3                |
| 18                 | <b>Bronchogenic carcinoma.</b><br>Bronchogenic carcinoma.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                |
| 19                 | <b>Common surgeries of the chest</b><br>Common surgeries of the chest: Thoracoplasty, Pulmonary dissections, Thoracotomy, Pneumothorax, Hydrothorax- Pneumothorax, Empyema.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3                |
| 20                 | <b>Common diseases of the oesophagus and related conditions causing dysphagia</b><br>Common diseases of the oesophagus and related conditions causing dysphagia: Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias, Appendicectomy, Mastectomy, Nephrectomy, Prostatectomy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3                |
| 21                 | <b>Surgery of portal hypertension.</b><br>Surgery of portal hypertension.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2                |
| 22                 | <b>Surgery of pulmonary tuberculosis.</b><br>Surgery of pulmonary tuberculosis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 23                         | <b>Surgery of heart and great vessels.</b><br>Surgery of heart and great vessels.                                                                                                                                             | 2                        |
| 24                         | <b>Investigation of a patient undergoing cardiac surgery.</b><br>Investigation of a patient undergoing cardiac surgery.                                                                                                       | 2                        |
| 25                         | <b>Basic principles of open-heart Surgery, Heart-lung bypass (Extra Co-portal circulation).</b><br>Basic principles of open-heart Surgery, Heart-lung bypass (Extra Co-portal circulation).                                   | 2                        |
| 26                         | <b>Common diseases of the heart requiring surgery both congenital and acquired including open-heart surgery.</b><br>Common diseases of the heart requiring surgery both congenital and acquired including open-heart surgery. | 2                        |
| 27                         | <b>Common drugs used in cardiac surgery, their uses, side effects.</b><br>Common drugs used in cardiac surgery, their uses, side effects.                                                                                     | 2                        |
| 28                         | <b>Common vascular surgery</b><br>Common vascular surgery: Embolectomy, Vascular reconstructive surgery, (Thrombosis, Embolism, atherosclerotic and occlusive vascular diseases including coronary artery bypass).            | 2                        |
| 29                         | <b>Anatomy and physiology of the female reproductive organs. Puberty dynamics.</b><br>Anatomy and physiology of the female reproductive organs. Puberty dynamics.                                                             | 2                        |
| 30                         | <b>Physiology of menstrual cycle-ovulation cycle, uterine cycle, Duration, amount.</b><br>Physiology of menstrual cycle-ovulation cycle, uterine cycle, Duration, amount.                                                     | 2                        |
| 31                         | <b>Hormonal regulation of menstruation.</b><br>Hormonal regulation of menstruation.                                                                                                                                           | 2                        |
| 32                         | <b>Diagnosis of pregnancy</b><br>Diagnosis of pregnancy.                                                                                                                                                                      | 2                        |
| 33                         | <b>Abortion.</b><br>Abortion.                                                                                                                                                                                                 | 2                        |
| 34                         | <b>Physiological changes during pregnancy</b><br>Physiological changes during pregnancy.                                                                                                                                      | 2                        |
| 35                         | <b>Antenatal care.</b><br>Antenatal care.                                                                                                                                                                                     | 2                        |
| 36                         | <b>High-risk pregnancy</b><br>High-risk pregnancy.                                                                                                                                                                            | 2                        |
| 37                         | <b>Normal labor.</b><br>Normal labor.                                                                                                                                                                                         | 2                        |
| 38                         | <b>Normal puerperium and postnatal.</b><br>Normal puerperium and postnatal.                                                                                                                                                   | 2                        |
| 39                         | <b>Family planning.</b><br>Family planning.                                                                                                                                                                                   | 2                        |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                       | <b>Contact Hours</b> |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 40                     | <b>Medical Termination of Pregnancy (MTP).</b><br>Medical Termination of Pregnancy (MTP).                                                                                                           | 2                    |
| 41                     | <b>Infection of the female genital tract including sexually transmitted diseases, low backache.</b><br>Infection of the female genital tract including sexually transmitted diseases, low backache. | 2                    |
| 42                     | <b>Prolapse of uterus and vagina.</b><br>Prolapse of uterus and vagina.                                                                                                                             | 2                    |
| 43                     | <b>Principles of common gynecological operations: Hysterectomy.</b><br>Principles of common gynecological operations: Hysterectomy.                                                                 | 2                    |
| 44                     | <b>Menopause and its effects.</b><br>Menopause and its effects.                                                                                                                                     | 2                    |
| 45                     | <b>Sterility.</b><br>Sterility.                                                                                                                                                                     | 2                    |
| 46                     | <b>Incontinence.</b><br>Incontinence.                                                                                                                                                               | 2                    |
| <b>Total Hours</b>     |                                                                                                                                                                                                     | <b>148</b>           |

#### **Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                 | <b>Contact Hours</b> |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Examination of patients as regards chest &amp; heart diseases.</b><br>Examination of patients as regards chest & heart diseases.           | 3                    |
| 2                      | <b>Demonstration - Acquaintances with C.T. Surgery.</b><br>Demonstration - Acquaintances with C.T. Surgery.                                   | 3                    |
| 3                      | <b>Equipments, I.C.C.U., O.T.</b><br>Equipments, I.C.C.U., O.T.                                                                               | 3                    |
| 4                      | <b>Radiology - X-ray studies - X-ray chest in various lung diseases.</b><br>Radiology - X-ray studies - X-ray chest in various lung diseases. | 3                    |
| <b>Total Hours</b>     |                                                                                                                                               | <b>12</b>            |

#### **Textbook :**

- 1 A manual on Clinical Surgery, S Das, VISIONIAS, 2022

#### **References:**

- 1 Neurology and neurosurgery illustrated, Lindsay
- 2 Short practice of surgery, Bailey and Love
- 3 Physiotherapy in Obstetrics and Gynaecology, Margaret Polden
- 4 DC Dutta's textbook of Gynaecology

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                            |
|-----------------------|--------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>            |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>           |
| <b>SEMESTER</b>       | <b>3</b>                                   |
| <b>COURSE TITLE</b>   | <b>PHYSICAL &amp; FUNCTIONAL DIAGNOSIS</b> |
| <b>COURSE CODE</b>    | <b>17PT0304</b>                            |
| <b>COURSE CREDITS</b> | <b>6</b>                                   |

**Objective:**

- 1 To Acquire the skill of detection & objective documentation of the Neuro-Musculoskeletal dysfunction such as Pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L.s.
- 2 To Analyse & discuss the Physiological & Biomechanical bases of movement dysfunction
- 3 To Acquire the skill of performance and interpretation of electrodiagnostic tests and Pulmonary Function Test
- 4 To Analyse Arterial Blood Gas analysis and Exercise Tolerance Test

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Acquire the skill of detection & objective documentation of the Neuro-Musculoskeletal dysfunction such as Pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L.s.
- 2 Analyse & discuss the Physiological & Biomechanical bases of movement dysfunction
- 3 Acquire the skill of performance and interpretation of electrodiagnostic tests and Pulmonary Function Test
- 4 Analyse Arterial Blood Gas analysis and Exercise Tolerance Test

**Pre-requisite of course:** A basic understanding of human anatomy, physiology, pathology, kinesiology and biomechanics is often a fundamental prerequisite.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 80                  | 0                     | 80                     | 50         | 30        | 20         | 50          | 50               |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>General principles of Human development &amp; maturation</b><br>Aspects: physical, motor, sensory, cognitive, emotional, cultural, social., Factors influencing human development & growth: Biological, environmental, inherited., Principles of maturation - in general - in anatomical directional pattern cephalo – caudal proximo – distal centero – lateral, mass to specific pattern, gross to fine motor development., Reflex maturation tests, Development in specific fields: Oromotor development, sensory development, neurodevelopment of hand function.                                                                                                                                         | 10               |
| 2                  | <b>Electrodiagnosis</b><br>Bioelectricity-Physiology of generation & propagation of action potential, volume conduction., Therapeutic current-as a tool for electro diagnosis., Physiological principles, use of alternating & direct currents in electro-diagnosis such as sensory & Pain threshold, Pain tolerance, Short & long pulse test, S.D. curves, Chronaxie & Rheobase, accommodation ratio., Principles of nerve conduction studies, late responses., E.M.G. instrumentation, basic components, panel diagram, types of electrodes., Principles of Electro- myography, motor unit –Normal characteristics-activity at rest, recruitment/frequency pattern at minimal activity, Interference pattern. | 10               |
| 3                  | <b>Assessment of Neurological dysfunction</b><br>Higher functions, cranial nerves, sensations & sensory organization, body image, tone, reflexes: superficial & deep, voluntary control, muscle strength, coordination, balance, posture, gait., Scales: FRT, Berg's Balance, modified Ashworth, Glasgow Coma, TUG, FIM., Functional diagnosis using ICF., Interpretation of electro diagnostic findings, routine biochemical investigations.                                                                                                                                                                                                                                                                   | 10               |
| 4                  | <b>Assessment of Musculoskeletal Dysfunction</b><br>Tightness, deformity, joint mobility, muscle strength, limb length, trick movement, girth, posture, gait, special tests., Functional diagnosis using ICF., Interpretation of X-ray of extremities & spine, routine bio-chemical investigations, CT scan, MRI. Assessment of pelvic floor muscle strength and function, Digital evaluation of vagina, Perineometer, Pad test, Disability Evaluation: Gait and gait parameters, percentage of disability (temporary and permanent).                                                                                                                                                                           | 10               |
| 5                  | <b>Assessment of cardio-pulmonary dysfunction</b><br>Vital parameters, chest expansion, chest excursion, breath holding test, breath sounds, Rate of Perceived Exertion (RPE), Peak Flow Rate (PFR), Exercise Tolerance: six minutes' walk test, shuttle test, theoretical bases of Bruce's protocol, step test., Ankle Brachial Index, tests for peripheral arterial & venous circulation., Functional diagnosis using ICF., Interpretation of X-ray chest, routine bio-chemical investigations, ABG, PFT, ECG (normal values).                                                                                                                                                                                | 10               |
| 6                  | <b>Assessment of pain</b><br>Intensity & quality., Objective assessment & documentation: VAS, Numerical Rating Scale. Other scales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                              | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 7                          | <b>Assessment of Hand</b><br>Sensations, mobility of joints, strength., Special tests., Hand function: Precision & power grips.                            | 8                        |
| 8                          | <b>Assessment of Obesity</b><br>Classification., Assessment – BMI, Waist circumference, Waist – Hip ratio., Introduction to Quality-of-Life Questionnaire. | 8                        |
| 9                          | <b>Assessment of Wounds.</b><br>Assessment of wounds.                                                                                                      | 6                        |
| <b>Total Hours</b>         |                                                                                                                                                            | <b>80</b>                |

