Course Overview

Histology & Cytology

Course code :	LMT406
Course title:	**Histology & Cytology**
Level/semester:	**Forth Semester**
PRECEDING COURSES	**(a)Anatomy and physiology** **(b) Knowledge of light microscopy and Electron microscope** **(c) How to prepare solutions in the Laboratory**
Credit hours:4	**Theoretical:** 3
	Practical: 1

Unit	Contents	Hours
1	**Cell structure:** **Components of the cell structure** **a. Cell membrane** **b. Cytoplasm** **c. Mitochondria** **d. Golgi apparatus** **e. Endoplasmic reticulum** **f. Lysosomes** **g. Centrioles** **h. Filaments** **i. Microtubules** **j. Ribosomes** **k. Nucleus –Nuclear membrane** **- Nucleolus** **-Chromatin** **- Nucleoplasm** **Cell division- Mitosis and Meiosis**	**2**
2	**Tissue types:** **a. Epithelial tissue** **b. Connective tissue proper:** **Cartilage – Bone -Blood -Muscle- Nervous** **- Adipose tissue**	**2**
3	**Digestive system and Associated glands:** **a. Tongue** **b. Salivary glands** **c. Esophagus** **d. Stomach** **e. Small intestine** **f. Large intestine** **g. Appendix** **h. Liver** **i. Gall bladder** **j. Pancreas**	**2**
4	**Cardiorespiratory system:** **1.Respiratory system:** **a. Trachea** **b. Lungs** **2. Circulatory system:** **a. Heart b- Arteries** **c- Veins**	**2**
5	**Urinary system:** **a. Kidney** **b. Ureter** **c. Bladder**	**1**
6	**Skin:** **a. Epidermis** **b. Dermis** **c. Sweat glands**	**1**
7	**Endocrine:** **a. Pituitary** **b. Thyroid** **8c. Parathyroids** **d. Adrenals** **e. Pancreas (endocrine part)**	**2**

8	**Reproductive System:** **1. Male reproductive system** **a. Testes** **b. Seminiferous tubules** **c. Seminal vesicles** **d. Penis** **e. Prostate** **2. Female reproductive system** **a. Ovary** **b. Fallopian tubes** **c. Uterus** **d. Cervix** **e. Breast**	**2**
9	**Histopathology:** **1. Pathological process** **a. Genetically determined diseases** **b. Acquired diseases** **2. Cellular injury** **a. Necrosis** **b. Degeneration** **3. Inflammation** **a. Acute** **b. Chronic** **c. Healing and repair** **4. Thrombosis** **a. Definition** **b. Major sites for thrombus formation** **5. Embolism** **6. Ischaemia** **7. Infarcion** **8. Tumours** **a. Defintion** **b. Aetiology** **c. Classification (Histogenesis)** **d. Methods of spread**	**4**
10	**Fixation** **a. Definition** **b. Mechanism (function)** **c. Factors affecting fixation** **d. Types of fixatives** **e. Choice of fixatives** **f. Treatment of fixation deposits** **g. Fixatives used for electron microscope**	**2**
11	**Decalcification** **a. Definition** **b. Tissues containing high calcium content** **c. Decalcifying agents** **d. Technique of decalcification** **e. Tests for end point of decalcification** **f. Precautions**	**2**
12	**Dehydration and Clearing** **a. Definitions** **b. Precautions** **c. Procedure** **d. Reagents used**	**2**
13	**Impregnation** **a. Definition** **b. Site of impregnation**	**2**

	c. Types of wax used **d. Time of impregnation** **e. Temperature and storage of wax**	
14	**Embedding** **a. Definition** **b. Technique of tissue orientation** **c. Types of moulds used**	**2**

Course Title: Histology & Cytology.(Practical)

WEEKS	PRACTICAL	HOURS
1	**Electron Microscopy of Mitochondria, Golgi apparatus, Endoplasmic reticulum, Nucleus, Cilia, Centrioles, Molecular structure of cell membrane and Karyotyping**	**4**
2	**(a) Identification of body organs (experimental animal or Museum specimens) .** **(b)Identification of equi pments Microtomes, Knives, Automatic tissue processor machine, Automatic knife sharpener machine, Wax dispenser machine, Automatic stainer machine, Staining troughs (for manual), Oven, Hot plate, moulds, Tissue Tek cassettes.**	**2** **2**
3	**Histological examination of slides on: Simple epithelium, Stratified epithelium, Glandular epithelium, Loose connective tissue, Elastic tissue, Reticular tissue, Fatty tissue, Mucoid tissue, Fibrous tissue.**	**4**
4	**Histological examination of slides on: Hyaline cartilage, Elastic cartilage, Fibro cartilage, Compact and Spongy bone, Spinal cord, Skeletal muscle, Cardiac muscle, Smooth muscle, Blood film.**	**4**
5	**SLIDE REVISION ON EPTHELIA AND** **CONNECTIVE TISSUES**	**4**
6	**Histological examination of slides on digestive system Tongue, Salivary glands, Esophagus, Stomach, Small intestines, Large intestine, Appendix, Liver, Gall bladder, Pancreas.**	**4**
7	**Histological examination of slides on Respiratory-trachea and lungs. Cardiac- heart and blood vessels. Urinary kidney, ureter and bladder.**	**4**
8	**Histological examination of slides on EndocrinePituitary, Thyroid, Parathyroids, Adrenals, Pancreas** **Skin- epidermis, dermis and sweat glands**	**4**
9	**Histological examination of slides on the pathology of Necrosis, degeneration, inflammation, Embolism, Infarction, Ischaemia, and Representative of each group of the basic tumours according to histogenesis.**	**4**
10	**Fixation:** **Identification of different fixatives, Preparation of some fixatives, Procedure for fixation of different types of organs.**	**4**
11	**Decalcification:** **Identification of different decalcifying solutions, preparation of decalcifying solutions, Procedure for**	**4**

	decalcification. Testing the end point of decalcification.	
12	**Tissue processing:** **Identification of dehydrating and clearing agents.** **Paraplasts- identification and selection of the appropriate** **type and safety measures.** **The use of Automatic Tissue processor: How to set, how to start, how to set the tissue basket and how to change the solutions.**	**4**
13	**Tissue processing continued**	**4**
14	**Embedding:** **Procedure for embedding, types of cassettes or moulds used, Orientation of the specimen on the moulds.**	**4**
15	**REVISION**	**4**