**LESSON PLAN**

**NAME OF FACULTY** : Surender Soni

**DISCIPLINE** : DMLT

**SEMESTER** : 3rd

**SUBJECT** : Histopathology and cytology

**LESSON PLAN DURATION** : 15 Weeks (from July , 2018 to Nov, 2018)

**Work Load Per week** : Lectures-3, Practical -3

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| **WEEK** | **THEORY** | | **PRACTICAL** | |
|  | **LECTURE DAY** | **TOPIC (ASSINGNMET/TEST)** | **PRACTICAL DAY**  **(Each day for 3 hours)** | **TOPIC** |
| 1st | 1 | Introduction and definition of:  Histology Histopathology Biopsy Autopsy Autolysis Putrefaction | 1st | Reception of specimen, labeling and preserving the specimen |
| 2 | Unfixed Tissue preparations  Imprint methods – Impression Smears  Teased preparation  Squashed preparation  Frozen section |
| 3 | Fixed Tissue preparations  Paraffin embedding  Celloidin embedding  Gelatin embedding |
| 2nd | 4 | Reception, recording, labeling and preservation of histological specimen | 2nd | Preparation of various smears by unfixed methods  - Imprint smears  - Teased smears  - Squashed smears |
| 5 | Fixation (Histological Specimens) |
| 6 | Classification of fixatives |
| 3rd | 7 | Composition of various fixatives | 3rd | Preparation of different fixatives with special emphasis on preparation of  formaline based fixatives |
| 8 | Advantages and disadvantages |
| 9 | Revision of unit 1,2,3,4 |
| 4th | 10 | Processing (by Paraffin Technique) | 4th | Preparation of paraffin blocks from various tissue pieces and labeling with  emphasis on orientation |
| 11 | Dehydration  Clearing/Dealcoholization |
| 12 | Infilteration and impregnation |
| 5th | 13 | Paraffin embedding | 5th | Handling of microtome  Sharpening of microtome knives |
| 14 | Automation: Histokinete (automatic tissue processor)  - its types, working, care and maintenance |
| 15 | Test and assignment of unit 1-5 |
| 6th | 16 | Microtome Types, Advantages and disadvantages |  | Preparation of blocks for fine cutting  - Rough cutting  - Trimming |
| 17 | Working principle, care and maintenance |
| 18 | Microtome Knives and Various types of knives |
| 7th | 19 | Sharpening of knives Honing technique, Stropping technique, Automation: Automatic knife sharpener –uses, care and maintenance | 7th | Practice of fine section cutting |
| 20 | Uses of abrasives and lubricants |
| 21 | Introduction to disposable blades - their advantages and disadvantages. |
| 8th | 22 | Section Cutting - Rough cutting, Fine cutting, | 8th | Practice of lifting of sections on the slides |
| 23 | Use of tissue floatation bath,Use of various adhesive media and lifting of sections to the slide  Errors /cutting faults in sections and their remedies |
| 24 | Principle and mechanism of routine stain (Haematoxylin and Eosin) |
| 9th | 25 | Various steps of staining (Haematoxylin and Eosin)  - Deparaffinization  - Hydration  - Nuclear Staining  - Differentiation | 9th | Performing H&E staining on sections and mounting of tissue sections |
| 26 | - Blueing  - Counterstaining  - Dehydration  - Clearing and Mounting  - Results |
| 27 | Automation: Use of automatic stainer and coverslipper |
| 10th | 28 | Various types of mounting media (aqueous, resinous) | 10th | Demonstration of cell using buccal smear/urine sample |
| 29 | Advantages and Disadvantages |
| 30 | Solvents, Mordants |
| 11th | 31 | Metachromasia, Accelerators | 11th | Processing of urine samples for malignant cells |
| 32 | Progressive and regressive staining |
| 33 | Use of controls in staining and their significance |
| 12th | 34 | Test and Assignment | 12th | Processing of sputum sample for malignant cytology |
| 35 | Cell Defination and function and Structure |
| 36 | Multiplication (Mitosis and Meiosis ) |
| 13th | 37 | Exfoliative Cytology Introduction | 13th | To perform PAP stain on given smear |
| 38 | Preparation of vaginal & cervical smears |
| 39 | Collection and Processing of specimen for cytology  - Urine  - Sputum |
| 14th | 40 | Collection and Processing of specimen for cytology  - CSF (Cerebro Spinal Fluid)  - Other fluids | 14th | To perform MGG stain on given smear |
| 41 | Fixation (Cytological Specimen) Definition  and Various types of Cytological fixatives  Advantages and Disadvantages |
| 42 | Principle, Technique and interpretation of results in  - Papanicalaou staining  - May Grunwald & Giemsa staining  - Haematoxylin and Eosin staining |
| 15th | 43 | - May Grunwald & Giemsa staining  - Haematoxylin and Eosin staining | 15th | To perform H&E on given smear  To demonstrate various automation by use of brochures, charts etc. |
| 44 | Role of Laminar airflow and cytotechnician in cytology |
| 45 | Assignment and Test |

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