### **Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>General principles of Human development &amp; maturation</b><br>Assessment | 10                       |
| 2                          | <b>Electrodiagnosis</b><br>Assessment                                         | 10                       |
| 3                          | <b>Assessment of Neurological dysfunction</b><br>Assessment                   | 10                       |
| 4                          | <b>Assessment of Musculoskeletal Dysfunction</b><br>Assessment                | 10                       |
| 5                          | <b>Assessment of Cardio-pulmonary dysfunction</b><br>Assessment               | 10                       |
| 6                          | <b>Assessment of Pain</b><br>Assessment                                       | 8                        |
| 7                          | <b>Assessment of Hand</b><br>Assessment                                       | 8                        |
| 8                          | <b>Assessment of Obesity</b><br>Assessment                                    | 8                        |
| 9                          | <b>Assessment of wounds</b><br>Assessment                                     | 6                        |
| <b>Total Hours</b>         |                                                                               | <b>80</b>                |

### **Textbook :**

- 1 Orthopaedic Physical Assessment, David J Magee , David J Magee, Saunders, 2021

### **References:**

- 1 Orthopaedic Physical Assessment, David J Magee
- 2 Muscles: Testing and Function, with Posture and Pain: 5th edition. Kendall FP; McCreary E. K. et al. Lippincott Williams and Wilkins
- 3 Practical Exercise Therapy: 3rd edition. Hollis M; Cook PF. Wiley-Blackwell

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

### Instructional Method:

- 1 Theory+Practical

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                    |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                   |
| <b>SEMESTER</b>       | <b>3</b>                                           |
| <b>COURSE TITLE</b>   | <b>ORTHOPEDICS (TRAUMATIC &amp; NON-TRAUMATIC)</b> |
| <b>COURSE CODE</b>    | <b>17PT0305</b>                                    |
| <b>COURSE CREDITS</b> | <b>4</b>                                           |

**Objective:**

- 1 To Understand the pathophysiology, clinical manifestations and conservative/surgical management of various traumatic, non-traumatic & infectious cases of the musculoskeletal conditions.
- 2 To Able to gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases.
- 3 To Able to read and interpret pathological/biochemical studies and radio imaging of orthopaedic conditions and able to correlate the findings with the clinical findings
- 4 To Understand the pathophysiology, clinical manifestations and conservative/surgical management of various traumatic, non-traumatic & infectious cases of the musculoskeletal conditions. Able to gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases. Able to read and interpret pathological/biochemical studies and radio imaging of orthopaedic conditions and able to correlate the findings with the clinical findings

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the pathophysiology, clinical manifestations and conservative/surgical management of various traumatic, non-traumatic & infectious cases of the musculoskeletal conditions.
- 2 Able to gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases.
- 3 Able to read and interpret pathological/biochemical studies and radio imaging of orthopaedic conditions and able to correlate the findings with the clinical findings
- 4 Understand the pathophysiology, clinical manifestations and conservative/surgical management of various traumatic, non-traumatic & infectious cases of the musculoskeletal conditions. Able to gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases. Able to read and interpret pathological/biochemical studies and radio imaging of orthopaedic conditions and able to correlate the findings with the clinical findings

**Pre-requisite of course:** A basic understanding of human anatomy, physiology, pathology, kinesiology and biomechanics is often a fundamental prerequisite.

### Teaching and Examination Scheme

| Theory Hours    | Tutorial Hours                                                                                                                                                                                                                                                                                                                                                                                                                   | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|----|-----|------|---------------|
| 80              | 0                                                                                                                                                                                                                                                                                                                                                                                                                                | 0               | 50  | 30 | 20  | 0    | 0             |
| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |     |    |     |      | Contact Hours |
| 1               | <b>Introduction</b><br>Introduction: Fracture, Dislocation and injuries of the upper limb, Briefly mention general principles of orthopedic surgery, Definition and scope, Brief history.                                                                                                                                                                                                                                        |                 |     |    |     |      | 4             |
| 2               | <b>Fracture &amp; dislocations</b><br>Fracture & dislocations: Causes, Types, Mechanisms, Displacement, General symptoms, Healing, Principles of treatment, Complications, Malunion, Delayed union, Non-union, Myositis Ossificans, Volkmann's ischemic contracture, Fat embolism, Sudeck's osteodystrophy.                                                                                                                      |                 |     |    |     |      | 4             |
| 3               | <b>Injuries to the hand</b><br>Injuries to the hand: Types (open, closed), Principles of treatment, Injuries to the phalanges, Sprains, Dislocations of MP & IP joints, Fractures of the phalanges, Metacarpals, Bennet's fracture, Mallet's finger, Tendon injuries (flexor & extensor).                                                                                                                                        |                 |     |    |     |      | 4             |
| 4               | <b>Wrist &amp; Forearm injuries</b><br>Wrist & Forearm injuries: Wrist dislocation, Colle's fracture, Displaced epiphysis, Smith's fracture, Barton's fracture, Injuries to carpal, Scaphoid and sprains, Fractures of forearm bones – greenstick fracture. Infracoracoid injury, Galeazzi, Monteggia fracture dislocation.                                                                                                      |                 |     |    |     |      | 4             |
| 5               | <b>Injuries to the elbow</b><br>Injuries to the elbow: Traumatic synovitis, Sprain, Dislocation of the elbow joint.                                                                                                                                                                                                                                                                                                              |                 |     |    |     |      | 4             |
| 6               | <b>Fractures involving elbow joint</b><br>Fractures involving elbow joint: Supracondylar fracture, Intercondylar fracture, Fracture medial epicondyle, Fracture of the lateral condyle, Myositis ossificans, Volkmann's Ischemic Contracture, Fracture of the head of the radius, Fracture of Olecranon.                                                                                                                         |                 |     |    |     |      | 4             |
| 7               | <b>Injuries of shoulder and arm</b><br>Injuries of shoulder and arm: Fractures of the proximal end, Neck and shaft of humerus, Fractures of clavicle, Acromioclavicular and sternoclavicular dislocations, Fractures of the scapula.                                                                                                                                                                                             |                 |     |    |     |      | 4             |
| 8               | <b>Injuries of the spine and thoracic cage</b><br>Injuries of the spine and thoracic cage: Injuries to the cervical spine (Both upper and lower), atlantoaxial injuries, Dorso Lumbar spine: classification, mechanism and types of injuries, stable fracture without paraplegia, fracture-dislocation with paraplegia, management of fracture, management of paraplegia, bedsore and bladder care. Fracture of rib and sternum. |                 |     |    |     |      | 4             |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 9                          | <b>Injuries of the pelvis</b><br>Injuries of the pelvis: Fractures, Mechanism, Classification, Management, Fractures of Acetabulum, Sacrum and coccyx.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4                        |
| 10                         | <b>Injuries of the lower limb</b><br>Injuries of the lower limb: Dislocations of the hip joint, interic fractures of femur, Fractures of the neck of femur, Intracapsular and trochanteric fractures of femur, Fracture of the shaft of the femur, Fracture femur in children, Fracture of femoral condyles, Tibial condyles and patella. Injuries to extensor mechanism, Contusion, Hemarthrosis, Knee joint dislocation and traumatic dislocation of the patella, Fracture and fracture-dislocation of the ankle, Epiphyseal injury lower end of tibia, Foot fracture of talus, Calcaneum, Metatarsals and phalanges. | 4                        |
| 11                         | <b>Soft tissue injuries</b><br>Soft tissue injuries: Ligamentous injuries of ankle, knee and injury to Muscles. Orthopedic splints and appliances for injuries to muscles and tendons.                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4                        |
| 12                         | <b>Tendon transfer</b><br>Tendon transfer: Principles, Indications, Common tendon transfer surgeries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4                        |
| 13                         | <b>Amputation</b><br>Amputation: Types, Site, Ideal stump, Complications, General principles of treatment Upper extremity and lower extremity amputations – prosthesis and prosthetic service, Principles of operative management, Indications and contraindications for arthroplasty, Osteotomy, Arthrodesis, Spinal stabilization, Arthroscopy.                                                                                                                                                                                                                                                                       | 4                        |
| 14                         | <b>Limb reattachment</b><br>Limb reattachment: Principles, Indications, Technique.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4                        |
| 15                         | <b>General Orthopedics</b><br>General Orthopedics: Clinical examination of an orthopedic patient, investigation, radiological and imaging techniques (salient features), Deformities, acquired deformities, causes and principles of management, splinting, Traction: procedures, materials, Preventive orthopedics, Geriatric orthopedics                                                                                                                                                                                                                                                                              | 3                        |
| 16                         | <b>Congenital disorders</b><br>Congenital disorders: Torticollis, wry neck, kyphosis, lordosis, scoliosis, spina bifida, myelomeningocele, congenital dislocation of the hip, congenital genu recurvatum, talipes equinovarus, Elevation of scapula, Madelung's deformity, coxa vara, Endocranial dystosis, superior radio-ulna dysostosis, sternocleidomastoid tumor.                                                                                                                                                                                                                                                  | 3                        |
| 17                         | <b>Infection of bones &amp; joints</b><br>Infection of bones & joints: Osteomyelitis (acute and chronic), Brody's abscess as a complication of open fracture, Skeletal tuberculosis, principles of treatment, T.B. of the shoulder, elbow and wrist T.B. of hip, knee ankle, and foot, Dactylitis, caries rib.                                                                                                                                                                                                                                                                                                          | 3                        |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 18                         | <b>Arthritis</b><br>Arthritis: Osteoarthritis, Rheumatoid arthritis, A.S, Gouty arthritis, acute pyogenic arthritis, septic arthritis of infancy, smallpox arthritis, Syphilitic infection of joint.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3                        |
| 19                         | <b>Bone tumors</b><br>Bone tumors: Classification, true bone tumors- osteosarcoma, giant cell tumor, Ewing's sarcoma, chondroblastoma, chondrosarcoma, fibrosarcoma, lymphoma of bone, plasmacytoma, Bone metastasis: synovial sarcoma, hemangioma of bone, adamantinoma of long bones and chondroma, Tumor like lesions: osteoid osteoma, benign osteoblastoma, non-osteogenic fibroma, osteoma, osteochondroma and enchondroma.                                                                                                                                                                                                                                                                                                                                                                                   | 3                        |
| 20                         | <b>Neurological and Muscular disorders</b><br>Neurological and Muscular disorders: Definition, causes, clinical feature, complications, management (Multidisciplinary approach) medical and surgical of the following conditions: Cerebral palsy, Poliomyelitis, Leprosy, Muscular dystrophy – types and treatment, Injuries to plexus and nerves: Radial, Ulnar, Median, Brachial plexus, Sciatic and Lateral Popliteal.                                                                                                                                                                                                                                                                                                                                                                                           | 3                        |
| 21                         | <b>Regional conditions of Spine and Lower limb</b><br>Regional conditions of Spine and Lower limb: Back: Kyphosis, Scoliosis, Spondylolisthesis, Lumbosacral strain, intervertebral disc prolapse, fibrositis back, Lumbar canal stenosis, sacroiliac strain, spondylosis, spondylolysis, Hip: Slipped capital femoral epiphysis, idiopathic chondrolysis of the hip, Knee: Genu valgum, genu varum, tibia varum, genu recurvatum, quadriceps fibrosis, recurrent dislocation of patella, bursa around the knee, loose bodies in the knee, chondromalacia patella, Plica syndrome, Hoffa's pad syndrome, Foot: Painful heel (calcaneal spur) Plantar fasciitis, Posterior heel pain, flat foot, foot strain, pain in the forefoot, Hallux valgus, anterior metatarsalgia, tarsal tunnel syndrome, Morton's neuroma. | 3                        |
| 22                         | <b>Regional conditions of Neck and Upper limb</b><br>Regional conditions of Neck and Upper limb: Neck: Cervical spondylosis, intervertebral disc prolapses, Cervical rib, torticollis, Brachialgia, Shoulder: Supraspinatus tendinitis, calcification, rupture of the rotator cuff, peri arthritis shoulder, deltoid fibrosis, subarachnoid bursitis, Bicipital tendinitis, Elbow: Tennis elbow, Golfer's elbow, recurrent slipping of ulnar nerve, cubitus varus and Valgus, Wrist and Hand: Ganglion, De Quervain's disease, trigger finger, trigger thumb, carpal tunnel syndrome and Dupuytren's contracture, Miscellaneous: metabolic disease, rickets, osteomalacia, osteoporosis, parathyroid osteodystrophy, scurvy etc.                                                                                    | 3                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>80</b>                |

