Lesson plan

Discipline : DMLT

Semester : 3rd

Subject : Histopathology and cytology-I

Lession Plan Duration: 15 weeks (from October, 2022 to January, 2023) Work load ( Lecture / practical ) per week ( n hours) = Lecture=3, Practical=6

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| **WORK** | **THEORY** | | **Practical** | |
| **Lecture Day** | **Topic (Including assignment/test}** | **Practical Day** | **Topic** |
| 1st | 1 | Introduction and definition of: Histology, Histopathology  Biopsy, Autopsy, Autolysis, Putrefaction | L1 | Reception of specimen, labeling and preserving the specimen |
| 2 | Tissue Preparation method Unfixed Tissue preparations:  Imprint methods, Teased preparation |
| 3 | Unfixed Tissue preparations: Squashed preparation, Frozen section |
| 4 | Fixed Tissue preparations: Paraffin embedding,Celloidin embedding, Gelatin embedding |
| 2nd | 5 | Reception of Specimen: Reception, recording, labeling and preservation of histological specimen | L2 | Preparation of different fixatives with special emphasis on preparation of formaline based fixatives |
| 6 | Introduction about Fixation |
| 7 | Classification of fixatives: 1 Simple fixative |
| 8 | 2 Compound fixative |
| 3rd | 9 | Composition of various fixatives | L3 | Preparation of paraffin blocks from various tissue pieces and labeling with emphasis on orientation |
| 10 | Advantages and disadvantages of fixtaive |
| 11 | Introduction about Tissue Processing |
| 12 | Different steps of tissue processing:  Dehydration |

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|  |  | Clearing/Dealcoholization |  |  |
| 4th | 13 | Infilteration and impregnation  Paraffin embedding | L4 | Handling of microtome |
| 14 | Introduction about automatic tissue processor |
| 15 | automatic tissue processor types |
| 16 | automatic tissue processor working, care and maintenance |
| 5th | 17 | Test | L5 | Sharpening of microtome knives |
| 18 | Introduction about Microtomy and Microtome |
| 19 | Types of microtome(sliding,base sledge,  rocking) |
| 20 | Types of  microtome(rotary,freezing,cryostat,ultra) |
| 6th | 21 | Advantages and disadvantages of microtome | L6 | Preparation of blocks for fine cutting - Rough cutting - Trimming |
| 22 | care and maintenance of microtome |
| 23 | Microtome Knives(planoconcave,wedge,bioconcave,edge) |
| 24 | Sharpening of knives   * Honing technique * Stropping technique |
| 7th | 25 | Automatic knife sharpener – uses, care and maintenance  - Uses of abrasives and lubricants | L7 | Practice of fine section cutting |
| 26 | Introduction to disposable blades - their advantages and disadvantages. |
| 27 | Section Cutting 1 Rough cutting  2 Fine cutting |
| 28 | Use of tissue floatation bath |
| 8th | 29 | Use of various adhesive media and lifting of  sections to the slide | L8 | Practice of lifting of sections on the slides |
| 30 | Errors /cutting faults in sections and their  remedies |
| 31 | Introduction about staining:  Principle and mechanism of routine stain |

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|  | 32 | Various steps of staining ((Haematoxylin and Eosin)   * Deparaffinization * Hydration * Nuclear Staining * Differentiation |  |  |
| 9th | 33 | * Blueing * Counterstaining * Dehydration * Clearing and Mounting * Results | L9 | Performing H&E staining on sections and mounting of tissue sections |
| 34 | Use of automatic stainer and coverslipper |
| 35 | Assignment |
| 36 | Introduction about Mountants  Various types of mounting media 1 Aqueous mounting media |
| 10th | 37 | 2 Resinous mounting media  Advantages and Disadvantages mounting media | L10 | Demonstration of cell using buccal smear/urine sample |
| 38 | Terms associated with staining (04 hrs) Solvents  Mordants |
| 39 | Metachromasia Accelerators |
| 40 | Progressive and regressive staining |
| 11th | 41 | Use of controls in staining and their significance | L11 | Processing of urine samples for malignant cells |
| 42 | Introduction about Cell (02 hrs) Defination and function of cell |
| 43 | Cell Structure and Multiplication(Mitosis and Meiosis ) |
| 44 | Assignment |
| 12th | 45 | Introduction about Exfoliative Cytology | L12 | Processing of sputum sample for malignant cytology |
| 46 | Preparation of vaginal & cervical smears |
| 47 | Urine Collection and Processing of specimen for cytology |
| 48 | Sputum Collection and Processing of  specimen for cytology |

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| 13th | 49 | CSF (Cerebro Spinal Fluid) Collection and  Processing of specimen for cytology | L13 | To perform PAP stain on given smear |
| 50 | Itroduction about Cytological Specimen Fixation |
| 51 | Various types of Cytological fixatives |
| 51 | Advantages and Disadvantages |
| 14th | 53 | Introduction about Cytological Staining | L14 | To perform MGG& H&E stain on given smear |
| 54 | Principle, Technique and interpretation of results in  - Papanicalaou staining |
| 55 | Principle, Technique and interpretation of results in  - May Grunwald & Giemsa staining |
| 56 | Principle, Technique and interpretation of results in  - Haematoxylin and Eosin staining |
| 15th | 57 | Role of Laminar airflow in cytology | L15 | To demonstrate various automation by use of brochures, charts etc. |
| 58 | Role of cytotechnician in cytology |
| 59 | Assignmemt |
| 60 | Test |