

COURSE	FACULTY OF PHYSIOTHERAPY
PROGRAM	BACHELOR OF PHYSIOTHERAPY
SEMESTER	2
COURSE TITLE	EXERCISE THERAPY 2
COURSE CODE	17PT1206
COURSE CREDITS	9

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

1. Provide high quality, ethical, effective, and cost-efficient practices by students and gain expertise in the exercise prescription to patients.
2. 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.
3. Understand the effect of exercise therapeutic modality in the restoration of physical function.
4. Describe the physiological and therapeutic effects of various movements and acquire the skills of using various tools of the therapeutic gymnasium.

Pre-requisite of course: At the end of the course the candidate 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. To demonstrate general fitness, exercise and shall gain fitness for one self.

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	Stretching 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	Continuous Passive Movement (CPM) unit Definition, Method of application, Indications, Contra-indications , Precautions	4
3	Traction Types, Effects, Principles of application for cervical and lumbar spine, Traction to soft tissues of joints – gliding movements	4
4	Mobilization	12

	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	
5	Advance soft tissue Mobilization Basic principles of Muscle Energy Techniques (MET), Myofascial Release Techniques (MFR), Positional Release Therapy (PRT), Neural Tissue Mobilization (NTM)	6
6	Manual Muscle Testing (M.M.T.) 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	Crawling exercises Principles, Types, Effects & Uses.	5
8	Progressive Resisted Exercise (PRE) /Strengthening of muscles 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	Proprioceptive Neuromuscular Facilitation (PNF) Introduction , Principles, Basic procedures for Facilitation, Basis techniques of PNF patterns: Arm, Leg, Neck, Head and trunk, Face, Techniques for emphasis	7
10	Relaxation Muscle tone, Postural tone, General and local relaxation techniques of relaxation	15
11	Neuromuscular coordination Factors governing co-ordination, Principles of re-education, Frenkel's exercises and its techniques	6
12	Balance 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	Functional Re-education Mat activities for the re-education of hemiplegics, paraplegics and cerebral palsy, Walking re-education in neurological and orthopedic conditions.	4

14	Aerobic exercises Physiological effects and therapeutic uses, Fitness testing, Stress testing for healthy and convalescent individuals, Pharmacological aspects of exercises.	10
15	Postural Drainage Indications and Contraindications, Forced Expiration Technique (FET), Assistive devices, Techniques	5
16	Hydrotherapy Physiological properties of water and hydrodynamics, Physiological and applications of Bad- Ragaz Technique, Indications and contraindications	4
17	Yoga-Asana, Pranayama and their scientific uses Yoga-Asana, Pranayama and their scientific uses	2
Total Hours		120

Suggested List of Experiments:

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15	Yoga-Asana, Pranayama and their scientific uses Yoga-Asana, Pranayama and their scientific uses	7
Total Hours		120

References:

- 1 Principles of Exercise Therapy by Dena Gardiner, 4th Edition, CBS Publication.
- 2 Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication.
- 3 Practical Exercise Therapy by Margaret Hollis, 5th Edition; Blackwell Sciences Publication.
- 4 Manual Muscle Testing by Daniel and Worthingham
- 5 Muscle testing - Kendall
- 6 PNF - Knott and Voss
- 7 PNF in practice - Susan Adler
- 8 Muscle Energy Technique - Leon Chaitow.
- 9 Tidy's Physiotherapy – Stuart Porter