#### **Textbook :**

- 1 Essential Orthopaedics, Maheshwari, Jaypee Brothers Medical Publishers, 2019

**References:**

- 1 Essential Orthopaedics for Physiotherapist, John Ebnezar
- 2 Clinical Orthopaedic rehabilitation, S Bent Brotzman

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                                     |
|-----------------------|-----------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                     |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                    |
| <b>SEMESTER</b>       | <b>3</b>                                            |
| <b>COURSE TITLE</b>   | <b>PREVENTIVE HEALTHCARE AND COMMUNITY MEDICINE</b> |
| <b>COURSE CODE</b>    | <b>17PT0306</b>                                     |
| <b>COURSE CREDITS</b> | <b>4</b>                                            |

**Objective:**

- 1 To Able to describe the concept of health and diseases, the natural history of diseases.
- 2 To Able to describe the health care delivery system and able to describe the health problems of vulnerable groups and national health programmes.
- 3 To Able to identify occupational health hazards and their management and describe the role of various health agencies, Non-Government Organisation (NGOs) at the international and national level.
- 4 To Acquire the knowledge in preventive and curative measures that are required to be practised in the community and at all levels of the health care system

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Able to describe the concept of health and diseases, the natural history of diseases.
- 2 Able to describe the health care delivery system and able to describe the health problems of vulnerable groups and national health programmes.
- 3 Able to identify occupational health hazards and their management and describe the role of various health agencies, Non-Government Organisation (NGOs) at the international and national level.
- 4 Acquire the knowledge in preventive and curative measures that are required to be practised in the community and at all levels of the health care system

**Pre-requisite of course:** A basic understanding of human anatomy, physiology, pathology, sociology, and psychology is often a fundamental prerequisite.

**Teaching and Examination Scheme**

| <b>Theory Hours</b>    | <b>Tutorial Hours</b>                                                                                                                                                                                                               | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b>     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|-----------|------------|-------------|----------------------|
| 80                     | 0                                                                                                                                                                                                                                   | 0                      | 25         | 15        | 10         | 0           | 0                    |
| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                       |                        |            |           |            |             | <b>Contact Hours</b> |
| 1                      | <b>The general concept of health &amp; disease: Regarding the natural history of disease with pre-pathology phase</b><br>The general concept of health & disease: Regarding the natural history of disease with pre-pathology phase |                        |            |           |            |             | 4                    |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 2                          | <b>The role of social economics in communities</b><br>The role of social economics in communities                                                                                                                                                                                                                                                                                                                                   | 4                        |
| 3                          | <b>Epidemiology and scope</b><br>Epidemiology and scope                                                                                                                                                                                                                                                                                                                                                                             | 4                        |
| 4                          | <b>Public health administration</b><br>Highlighting the role of social, economic and cultural factors in the implementation of the national programs                                                                                                                                                                                                                                                                                | 4                        |
| 5                          | <b>The national health programs</b><br>Highlighting the role of social, economic and cultural factors in the implementation of the national programs                                                                                                                                                                                                                                                                                | 4                        |
| 6                          | <b>Health problems of vulnerable groups</b><br>Pregnant and lactating women, infants and pre-school children, occupational groups and geriatrics                                                                                                                                                                                                                                                                                    | 4                        |
| 7                          | <b>Occupational health</b><br>Definition, scope, occupational diseases and hazards, Social security and other measures for the protection from occupational hazards, accidents and diseases                                                                                                                                                                                                                                         | 4                        |
| 8                          | <b>Family planning</b><br>Objectives of national family planning programs and family planning methods, The general idea of advantages and disadvantages of methods                                                                                                                                                                                                                                                                  | 4                        |
| 9                          | <b>Mental health</b><br>Community aspects of mental health: role of physiotherapists/therapists in mental health problems such as mental retardation                                                                                                                                                                                                                                                                                | 4                        |
| 10                         | <b>Nutrition and Health</b><br>Classification of foods, nutritional profiles of principal foods, nutritional problems in public health, community nutrition program                                                                                                                                                                                                                                                                 | 4                        |
| 11                         | <b>Environment and Health</b><br>Components of environment, water and air pollution and public health:, Pollution control, disposal of waste, medical entomology                                                                                                                                                                                                                                                                    | 4                        |
| 12                         | <b>Communicable diseases &amp; Non-communicable disease</b><br>Communicable disease: Respiratory infections, Intestinal infections, Arthropod-borne infections, Zoonoses, Surface infections, Hospital-acquired infections, Non-communicable diseases and conditions: Cardiovascular diseases, Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, Obesity, Blindness, Accidents and Injuries. | 4                        |
| 13                         | <b>An overall view of communicable diseases classified according to the principle mode of transmission. Role of insects and other vectors</b><br>An overall view of communicable diseases classified according to the principle mode of transmission. Role of insects and other vectors                                                                                                                                             | 4                        |
| 14                         | <b>International health agencies</b><br>International health agencies                                                                                                                                                                                                                                                                                                                                                               | 4                        |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                             | <b>Contact<br/>Hours</b> |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 15                         | <b>Principles and process of communication</b><br>Principles and process of communication                                                                                                                                                                                                                                                                                                                 | 3                        |
| 16                         | <b>Information Education and Communication (IEC)</b><br>Information Education and Communication (IEC)                                                                                                                                                                                                                                                                                                     | 3                        |
| 17                         | <b>Health education</b><br>Philosophy, main principles and objectives, Methods and tools of health education individual and group methods, The role of the profession in health education, Role of another person in health education, co-ordination and co-operation, health education with other members of the health team, Elements of planning health education program                              | 3                        |
| 18                         | <b>Hospital waste management</b><br>Sources of hospital waste, health hazards, waste management                                                                                                                                                                                                                                                                                                           | 3                        |
| 19                         | <b>Disaster Management</b><br>Natural and manmade disasters, disaster impact and response, relief phase, epidemiologic surveillance and disease control, nutrition, rehabilitation, disaster preparedness                                                                                                                                                                                                 | 3                        |
| 20                         | <b>Preventive medicine in obstetrics, paediatrics and geriatrics</b><br>Preventive medicine in obstetrics, paediatrics and geriatrics                                                                                                                                                                                                                                                                     | 3                        |
| 21                         | <b>MCH problems, antenatal, intranatal and post-natal care, care of children, child health children, rights of the child and national policy for children, MCH services and indicator and MCH care</b><br>MCH problems, antenatal, intranatal and post-natal care, care of children, child health children, rights of the child and national policy for children, MCH services and indicator and MCH care | 3                        |
| 22                         | <b>Preventive practice for various conditions</b><br>Prevention practice for musculoskeletal conditions , Prevention practice for cardiopulmonary conditions , Prevention practice for neuromuscular conditions , Prevention practice for integumentary disorders , Prevention practice for individuals with developmental disabilities                                                                   | 3                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                           | <b>80</b>                |

#### **Textbook :**

- 1 Park's textbook of preventive and social medicine , K. Park , Banarsidas Bhanot Publishers, 2023

#### **References:**

- 1 Textbook of Preventive Practice and Community Physiotherapy, Bellare Bharati Vijay
- 2 Essentials of Community-based Rehabilitation, Satya Bhushan Nagar

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 30.00                       | 30.00             | 15.00        | 15.00          | 10.00           | 0.00                                    |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                                                               |
|-----------------------|-------------------------------------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                                               |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                                              |
| <b>SEMESTER</b>       | <b>3</b>                                                                      |
| <b>COURSE TITLE</b>   | <b>PROFESSIONAL PRACTICE &amp; ETHICS + EVIDENCE BASED PRACTICE &amp; ICF</b> |
| <b>COURSE CODE</b>    | <b>17PT0307</b>                                                               |
| <b>COURSE CREDITS</b> | <b>2</b>                                                                      |

**Objective:**

- 1 At the end of the course, students should be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.
- 2 To be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.
- 3 To be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 At the end of the course, students should be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.
- 2 At the end of the course, students should be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.

**Pre-requisite of course:** At the end of the course, students should be able to critically appraise the evidence, do an economic evaluation of evidence and communicate the evidence to clients, managers and funders.

