

PG DMLT Semester I
Subject Name: Basic and Clinical Pathology (BCP)
Subject Code: 02ML0101

Objective: To provide deep insights of principles and analysis of pathological samples and associated diseases.

Credits Earned: 4 Credits

Course Outcomes: After the completion of the course:

1. Students will be able to distinguish and differentiate between various pathological conditions.
2. Students will gain knowledge of cellular level changes in the event of tissue infection and injury.
3. Students will become well versed with sample collection methods and its pathological analysis.
4. Students will gain deep insights into the pathophysiology of health disorders and deficiency diseases.

Pre-requisite of course: Basic knowledge of biomolecules.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Practical/ TW	
4	0	0	4	50	30	20	0	0	100

Contents:

Unit	Topics	Contact Hours
1	Basic Pathology Introduction & History of pathology, Basic definitions, and familiarization with the common terms used in pathology, Causes and mechanisms of cell injury, reversible and irreversible injury, Introduction of hyperplasia, hypoplasia, hypertrophy, atrophy, metaplasia, necrosis and apoptosis.	10
2	Inflammation General features of acute and chronic inflammation: Vascular changes, cellular events, Cells and mediators of inflammation, Phagocytosis, and its mechanism of pathogenesis.	5
3	Analysis of Clinical Samples <i>Urine Analysis:</i> Urinary system, the composition of urine. Collection & preservation of urine sample. <i>Physical Examination:</i> Volume, Colour, Appearance, Specific gravity, pH. <i>Chemical Examination:</i> Sugar, Protein, Ketone bodies, Bile salt, Bile pigment, urobilinogen, occult blood, Bence-Jones protein. <i>Microscopic examination:</i> Cells, crystals, casts, parasites. Pregnancy test-Production of HCG. <i>Faeces Examination:</i> Method of collection. <i>Physical Examination:</i> colour, mucous, consistency. <i>Chemical Examination:</i> Occult blood, faecal urobilinogen & fat. <i>Microscopic Examination:</i> Pus cells, RBCs, Crystals & Parasitic trophozoites, ova, cyst, adult parasites. Various concentration method of microscopic examination. <i>Sputum Examination:</i> Methods for collection & preservation. Physical examination. Microscopic examination of sputum: crystals, various staining preparation, concentration method for AFB. <i>Examination of Miscellaneous Body Fluids:</i> Transudate & Exudate. Cerebrospinal fluid, Pleural fluid, Synovial fluid, Gastric juice, Pericardial fluid, Peritoneal fluid, Semen.	30
4	Disorders and Deficiency Diseases Protein-energy malnutrition, deficiency diseases of vitamins and minerals, nutritional excess, and imbalances. Role and effect of metals (Zinc, Iron, and Calcium) and their deficiency diseases, Aetiology and pathophysiology of diabetes, arteriosclerosis, myocardial infarction, respiratory diseases (COPD), Parkinson disease.	15
	Total Hours	60



References:

1. Harshmohan (2017), Textbook of Pathology, 7th edition, Jaypee Publications
2. Robbins, (2012), Textbook of Pathology, 3rd edition, Elsevier Publications
3. Textbook of Medical Laboratory Technology by Praful B. Godkar

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	Understand	Apply	Analyze	Evaluate	Create
30%	25%	25%	15%	5%	0%

Instructional Method:

- a. The course delivery method will depend upon the requirement of the content and need of students. The teacher in addition to the conventional teaching method by blackboard may also use any of the tools such as demonstration, role play, Quiz, brainstorming, etc.
- b. The internal evaluation will be done based on continuous evaluation of students in the classroom in the form of attendance, assignments, verbal interactions, etc.
- c. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.