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                   | <b>Contact Hours</b> |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Collecting data on psychosocial factors in Medicine/Surgery/Reproductive Health/Pediatrics</b><br>Collecting data on psychosocial factors in Medicine/Surgery/Reproductive Health/Pediatrics | 5                    |
| 2                      | <b>Inter-professional communication</b><br>Inter-professional communication                                                                                                                     | 5                    |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 3                          | <b>Ethics in clinical practice</b><br>Ethics in clinical practice                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5                        |
| 4                          | <b>Finding the Evidence Measuring outcomes in Evidence-Based Practice, measuring health outcomes, measuring clinical outcomes, inferential statistics and causation</b><br>Finding the Evidence Measuring outcomes in Evidence-Based Practice, measuring health outcomes, measuring clinical outcomes, inferential statistics and causation                                                                                                                                                                               | 5                        |
| 5                          | <b>Searching for the Evidence: Asking questions, identifying different sources of evidence</b><br>Searching for the Evidence: Asking questions, identifying different sources of evidence                                                                                                                                                                                                                                                                                                                                 | 4                        |
| 6                          | <b>Assessing the Evidence Evaluating the evidence; levels of evidence in research using quantitative methods, levels of the evidence classification system, outcome measurements, biostatistics, the critical review of research using qualitative methods</b><br>Assessing the Evidence Evaluating the evidence; levels of evidence in research using quantitative methods, levels of the evidence classification system, outcome measurements, biostatistics, the critical review of research using qualitative methods | 4                        |
| 7                          | <b>Systematically reviewing the evidence Stages of systematic reviews, Meta-analysis, the Cochrane collaboration</b><br>Systematically reviewing the evidence Stages of systematic reviews, Meta-analysis, the Cochrane collaboration.                                                                                                                                                                                                                                                                                    | 4                        |
| 8                          | <b>Using the evidence Building evidence in practice, Critically Appraised Topics (CATs)</b><br>Using the evidence Building evidence in practice, Critically Appraised Topics (CATs).                                                                                                                                                                                                                                                                                                                                      | 4                        |
| 9                          | <b>International Classification of Function, Disability and Handicap</b><br>International Classification of Function, Disability and Handicap.                                                                                                                                                                                                                                                                                                                                                                            | 4                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>40</b>                |

#### **Textbook :**

- 1 Practical evidence-based Physiotherapy, Paperback, Elsevier - Health Sciences Division, 2021

#### **References:**

- 1 Practical evidence-based Physiotherapy (English, Paperback, Sir Iain Chalmers)
- 2 Guide to Evidence-Based Physical Therapist Practice (English, Hardcover, Jewell Dianne)

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Theory

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>3</b>                         |
| <b>COURSE TITLE</b>   | <b>CLINICAL HOURS</b>            |
| <b>COURSE CODE</b>    | <b>17PT0308</b>                  |
| <b>COURSE CREDITS</b> | <b>18</b>                        |

**Objective:**

- 1 To Diagnose, treat and advice the patients with various conditions.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Diagnose, treat and advice the patients with various conditions.

**Pre-requisite of course:** To provide clinical exposure to students

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 720             | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                | <b>Contact Hours</b> |
|------------------------|----------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Clinical Postings in various hospitals/clinics</b><br>Clinical Posting, Clinical Training | 720                  |
| <b>Total Hours</b>     |                                                                                              | <b>720</b>           |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 10.00                       | 10.00             | 40.00        | 20.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Direct contact with patients

**Supplementary Resources:**

- 1 NA

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>3</b>                         |
| <b>COURSE TITLE</b>   | <b>SPORTS</b>                    |
| <b>COURSE CODE</b>    |                                  |
| <b>COURSE CREDITS</b> | <b>0</b>                         |

**Objective:**

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Course Outcomes:** After completion of this course, student will be able to:

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Pre-requisite of course:** To understand the body mechanics with the help of sports activities

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 40              | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                          | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------|----------------------|
| 1                      | <b>sports activities -indoor</b><br>indoor activities  | 20                   |
| 2                      | <b>sports activities-outdoor</b><br>outdoor activities | 20                   |
| <b>Total Hours</b>     |                                                        | <b>40</b>            |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
|                             |                   |              |                |                 |                                         |

**Instructional Method:**

- 1 Field based activities

**Supplementary Resources:**

- 1 NA

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                    |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                   |
| <b>SEMESTER</b>       | <b>4</b>                                           |
| <b>COURSE TITLE</b>   | <b>PHYSIOTHERAPY IN MUSCULOSKELETAL CONDITIONS</b> |
| <b>COURSE CODE</b>    | <b>17PT0401</b>                                    |
| <b>COURSE CREDITS</b> | <b>5</b>                                           |

### Objective:

- 1 To Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace.
- 2 To Prescribe appropriate walking aids, orthoses and prosthesis.
- 3 To identify, discuss and analyze the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis and correlate the same with the provisional diagnosis, routine radiological and electro physiological investigations and arrive at appropriate physical and functional diagnosis with clinical reasoning.
- 4 To describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace
- 5 To understand the nature of sports injuries, able to evaluate and treat sports injuries, understand the role of physiotherapist in training and rehabilitating a sports person.
- 6 To prescribe appropriate walking aids, orthoses and prosthesis

### Course Outcomes: After completion of this course, student will be able to:

- 1 Identify, discuss and analyze the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis and correlate the same with the provisional diagnosis, routine radiological and electro physiological investigations and arrive at appropriate physical and functional diagnosis with clinical reasoning.
- 2 Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace
- 3 Understand the nature of sports injuries, able to evaluate and treat sports injuries, understand the role of physiotherapist in training and rehabilitating a sports person.
- 4 Prescribe appropriate walking aids, orthoses and prosthesis

**Pre-requisite of course:** A basic understanding of orthopaedics, physical and functional diagnosis, exercise therapy and electro therapy is often a fundamental prerequisite.

### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 40              | 50  | 30 | 20  | 50   | 50        |

| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                      | Contact Hours |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>Evaluation, interpretation of investigations &amp; functional diagnosis (ICF) with appropriate clinical reasoning for planning &amp; implementation of management techniques</b><br>Evaluation, interpretation of investigations & functional diagnosis (ICF) with appropriate clinical reasoning for planning & implementation of management techniques | 2             |
| 2               | <b>Planning, Prescription &amp; Implementation of short term &amp; long term goals with clinical reasoning</b><br>Planning, Prescription & Implementation of short term & long term goals with clinical reasoning                                                                                                                                           | 2             |
| 3               | <b>Documentation</b><br>Documentation                                                                                                                                                                                                                                                                                                                       | 1             |
| 4               | <b>Different physiotherapeutic techniques for functional restoration/maintenance and prevention of disability.</b><br>Different physiotherapeutic techniques for functional restoration/maintenance and prevention of disability.                                                                                                                           | 2             |
| 5               | <b>Different electro therapeutic techniques for relief of acute and chronic pain, swelling, wound healing, re-education with clinical reasoning</b><br>Different electro therapeutic techniques for relief of acute and chronic pain, swelling, wound healing, re-education with clinical reasoning                                                         | 2             |
| 6               | <b>Different physiotherapeutic techniques to improve/maintain muscle performance.</b><br>Different physiotherapeutic techniques to improve/maintain muscle performance.                                                                                                                                                                                     | 3             |
| 7               | <b>Different physiotherapeutic techniques to increase joint mobility</b><br>Different physiotherapeutic techniques to increase joint mobility                                                                                                                                                                                                               | 3             |
| 8               | <b>Different physiotherapeutic strategies for correction / maintenance of good posture</b><br>Different physiotherapeutic strategies for correction / maintenance of good posture                                                                                                                                                                           | 1             |
| 9               | <b>Different physiotherapeutic strategies to improve efficiency and safety of gait pattern</b><br>Different physiotherapeutic strategies to improve efficiency and safety of gait pattern                                                                                                                                                                   | 2             |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                               | Contact<br>Hours |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 10                 | <b>Prescription of appropriate orthotic &amp; prosthetic devices &amp; fabrication of simple temporary splints</b><br>Prescription of appropriate orthotic & prosthetic devices & fabrication of simple temporary splints                                                                                                                                                                                                            | 1                |
| 11                 | <b>Appropriate Home Program &amp; Ergonomic advice for preventive measures &amp; Functional efficiency at home &amp; work place.</b><br>Appropriate Home Program & Ergonomic advice for preventive measures & Functional efficiency at home & work place.                                                                                                                                                                            | 2                |
| 12                 | <b>Physiotherapy approach in traumatology</b><br>Definition of fracture, classification of fracture, signs and symptoms of fracture, healing process of fracture factors affecting healing, methods of reduction, complications of fracture                                                                                                                                                                                          | 4                |
| 13                 | <b>Physiotherapy assessment in fracture cases</b><br>Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period, Physiotherapy assessment and management of upper limb fractures and dislocations, Physiotherapy assessment and management of lower limb fractures and dislocations including pelvis and spinal fractures | 5                |
| 14                 | <b>Physiotherapy assessment &amp; management of soft tissue injury</b><br>Contusion, Contusion, sprains, strains, ruptures                                                                                                                                                                                                                                                                                                           | 3                |
| 15                 | <b>Physiotherapy assessment &amp; management of degenerative conditions</b><br>Osteoarthritis (OA) with emphasize on Knee, Hip and and cervical spondylosis, lumbar spondylosis                                                                                                                                                                                                                                                      | 6                |
| 16                 | <b>Physiotherapy assessment &amp; management of inflammatory conditions</b><br>Rheumatoid arthritis (RA), ankylosing spondylitis (AS), Still's disease, gout,, periarthrits, bursitis, synovitis, capsulitis, tendinitis, Tenosynovitis, fasciitis, Osgood Schlatter disease                                                                                                                                                         | 7                |
| 17                 | <b>Physiotherapy assessment and management of infective Conditions</b><br>Tuberculosis (TB) of spine and other major joints, osteomyelitis, pyogenic arthritis, septic arthritis, osteomyelitis, pyogenic arthritis, septic arthritis                                                                                                                                                                                                | 3                |
| 18                 | <b>Physiotherapy assessment &amp; management of congenital and acquired deformities</b><br>Congenital - CTEV, CDH, Torticollis, pesplanus, pescavus, Sprengel's scapula, Madelung's deformity, Acquired: scoliosis, kyphosis, coxavara, genu varum, valgum and recurvatum, wry neck                                                                                                                                                  | 5                |
| 19                 | <b>Physiotherapy assessment &amp; management of spinal conditions</b><br>Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Intervertebral disc prolapse,, Sacro-iliac joint dysfunction, Coccydynia, Sacralisation, Lumbarisation, Spina bifida.                                                                                                                                                                              | 6                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                     | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 20                         | <b>Physiotherapy assessment &amp; management of amputations</b><br>Definition, indications, types, levels of amputation of lower and upper extremities, pre and post operative assessment and management with emphasize on stump care and bandaging, pre and post prosthetic training and complete rehabilitation | 4                        |
| 21                         | <b>Rehabilitation of patient with orthopedic surgery</b><br>Pre and post operative management of arthroplasty of all major joints, girdle stonearthroplasty , arthrodesis, arthroscopy, osteotomy, Reattachment of limb.                                                                                          | 5                        |
| 22                         | <b>Physiotherapy assessment &amp; management of re-constructive surgery</b><br>Cerebral Palsy, poliomyelitis, leprosy                                                                                                                                                                                             | 3                        |
| 23                         | <b>Physiotherapy assessment &amp; management of hand injury</b><br>Physiotherapy assessment & management of hand injury                                                                                                                                                                                           | 2                        |
| 24                         | <b>Physiotherapy assessment &amp; management of metabolic and hormonal disorders of the bone tissue</b><br>Osteoporosis, rickets, osteomalacia                                                                                                                                                                    | 1                        |
| 25                         | <b>Physiotherapy assessment &amp; management of miscellaneous orthopedic conditions</b><br>Mallet finger, trigger finger, Dequerian's disease, metatarsalgia, hallux valgus, Dupuytren's contracture, thoracic outlet syndrome, chondromalacia patellae, ganglion, tennis elbow, plantar fasciitis                | 2                        |
| 26                         | <b>Sports Medicine</b><br>Introduction & classification of sports injury Aetiological factors<br>Prevention of sports injury Frequency and site of injury<br>Investigation and assessment in sports injury                                                                                                        | 2                        |
| 27                         | <b>Management Of Sports Injuries</b><br>Pharmacology in sports Rehabilitation in sports                                                                                                                                                                                                                           | 1                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                   | <b>80</b>                |

#### **Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                               | <b>Contact<br/>Hours</b> |
|----------------------------|-----------------------------------------------------------------------------|--------------------------|
| 1                          | <b>PRACTICALS/OPD/CASE PRESENTATION</b><br>PRACTICALS/OPD/CASE PRESENTATION | 40                       |
| <b>Total Hours</b>         |                                                                             | <b>40</b>                |

#### **Textbook :**

- 1 Physical Rehabilitation, O Sullivan, F A DAVIS CO, 2014
- 2 Essentials of Orthopedics and Applied Physiotherapy, JAYANT JOSHI, ELSEVIER, 2020
- 3 Cash's textbook of Orthopedics for physiotherapists, JOAN E. CASH, MOSBY, 1992
- 4 Therapeutic Exercises, COLBY AND KISNER, F A DAVIS CO, 2012

### References:

- 1 Orthopedics physical examination , Orthopedics physical examination , Magee, ELSEVIER , 2014
- 2 Apley & Solomon's System of Orthopaedics and Trauma, Apley & Solomon's System of Orthopaedics and Trauma, Ashley Blom, David Warwick, Michael Whitehouse, CRC Press, 2017
- 3 Treatment and Rehabilitation of Fractures, Treatment and Rehabilitation of Fractures, Stanley Hoppenfeld, Lippincott Williams and Wilkins, 1999

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 20.00      | 30.00 | 10.00   | 10.00    | 10.00                            |

### Instructional Method:

- 1 Classroom teaching, case presentations, clinical practice

### Supplementary Resources:

- 1 -

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                 |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                |
| <b>SEMESTER</b>       | <b>4</b>                                        |
| <b>COURSE TITLE</b>   | <b>PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS</b> |
| <b>COURSE CODE</b>    | <b>17PT0402</b>                                 |
| <b>COURSE CREDITS</b> | <b>5</b>                                        |

### **Objective:**

- 1 Acquire the knowledge of normal neurodevelopment with specific reference to locomotion
- 2 Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc
- 3 Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders
- 4 Plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in Neuro pediatric cases
- 5 Acquire the knowledge of normal neurodevelopment with specific reference to locomotion.
- 6 Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc.
- 7 Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders.
- 8 Plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in Neuro pediatric cases.
- 9 Prescribe appropriate outhouses/splints and fabricate temporary protective and functional splints.
- 10 To acquire the knowledge of normal neurodevelopment with specific reference to locomotion
- 11 To assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc.
- 12 To correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders

### Objective:

- 13 To plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in Neuro pediatric cases
- 14 To prescribe appropriate outhouses/splints and fabricate temporary protective and functional splints.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Acquire the knowledge of normal neurodevelopment with specific reference to locomotion
- 2 Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc
- 3 Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders
- 4 Plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in Neuro pediatric cases
- 5 Prescribe appropriate outhouses/splints and fabricate temporary protective and functional splints.

**Pre-requisite of course:** A basic understanding of neurology, physical and functional diagnosis, exercise therapy and electro therapy is often a fundamental prerequisite.

### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 40              | 50  | 30 | 20  | 50   | 50        |

| Contents : Unit | Topics                                                                                                                                                                                                                | Contact Hours |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>Review of basic neuro anatomy and physiology.</b><br>Review of basic neuro anatomy and physiology.                                                                                                                 | 3             |
| 2               | <b>Physiotherapy techniques to improve tone, voluntary control, co-ordination</b><br>Physiotherapy techniques to improve tone, voluntary control, co-ordination                                                       | 3             |
| 3               | <b>Neuro physiotherapeutic Techniques: Concepts, principles, techniques and effects</b><br>NDT & PNF, Brunnstrom movement therapy, Vojta therapy, Rood's sensory motor approach & Contemporary task oriented approach | 2             |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                    | <b>Contact<br/>Hours</b> |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 4                          | <b>Application of skills as PNF, co-ordination, functional re-education, balancing exercise by using techniques based on neuro physiological principles</b><br>Application of skills as PNF, co-ordination, functional re-education, balancing exercise by using techniques based on neuro physiological principles                                              | 2                        |
| 5                          | <b>Tools used for neuro rehabilitation like vestibular balls, tilt board etc.</b><br>Tools used for neuro rehabilitation like vestibular balls, tilt board etc.                                                                                                                                                                                                  | 1                        |
| 6                          | <b>Application of transfer, functional re-education exercises &amp; gait training</b><br>Application of transfer, functional re-education exercises & gait training                                                                                                                                                                                              | 2                        |
| 7                          | <b>Bladder training</b><br>Bladder training                                                                                                                                                                                                                                                                                                                      | 1                        |
| 8                          | <b>Developing a philosophy for caring</b><br>Developing a philosophy for caring                                                                                                                                                                                                                                                                                  | 1                        |
| 9                          | <b>Prescription of appropriate orthotic devices &amp; fabrication of temporary splints</b><br>Prescription of appropriate orthotic devices & fabrication of temporary splints                                                                                                                                                                                    | 1                        |
| 10                         | <b>Lifting techniques, wheel chair modifications, adaptive devices</b><br>Lifting techniques, wheel chair modifications, adaptive devices                                                                                                                                                                                                                        | 2                        |
| 11                         | <b>Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers</b><br>Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers                                                                                                                                                                              | 2                        |
| 12                         | <b>Education about handling of a patient</b><br>Education about handling of a patient                                                                                                                                                                                                                                                                            | 2                        |
| 13                         | <b>Pediatric Neuro-physiotherapy</b><br>Use of various Neurophysiologic approaches & modalities in high risk babies and minimum brain damage, Use of various Neurophysiologic approaches & modalities in cerebral palsy and developmental disorders , Use of various Neurophysiologic approaches & modalities in Down's syndrome, Hydrocephalus and Spina bifida | 9                        |
| 14                         | <b>Assessment &amp; management of brain Disorders</b><br>Stroke and Head Injury, Meningitis and Encephalitis, Parkinson's disease and parkinsonism syndromes, Multiple sclerosis and Brain tumors                                                                                                                                                                | 18                       |
| 15                         | <b>Assessment &amp; management of spinal cord lesions and bladder dysfunction</b><br>Multiple sclerosis, transverse myelitis and Poliomyelitis/PPRP,, Syringomyelia, spinal cord injury and sub acute combined degeneration of spinal cord, Motor neuron disease (ALS, SMA and other types) and spinal tumors                                                    | 10                       |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                      | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 16                     | <b>Assessment &amp; Management of Co-ordination Disorders</b><br>Ataxia and Friedreich's ataxia, Cerebellar ataxia and Sensory ataxia.                             | 4                    |
| 17                     | <b>Assessment &amp; Management of Muscle Disorders</b><br>Muscular dystrophy (DMD) & other myopathies                                                              | 2                    |
| 18                     | <b>Assessment &amp; Management of disorders of neuromuscular junction</b><br>Myasthenia Gravis                                                                     | 2                    |
| 19                     | <b>Assessment &amp; management of neuropathies and nerve injuries</b><br>Cranial nerves and Peripheral nerves, Polyneuropathy – Classification of Polyneuropathies | 4                    |
| 20                     | <b>Pre and post-surgical assessment &amp; management in neuro surgery</b><br>Hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia            | 4                    |
| 21                     | <b>Electro diagnostic procedures and prognosis in neurological disorders</b><br>SD curves, EMG & NCS                                                               | 5                    |
| <b>Total Hours</b>     |                                                                                                                                                                    | <b>80</b>            |

#### **Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                                               | <b>Contact Hours</b> |
|------------------------|-----------------------------------------------------------------------------|----------------------|
| 1                      | <b>Practicals/OPD/Case Presentation</b><br>Practicals/OPD/Case Presentation | 40                   |
| <b>Total Hours</b>     |                                                                             | <b>40</b>            |

#### **Textbook :**

- 1 Physical Rehabilitation- 7th edition, Susan B. O'Sullivan, F A Davis, 2019
- 2 Cash's textbook of Neurology for Physiotherapists, Cash Joan E., Elsevier Health Sciences, 1993
- 3 Physiotherapy in Neuro Conditions, Gladys Samuel Raj, Jaypee Brothers Medical Publishers, 2006

#### **References:**

- 1 Neurological Rehabilitation, Neurological Rehabilitation, D Umphred, Mosby, 2012
- 2 Paediatric developmental therapy, Paediatric developmental therapy, Sophie Levitt, Wiley-Blackwell, 2018
- 3 Clinical Neurophysiology, Clinical Neurophysiology, U.K. Misra, Elsevier, 2013

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| 20.00                       | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Classroom teaching, case presentations, clinical practice

**Supplementary Resources:**

- 1 -
- 2 [https://www.physio-pedia.com/Neurological\\_Disorders](https://www.physio-pedia.com/Neurological_Disorders)
- 3 <https://strokengine.ca/en/>

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                                          |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                                         |
| <b>SEMESTER</b>       | <b>4</b>                                                                 |
| <b>COURSE TITLE</b>   | <b>PHYSIOTHERAPY IN CARDIO PULMONARY AND MEDICAL SURGICAL CONDITIONS</b> |
| <b>COURSE CODE</b>    | <b>17PT0403</b>                                                          |
| <b>COURSE CREDITS</b> | <b>5</b>                                                                 |

### **Objective:**

- 1 Identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis
- 2 Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
- 3 Execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions
- 4 Acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area
- 5 Acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests, symptom limited tests
- 6 Acquire the skill of basic cardiopulmonary resuscitation
- 7 To identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis
- 8 To select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
- 9 To execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions
- 10 To acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area
- 11 To acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests, symptom limited tests
- 12 To acquire the skill of basic cardiopulmonary resuscitation

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis
- 2 Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
- 3 Execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions
- 4 Acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area
- 5 Acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests, symptom limited tests
- 6 Acquire the skill of basic cardiopulmonary resuscitation

**Pre-requisite of course:** A basic understanding of medicine, surgery, physical and functional diagnosis, exercise therapy and electro therapy is often a fundamental prerequisite.

#### Teaching and Examination Scheme

| Theory Hours | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work |
|--------------|----------------|-----------------|-----|----|-----|------|-----------|
| 80           | 0              | 40              | 50  | 30 | 20  | 50   | 50        |

| Contents : Unit | Topics                                                                                                                                                                                                                                         | Contact Hours |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1               | <b>Anatomy and physiology of respiratory &amp; cardiac system</b><br>Anatomy of thorax, biomechanics of thoracic cage, muscles of respiration, ventilation perfusion matching /mismatching, compliance                                         | 1             |
| 2               | <b>Investigations and tests</b><br>Sub maximal /maximal exercise tolerance testing, Cardiac & Pulmonary radiographs, PFT, ABG, ECG, hematological and biochemical Tests.                                                                       | 2             |
| 3               | <b>Physiotherapy techniques to increase lung volume</b><br>Positioning, breathing exercises, Neurophysiological facilitation of respiration, mechanical aids - Incentive spirometry, CPAP, IPPB.                                               | 5             |
| 4               | <b>Physiotherapy techniques to decrease the work of breathing</b><br>Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, mechanical aids: IPPB, CPAP, BIPAP | 4             |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 5                  | <b>Physiotherapy techniques to clear secretions</b><br>Hydration, Humidification & Nebulization, Mobilization and breathing exercises, postural drainage, , Manual techniques: Percussion, vibration and shaking, ACBT, Autogenic Drainage, Mechanical aids: PEP, Flutter, IPPB, facilitation of cough and huff, suctioning                                           | 5                |
| 6                  | <b>Physiotherapy in common complications following surgery and Drug therapy</b><br>Drugs to prevent and treat inflammation, drugs to treat bronchospasm, drugs to treat breathlessness, drugs to help sputum clearance, drugs to inhibit coughing, drugs to improve ventilation, drugs to reduce pulmonary hypertension, drug delivery doses, inhalers and nebulizers | 2                |
| 7                  | <b>Introduction to ICU &amp; mechanical ventilator</b><br>ICU monitoring – apparatus, airways and tubes used in the ICU - Physiotherapy in the ICU – common conditions in the ICU, Mechanical ventilator: types, modes of ventilator, advantages and disadvantages Oxygen therapy, CPR, aseptic precautions                                                           | 6                |
| 8                  | <b>Physiotherapy assessment &amp; management techniques in Obstructive lung conditions</b><br>Chronic bronchitis, emphysema, asthma, bronchiectasis, cystic fibrosis                                                                                                                                                                                                  | 5                |
| 9                  | <b>Physiotherapy assessment &amp; management techniques in Restrictive lung conditions</b><br>Rib fracture, Pleural effusion, pleurisy and empyema, pulmonary embolism, pulmonary tuberculosis, atelectasis, pneumothorax, bronchopulmonary fistula, pneumonia, ARDS                                                                                                  | 5                |
| 10                 | <b>Physiotherapy following Lung surgeries</b><br>Pre and post operative physiotherapy assessment and management in Lobectomy, Pneumonectomy, decortication, thoracoplasty                                                                                                                                                                                             | 3                |
| 11                 | <b>Pulmonary Rehabilitation</b><br>Definition, aims and objectives, team members, benefits, , principles of exercise prescription and techniques of rehabilitation                                                                                                                                                                                                    | 3                |
| 12                 | <b>Anatomy and physiology of cardiovascular system</b><br>Anatomy, blood supply and conduction system of heart                                                                                                                                                                                                                                                        | 1                |
| 13                 | <b>Physiotherapy assessment &amp; management for cardiovascular disorders</b><br>Cardiovascular disease, congestive heart failure, myocardial infarction, valvular diseases of heart, Cyanotic and acyanotic congenital heart diseases, endocarditis                                                                                                                  | 5                |
| 14                 | <b>Cardiac Rehabilitation</b><br>Definition, aims and objectives, team members, benefits, principles of Exercise prescription and techniques of rehabilitation                                                                                                                                                                                                        | 3                |
| 15                 | <b>Physiotherapy assessment &amp; management of vascular diseases</b><br>Venous: Thrombosis, phlebitis and phlebo-thrombosis, varicose veins, DVT, venous Ulcers , Arterial: Berger's disease, acute and chronic arterial occlusion, lymphedema                                                                                                                       | 4                |

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                 | <b>Contact Hours</b> |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 16                     | <b>Physiotherapy assessment and management for abdominal Surgeries</b><br>Operations on upper gastro- intestinal tract - oesophagus- stomach-duodenum,, operation on large and small intestine – apendicetomy, cholecystectomy, partial colectomy, illieostomy, nephrectomy<br>Hernia: herniotomy, herniorraphy, hernioplasty | 3                    |
| 17                     | <b>Physiotherapy Assessment &amp; management in Onco surgeries</b><br>Mastectomy: simple, radical Hysterectomy, prostatectomy, neck dissection                                                                                                                                                                                | 2                    |
| 18                     | <b>Physiotherapy in Obstetrics and Gynaecological surgeries</b><br>Electrotherapy and exercise therapy measures following pelvic repair, caesarean section                                                                                                                                                                    | 3                    |
| 19                     | <b>Wounds, local infections, ulcers, pressure sores</b><br>UVR and other electrotherapeutic modalities for healing of wound, prevention of hypergranulated scars, relief of pain and mobilization                                                                                                                             | 2                    |
| 20                     | <b>Physiotherapy in burns, skin grafts and re-constructive surgery</b><br>Physiotherapy in burns, skin grafts and re-constructive surgery                                                                                                                                                                                     | 4                    |
| 21                     | <b>Physiotherapy in ENT conditions</b><br>Nonsuppurative otitis media, chronic suppurative otitis media, otosclerosis, labyrinthitis and mastoidectomy resulting into facial palsy, Laryngectomy, pharyngeal – laryngectomy, tracheostomy and its care, sinusitis                                                             | 3                    |
| 22                     | <b>Physiotherapy in skin conditions</b><br>Leprosy, acne, alopecia, psoriasis, syphilis                                                                                                                                                                                                                                       | 2                    |
| 23                     | <b>Physiotherapy in psychiatric conditions</b><br>Schizophrenia, depression, psychosis, anxiety                                                                                                                                                                                                                               | 1                    |
| 24                     | <b>Physical fitness</b><br>Energy system, Endurance, Aerobic Exercise, pacing of activity                                                                                                                                                                                                                                     | 2                    |
| 25                     | <b>Emergency Care</b><br>Basic Life Support, First aid & emergency care, Biomedical waste management                                                                                                                                                                                                                          | 4                    |
| <b>Total Hours</b>     |                                                                                                                                                                                                                                                                                                                               | <b>80</b>            |

#### **Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                                             | <b>Contact Hours</b> |
|------------------------|---------------------------------------------------------------------------|----------------------|
| 1                      | <b>Practical/OPD/Case Presentation</b><br>Practical/OPD/Case Presentation | 40                   |
| <b>Total Hours</b>     |                                                                           | <b>40</b>            |

#### **Textbook :**

- 1 Cash's textbook of chest, heart, vascular disorder for physiotherapist, Cash, Mosby, 1987
- 2 Cash's textbook of General Medicine and surgical conditions for physiotherapists, Cash, Mosby, 1990

**Textbook :**

- 3 Physiotherapy for respiratory and cardiac problems, Jennifer A. Pryor, Elsevier, 2013
- 4 Physiotherapy in Cardiopulmonary Conditions, MARIYA JIANDANI, JAYPEE BROTHERS, 2022

**References:**

- 1 Therapeutic exercise, Therapeutic exercise, Carolyn Kisner, F A Davis Co., 2017
- 2 Tidy's textbook of Physiotherapy, Tidy's textbook of Physiotherapy, Noël M. Tidy, Stuart B. Porter, Churchill Livingstone, 2013
- 3 Physiotherapy in obstetrics and gynecology, Physiotherapy in obstetrics and gynecology, Margie Polden, Butterworth-Heinemann Ltd, 1990
- 4 Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice, Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice, Donna Frownfelter, Elizabeth Dean, Mosby, 2022
- 5 Cardiopulmonary Physical Therapy: A Guide to Practice, Cardiopulmonary Physical Therapy: A Guide to Practice, Scot Irwin, Mosby, 2004

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                         |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
| <b>Remember / Knowledge</b>                               | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
| 20.00                                                     | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                   |

**Instructional Method:**

- 1 Classroom teaching, case presentations, clinical practice

|                       |                                                              |
|-----------------------|--------------------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                              |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                             |
| <b>SEMESTER</b>       | <b>4</b>                                                     |
| <b>COURSE TITLE</b>   | <b>PHYSIOTHERAPY IN COMMUNITY HEALTH AND BIO-ENGINEERING</b> |
| <b>COURSE CODE</b>    | <b>17PT0404</b>                                              |
| <b>COURSE CREDITS</b> | <b>2</b>                                                     |

**Objective:**

- 1 To describe CBR in urban & rural set up, WHO policies, concept of team work, role of multi- purpose health worker.
- 2 To Acquire in brief knowledge about various materials used for splints/Orthosis & Prostheses and selection criteria for splints/Orthosis& Prostheses.
- 3 To describe the general concepts about Health, Disease & Physical fitness
- 4 To describe CBR in urban & rural set up, WHO policies, concept of team work, role of multi- purpose health worker
- 5 To describe the strategies to assess prevalence & incidence of various conditions responsible for increasing morbidity in the specific community, role of physiotherapy in reducing morbidity, expected clinical & functional recovery, reasons for non-compliance in specific community & environmental solution for the same
- 6 To acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation ,protection & prevention.
- 7 To acquire in brief knowledge about various materials used for splints/Orthosis & Prostheses and selection criteria for splints/ Orthosis & Prostheses.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Describe the general concepts about Health, Disease & Physical fitness
- 2 Describe CBR in urban & rural set up, WHO policies, concept of team work, role of multi-purpose health worker.
- 3 Describe the strategies to assess prevalence & incidence of various conditions responsible for increasing morbidity in the specific community, role of physiotherapy in reducing morbidity, expected clinical & functional recovery, reasons for non-compliance in specific community & environmental solution for the same
- 4 Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation ,protection & prevention.
- 5 Acquire in brief knowledge about various materials used for splints/Orthosis & Prostheses and selection criteria for splints/ Orthosis & Prostheses.

**Pre-requisite of course:**A basic understanding of preventive healthcare and community medicine, physical and functional diagnosis, exercise therapy and electro therapy is often a fundamental prerequisite.

### Teaching and Examination Scheme

| Theory Hours    | Tutorial Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|----|-----|------|---------------|
| 40              | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20              | 25  | 15 | 10  | 25   | 25            |
| Contents : Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |     |    |     |      | Contact Hours |
| 1               | <b>Concepts of community health</b><br>Preventive, promotive, restorative and rehabilitative, WHO definition of health and disease,, Health delivery system - 3 tier                                                                                                                                                                                                                                                                                                                                                                                    |                 |     |    |     |      | 3             |
| 2               | <b>Disability types</b><br>Physical & Psychological Evaluation, prevention & Legislation related to Persons with Disability (PWD)                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |     |    |     |      | 3             |
| 3               | <b>CBR</b><br>Definition, principles, types (institutional, reach out and community), concepts, WHO policies, Principles of Team work of medical practitioner, Physiotherapist, Occupational Therapist, Speech & Audiology Therapist, Prosthetist & Orthotist, Clinical psychologist, vocational counsellor and social worker Role of Physiotherapy in team, concept of multipurpose health worker, role of Physiotherapy and strategies in 3 tier Health delivery system, communication strategies                                                     |                 |     |    |     |      | 4             |
| 4               | <b>Health Care Prevention, Promotion &amp; Restoration</b><br>1. In peri pubertal age group 2. In women-pregnancy, menopause 3. In Geriatrics- neuromusculoskeletal, cardiovascular, pulmonary, metabolic and degenerative conditions 4. In Obese / overweight 5. In Cardiovascular and Pulmonary conditions 6. In Diabetes 7. Health promotion for all                                                                                                                                                                                                 |                 |     |    |     |      | 3             |
| 5               | <b>Women and child care</b><br>1. Antenatal exercises, Specific Breathing exercises, Relaxation, Postural training, Pelvic floor strengthening exercises with clinical reasoning 2. Physiotherapy during labor 3. . Postnatal exercises program after normal labor / labor with invasive procedures with clinical reasoning 4. Menopause - Osteoporosis, Mental health, Physiotherapy management 5. Preterm babies 6. Adolescent age group 7. Nutritional disorders in women and children                                                               |                 |     |    |     |      | 3             |
| 6               | <b>Geriatrics</b><br>Physiology of aging, environmental changes and adaptations, balance and falls Role of Physiotherapy in geriatric population                                                                                                                                                                                                                                                                                                                                                                                                        |                 |     |    |     |      | 2             |
| 7               | <b>Industrial health ( Ergonomics)</b><br>A) Ability Management Job analysis - Job description, ergonomic evaluation, injury prevention, B) Environmental stress in the industrial area 1. Physical agents e.g. heat / cold, light, noise, vibration, UV radiation, ionizing radiation 2. Chemical agents- inhalation, local action and ingestion 3. Mechanical hazards- overuse/fatigue injuries due to ergonomic alternation and mechanical stresses, C) Mechanical stresses in various job-related postures and activities , D) Psychological health |                 |     |    |     |      | 2             |
| 8               | <b>Introduction and terminology: prosthesis and orthosis</b><br>Introduction and terminology: prosthesis and orthosis                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |     |    |     |      | 1             |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>Contact<br/>Hours</b> |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 9                          | <b>Classification of orthosis and prostheses</b><br>Classification of orthosis and prostheses                                                                                                                                                                                                                                                                                              | 2                        |
| 10                         | <b>Bio-mechanical principles of orthotic application</b><br>Bio-mechanical principles of orthotic application                                                                                                                                                                                                                                                                              | 1                        |
| 11                         | <b>Bio-mechanical principles of prosthetic application.</b><br>Bio-mechanical principles of prosthetic application.                                                                                                                                                                                                                                                                        | 1                        |
| 12                         | <b>Orthotic appliances for Hip, Knee, Ankle&amp; foot - Prescription and design &amp; modification</b><br>Orthotic appliances for Hip, Knee, Ankle& foot - Prescription and design & modification                                                                                                                                                                                          | 1                        |
| 13                         | <b>Spinal conditions inclusive of fractures, spondylolisthesis, kyphosis, scoliosis etc.</b><br>Spinal conditions inclusive of fractures, spondylolisthesis, kyphosis, scoliosis etc.                                                                                                                                                                                                      | 2                        |
| 14                         | <b>Upper limb conditions – splinting prescriptions with principles.</b><br>Upper limb conditions – splinting prescriptions with principles.                                                                                                                                                                                                                                                | 3                        |
| 15                         | <b>Upper &amp; lower limb; endo skeletal &amp; exo skeletal Prosthesis –</b><br>Upper & lower limb; endo skeletal & exo skeletal, b. Hip, knee & foot prosthetic components with k-levels, Upper limbs: cosmetic restoration, terminal devices (body powered), self help devices (ADL equipment), myoelectric, microprocessor / sensor controlled (externally powered) d. Adaptive devices | 4                        |
| 16                         | <b>Psychological &amp; Physiological aspects of orthotic and prosthetic application.</b><br>Psychological & Physiological aspects of orthotic and prosthetic application                                                                                                                                                                                                                   | 2                        |
| 17                         | <b>Material used in fabrication of Prosthetics &amp; Orthotics briefly.</b><br>Material used in fabrication of Prosthetics & Orthotics briefly                                                                                                                                                                                                                                             | 1                        |
| 18                         | <b>Mobility aids</b><br>Canes, crutches, walking frames, walkers, wheel chairs manual / electrically powered.                                                                                                                                                                                                                                                                              | 2                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                                                                                                                                                                            | <b>40</b>                |

#### **Suggested List of Experiments:**

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                 | <b>Contact<br/>Hours</b> |
|----------------------------|-------------------------------------------------------------------------------|--------------------------|
| 1                          | <b>Practicals/OPD/Case Presentations</b><br>Practicals/OPD/Case Presentations | 20                       |
| <b>Total Hours</b>         |                                                                               | <b>20</b>                |

#### **Textbook :**

- 1 Textbook of Rehabilitation, S. Sunder , JPB, 2010

### References:

- 1 Textbook of preventive and social medicine, Textbook of preventive and social medicine, Park & Park, Banarsidas Bhanot Publishers, 2021
- 2 Short Textbook of Prosthetics and Orthotics, Short Textbook of Prosthetics and Orthotics, R Chinna Thurai, Jaypee Brothers Medical Publishers Private Limited, 2010

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 20.00      | 30.00 | 10.00   | 10.00    | 10.00                            |

### Instructional Method:

- 1 Classroom teaching, case presentations, clinical practice

|                       |                                               |
|-----------------------|-----------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>               |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>              |
| <b>SEMESTER</b>       | <b>4</b>                                      |
| <b>COURSE TITLE</b>   | <b>BIostatISTICS AND RESEARCH METHODOLOGY</b> |
| <b>COURSE CODE</b>    | <b>17PT0405</b>                               |
| <b>COURSE CREDITS</b> | <b>2</b>                                      |

### Objective:

- 1 To acquaint students with various statistical tools that are helpful for research purposes.
- 2 To recognize different variables as per their types and should be able to decide on how to treat them differently as per requirement
- 3 To differentiate complete enumeration and various forms of sampling (random: Simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient) with understanding of merits and demerits of them
- 4 To decide when to apply what test or a measure of central tendency according to the need of the data and OBJECTIVES.
- 5 To interpret a given output of regression or ANOVA according to the context.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Recognize different variables as per their types and should be able to decide on how to treat them differently as per requirement
- 2 Differentiate complete enumeration and various forms of sampling (random: Simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient) with understanding of merits and demerits of them
- 3 Decide when to apply what test or a measure of central tendency according to the need of the data and OBJECTIVES.
- 4 Interpret a given output of regression or ANOVA according to the context.

**Pre-requisite of course:** Basic computer literacy and basic mathematics is often a fundamental prerequisite.

### Teaching and Examination Scheme

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 25         | 15        | 10         | 0           | 0                |

  

| <b>Contents : Unit</b> | <b>Topics</b>                                                                                     | <b>Contact Hours</b> |
|------------------------|---------------------------------------------------------------------------------------------------|----------------------|
| 1                      | <b>Introduction to statistics in physiotherapy</b><br>Introduction to statistics in physiotherapy | 1                    |
| 2                      | <b>Understanding 'Data' and its types</b><br>Understanding 'Data' and its types                   | 1                    |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                          | Contact<br>Hours |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 3                  | <b>Presentation of various data: tables, graphs and descriptive statistics</b><br>Presentation of various data: tables, graphs and descriptive statistics                                                                                                                                                                                                                                                                                       | 1                |
| 4                  | <b>Measures of central tendencies (CT): mean, median, mode; merits and demerits; when to apply which measure of CT for the given data.</b><br>Measures of central tendencies (CT): mean, median, mode; merits and demerits; when to apply which measure of CT for the given data.                                                                                                                                                               | 1                |
| 5                  | <b>Measures of dispersion: range, mean deviation, standard deviation, coefficient of variance</b><br>Measures of dispersion: range, mean deviation, standard deviation, coefficient of variance                                                                                                                                                                                                                                                 | 1                |
| 6                  | <b>Application of normal distribution and its properties</b><br>Application of normal distribution and its properties                                                                                                                                                                                                                                                                                                                           | 1                |
| 7                  | <b>Testing of hypothesis (measuring change): one sample with population, comparing two samples ( Z test for proportion, difference of two proportion, independent sample 't' test, paired 't' test, chi square test.)</b><br>Testing of hypothesis (measuring change): one sample with population, comparing two samples ( Z test for proportion, difference of two proportion, independent sample 't' test, paired 't' test, chi square test.) | 2                |
| 8                  | <b>Conceptual understanding of correlation, linear and multiple regression, analysis of variance (ANOVA) and analysis of co-variance (ANCOVA)</b><br>Conceptual understanding of correlation, linear and multiple regression, analysis of variance (ANOVA) and analysis of co-variance (ANCOVA)                                                                                                                                                 | 2                |
| 9                  | <b>Complete enumeration and sampling methods: random: simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient</b><br>Complete enumeration and sampling methods: random: simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient                                                                                                                                     | 2                |
| 10                 | <b>Simple statistical analysis through excel</b><br>Simple statistical analysis through excel                                                                                                                                                                                                                                                                                                                                                   | 3                |
| 11                 | <b>What is research? Why research?</b><br>What is research? Why research?                                                                                                                                                                                                                                                                                                                                                                       | 1                |
| 12                 | <b>Types of epidemiological studies &amp; measurements of various indications.</b><br>Types of epidemiological studies & measurements of various indications.                                                                                                                                                                                                                                                                                   | 6                |
| 13                 | <b>Possible errors that may generate due to study design &amp; how to overcome them</b><br>Possible errors that may generate due to study design & how to overcome them                                                                                                                                                                                                                                                                         | 2                |

| <b>Contents :<br/>Unit</b> | <b>Topics</b>                                                                                                                                                                                                                   | <b>Contact<br/>Hours</b> |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 14                         | <b>How to read and what to read from journals</b><br>How to read and what to read from journals                                                                                                                                 | 3                        |
| 15                         | <b>Role of research in Physiotherapy</b><br>Role of research in Physiotherapy                                                                                                                                                   | 2                        |
| 16                         | <b>Components of research proposal – introduction and rationale, material &amp; methods, results and discussion</b><br>Components of research proposal – introduction and rationale, material & methods, results and discussion | 4                        |
| 17                         | <b>Where to look for good literature and why</b><br>Where to look for good literature and why                                                                                                                                   | 3                        |
| 18                         | <b>The Evidence Based Practice and Hierarchy of evidence</b><br>The Evidence Based Practice and Hierarchy of evidence                                                                                                           | 2                        |
| 19                         | <b>Critical appraisal of paper</b><br>Critical appraisal of paper                                                                                                                                                               | 2                        |
| <b>Total Hours</b>         |                                                                                                                                                                                                                                 | <b>40</b>                |

#### **Textbook :**

- 1 Research Methodology, C.R Kothari, New age international, 2017
- 2 Methods in Bio-statistics, BK Mahajan, Jaypee Brothers Medical Publishers, 2018

#### **References:**

- 1 Research Methods for Clinical Therapists: Applied Project Design and Analysis, Research Methods for Clinical Therapists: Applied Project Design and Analysis, Hicks, Churchill Livingstone, 2009

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |                   |              |                |                 |                                                 |
|-----------------------------------------------------------|-------------------|--------------|----------------|-----------------|-------------------------------------------------|
| <b>Remember /<br/>Knowledge</b>                           | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order<br/>Thinking /<br/>Creative</b> |
| 20.00                                                     | 20.00             | 30.00        | 10.00          | 10.00           | 10.00                                           |

#### **Instructional Method:**

- 1 Classroom teaching

**Supplementary Resources:**

- 1 [https://www.unilus.ac.zm/lms/e-books/books/Basic\\_Sciences/Behavioural%20sciences%20and%20public%20health/Fundamentals%20of%20Biostatistics%20%287th%20Edition%29.pdf](https://www.unilus.ac.zm/lms/e-books/books/Basic_Sciences/Behavioural%20sciences%20and%20public%20health/Fundamentals%20of%20Biostatistics%20%287th%20Edition%29.pdf)
- 2 <https://pharmdbm.com/bpharm-8th-semester-notes-free-download/>
- 3 [https://www.carewellpharma.in/bpharmacy/notes/8th-sem/biostatistics-and-research-methodology/#google\\_vignette](https://www.carewellpharma.in/bpharmacy/notes/8th-sem/biostatistics-and-research-methodology/#google_vignette)
- 4 <https://www.scribd.com/document/721490295/Biostatistics-and-Research-Methodology>

|                       |                                                                       |
|-----------------------|-----------------------------------------------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>                                       |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b>                                      |
| <b>SEMESTER</b>       | <b>4</b>                                                              |
| <b>COURSE TITLE</b>   | <b>PROFESSIONAL PRACTICE AND ETHICS AND ADMINISTRATIVE MANAGEMENT</b> |
| <b>COURSE CODE</b>    | <b>17PT0406</b>                                                       |
| <b>COURSE CREDITS</b> | <b>2</b>                                                              |

**Objective:**

- 1 To understand the moral values and meaning of ethics
- 2 To acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
- 3 To develop psychomotor skills for physiotherapist patient relationship.
- 4 To develop skill to evaluate and make decision for plan of management based on socio-cultural values and referral practice.
- 5 To develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals.
- 6 To understand the importance of council, its functioning and Act.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the moral values and meaning of ethics.
- 2 Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
- 3 Develop psychomotor skills for physiotherapist patient relationship.
- 4 Develop skill to evaluate and make decision for plan of management based on socio-cultural values and referral practice.
- 5 Develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals.
- 6 Understand the importance of council, its functioning and Act.

**Pre-requisite of course:** Student should have basic idea about ethical principals

**Teaching and Examination Scheme**

| <b>Theory Hours</b> | <b>Tutorial Hours</b> | <b>Practical Hours</b> | <b>ESE</b> | <b>IA</b> | <b>CSE</b> | <b>Viva</b> | <b>Term Work</b> |
|---------------------|-----------------------|------------------------|------------|-----------|------------|-------------|------------------|
| 40                  | 0                     | 0                      | 0          | 0         | 0          | 0           | 0                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Contact<br>Hours |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1                  | <b>Outlines of Gujarat State Council for Physiotherapists (GSCPT) Act 2011, Indian Association of Physiotherapists (IAP) &amp; World Confederation for Physical Therapy (WCPT), Clinical Establishment Act, American Physical Therapy Association (APTA) with more emphasis on formation, functions, importance for registration etc.</b><br>Outlines of Gujarat State Council for Physiotherapists (GSCPT) Act 2011, Indian Association of Physiotherapists (IAP) & World Confederation for Physical Therapy (WCPT), Clinical Establishment Act, American Physical Therapy Association (APTA) with more emphasis on formation, functions, importance for registration etc. | 3                |
| 2                  | <b>Ethical principles in health care services, research, teaching related to physiotherapy.</b><br>Ethical principles in health care services, research, teaching related to physiotherapy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                |
| 3                  | <b>Scope of practice as patient manager, consultant, critical inquirer, educator, administrator.</b><br>Scope of practice as patient manager, consultant, critical inquirer, educator, administrator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2                |
| 4                  | <b>Rules of professional conduct</b><br>-Physiotherapy as a profession, -Relationship with patients, - Relationship at health care institution i.e. hospital, clinic etc., - Relationship with colleagues and peers, Relationship with medical and other professionals                                                                                                                                                                                                                                                                                                                                                                                                      | 3                |
| 5                  | <b>Confidentiality and responsibility</b><br>Confidentiality and responsibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                |
| 6                  | <b>Malpractice and negligence</b><br>Malpractice and negligence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                |
| 7                  | <b>Professional development, competence and expertise</b><br>Professional development, competence and expertise                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                |
| 8                  | <b>Sale of goods</b><br>Personal and professional standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                |
| 9                  | <b>Legal aspects</b><br>Legal responsibility of physiotherapists for their action in the professional context understanding liability and obligations in case of medico legal action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4                |
| 10                 | <b>Management studies related to local health care organization management &amp; structure, planning delivery with quality assurance &amp; funding of service delivery, information technology and career development in physiotherapy</b><br>Management studies related to local health care organization management & structure, planning delivery with quality assurance & funding of service delivery, information technology and career development in physiotherapy                                                                                                                                                                                                   | 2                |

| Contents :<br>Unit | Topics                                                                                                                                                                                                                                                                          | Contact<br>Hours |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 11                 | <b>Administration-principles-based on the goal &amp; functions at large hospital set up/domiciliary services/private clinic/ academics.</b><br>Administration-principles-based on the goal & functions at large hospital set up/domiciliary services/private clinic/ academics. | 2                |
| 12                 | <b>Budget-planning.</b><br>Budget-planning                                                                                                                                                                                                                                      | 2                |
| 13                 | <b>Performance analysis</b><br>Physical structure/ reporting system (man power, status, functions, quantity & quality of services, turn over, cost benefit revenue contribution)                                                                                                | 2                |
| 14                 | <b>Setting up therapeutic gymnasium, fitness clinics, cardiac and pulmonary rehab centers etc</b><br>Setting up therapeutic gymnasium, fitness clinics, cardiac and pulmonary rehab centers etc                                                                                 | 5                |
| 15                 | <b>Time management</b><br>Time management                                                                                                                                                                                                                                       | 2                |
| <b>Total Hours</b> |                                                                                                                                                                                                                                                                                 | <b>40</b>        |

#### Textbook :

- 1 Medical ethics, CM Francis, JAYPEE BROTHERS, 2020

#### References:

- 1 Current problems in medical ethics, Current problems in medical ethics, M George, V Lobo, ST PAUL, 1980
- 2 Consumer protection act, Consumer protection act, Govt. of India, Govt. of India, 1986

#### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation |            |       |         |          |                                  |
|-----------------------------------------------------------|------------|-------|---------|----------|----------------------------------|
| Remember / Knowledge                                      | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
| 20.00                                                     | 20.00      | 30.00 | 10.00   | 10.00    | 10.00                            |

#### Instructional Method:

- 1 Classroom teaching

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>4</b>                         |
| <b>COURSE TITLE</b>   | <b>CLINICAL HOURS</b>            |
| <b>COURSE CODE</b>    | <b>17PT0407</b>                  |
| <b>COURSE CREDITS</b> | <b>24</b>                        |

**Objective:**

- 1 To differential diagnosis, treat and advise the patients/clients with various conditions

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Differential diagnosis, treat and advice the patients/clients with various conditions

**Pre-requisite of course:** Student should have adequate knowledge regarding all clinical conditions and adequate skills to be performed on patients/clients of various clinical conditions/fitness.

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 940             | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                            | <b>Contact Hours</b> |
|------------------------|----------------------------------------------------------|----------------------|
| 1                      | Clinical Postings/Training<br>Clinical Postings/Training | 960                  |
| <b>Total Hours</b>     |                                                          | <b>960</b>           |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| Remember / Knowledge | Understand | Apply | Analyze | Evaluate | Higher order Thinking / Creative |
|----------------------|------------|-------|---------|----------|----------------------------------|
| 0.00                 | 0.00       | 0.00  | 0.00    | 0.00     | 0.00                             |

**Instructional Method:**

- 1 Clinical practice on patients

|                       |                                  |
|-----------------------|----------------------------------|
| <b>INSTITUTE</b>      | <b>FACULTY OF PHYSIOTHERAPY</b>  |
| <b>PROGRAM</b>        | <b>BACHELOR OF PHYSIOTHERAPY</b> |
| <b>SEMESTER</b>       | <b>4</b>                         |
| <b>COURSE TITLE</b>   | <b>SPORTS</b>                    |
| <b>COURSE CODE</b>    |                                  |
| <b>COURSE CREDITS</b> | <b>0</b>                         |

**Objective:**

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Course Outcomes:** After completion of this course, student will be able to:

- 1 To develop overall health and Fitness
- 2 To encourage the acquisition of subject knowledge, orientation in fundamentals skills of different sports

**Pre-requisite of course:** To understand the body mechanics with the help of sports activities

**Teaching and Examination Scheme**

| Theory Hours    | Tutorial Hours | Practical Hours | ESE | IA | CSE | Viva | Term Work     |
|-----------------|----------------|-----------------|-----|----|-----|------|---------------|
| 0               | 0              | 40              | 0   | 0  | 0   | 0    | 0             |
| Contents : Unit | Topics         |                 |     |    |     |      | Contact Hours |
| Total Hours     |                |                 |     |    |     |      |               |

**Suggested List of Experiments:**

| <b>Contents : Unit</b> | <b>Topics</b>                                          | <b>Contact Hours</b> |
|------------------------|--------------------------------------------------------|----------------------|
| 1                      | <b>sports activities -indoor</b><br>indoor activities  | 20                   |
| 2                      | <b>sports activities-outdoor</b><br>outdoor activities | 20                   |
| <b>Total Hours</b>     |                                                        | <b>40</b>            |

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

| <b>Remember / Knowledge</b> | <b>Understand</b> | <b>Apply</b> | <b>Analyze</b> | <b>Evaluate</b> | <b>Higher order Thinking / Creative</b> |
|-----------------------------|-------------------|--------------|----------------|-----------------|-----------------------------------------|
|                             |                   |              |                |                 |                                         |

**Instructional Method:**

- 1 Field based activities

**Supplementary Resources:**

- 1 NA