

## **SYLLABUS**

### **Broad outline of theoretical, clinical and practical courses.**

1. Study of principles of routine and special techniques used for histopathology including principles of histochemistry, Immunochemistry, applied and theoretical biochemical basis of histochemistry as related to oral pathology.
2. Advanced histological and histopathological study of dental and oral tissues including embryonic considerations, clinical considerations, biology, histology, Pathology, prognosis and management of oral oncology, concepts of oral pre-malignancy
3. Study of special and applied pathology of oral tissues as well as relation of local pathologic and clinical findings to systemic conditions.
4. Oral microbiology and their relationship to various branches of dentistry.
5. Oral microbiology affecting hard and soft tissues. Study of clinical changes and their significance to dental and oral diseases as related to oral pathology.
6. Forensic odontology.
7. Inter-institutional postings such as cancer hospital, dermatology clinics, regional HIV detection centres, sophisticated instrumentation centres for electron microscopy and other techniques.
8. Maintenance of records of all postgraduate activities.
9. Library assignment.
10. University Dissertation.

### **I APPLIED ANATOMY AND HISTOLOGY**

- Muscles of Mastication
- Temporo Mandibular Joint
- Salivary glands
- Muscles of Facial expression
- Bronchial arches
- Tongue
- Infra temporal fossa
- Paranasal sinuses
- Pharynx and Larynx
- Hard and Soft palate
- Lateral wall of nose
- Anterior and posterior triangles
- Trigeminal, Facial, Glossopharyngeal and Hypoglossal nerve.

### **APPLIED ORALANATOMY**

- Structure and relations of the alveolar process and edentulous mouth

- Anatomy of local anesthesia
- Propagation of dental infections
- Development and Growth of Jaw bones
- Development of Teeth and Supporting structures

### **ORAL HISTOLOGY**

- Periodontium
- Oral Mucous Membrane in health and disease
- Pulp periodontal complex
- Occlusion and contact areas
- Eruption of Teeth
- Shedding and Eruption
- Innervation of dentin
- Role of Epithelium in development in tooth.

## **II APPLIED GENERAL AND ORAL PHYSIOLOGY AND BIOCHEMISTRY**

- Mastication and deglutition
- Saliva
- Food and nutrition
- Metabolism of carbohydrates, fats and proteins
- Vitamins and Minerals
- Fluid and electrolyte balance
- Pain, Pathway and mechanism
- Blood : Composition and functions
- Blood : Clotting mechanism, Hemorrhage
- Blood:
- Blood : Volume
- Cardio vascular homeostasis, Heart sounds
- Pulse and Blood pressure
- Dynamics of blood flow
- Respiratory system: Normal physiology and variations in health and disease, Asphyxia, Hypoxia, artificial respiration
- Endocrinology : Thyroid, parathyroid, adrenals, growth hormone, sex hormone and pregnancy
- Endocrine regulation of blood sugar Biochemistry of Oral tissues

## **III. APPLIED PHARMACOLOGY**

- Definition, scope and relation to other branches of Medicine.  
Recent facts pertaining to General pharmacology viz. Mode of action, bio-assay, standardization etc.

### **Chemo therapy of Bacterial Infections**

- a) Sulfonamides



- Viruses – Herpes, AIDS, Hepatitis
  - Fungi – Candida
  - Defense Mechanisms
  - Oral flora
  - Vaccines
- R. In addition to the above subjects, there will be subjects as follows for internal assessment to be completed two months before part I University Examination:
1. Principles of Bio-Statistics
  2. Principles of Research Methodology

**I. Syllabus of Principles of Biostatics**

- 1 Introduction
- 2 Collection, classification and presentation
- 3 Averages (Mean, Median, Mode)
- 4 Dispersion, Skewness and Kurtosis
- 5 Correlation
- 6 Regression
- 7 Binomial, Poisson and Normal Distributions
8. Tests of significance (Large samples)
- 9.
10. Measures of morbidity, fertility, morality and survival
- 11 Clinical trials

**2. SELECTED REFERENCES**

- 1 “A short-text book of Medical Statistics” – Sir Austin Bradford Hill (Holder and Stoughton, Kent)
- 2 “Lecture Notes on Medical Statistics – Aviva Petric (Blackwell Scientific Publications, Oxford)
- 3 “Health Statistics” – (A manual for teacher of Medical students – C.R. Lowe and S.K. Lwanga, (Oxford University press)
- 4 “Interpretation and uses of Medical Statistics” – G.J. Bourko and J. Mercivray (Blackwell Scientific Publications, Oxford)
5. “Statistics for Biologists” – R.C. Campbell (Cambridge University Press)
6. “Biometrics Interpretation” – Neil Gilbert (Clarendon Press Oxford)
- 7 “Introductory Medical Statistics” – R.F. Moyld (Pitman Medical Publishing Co. Ltd. Kent)
- 8 “Elements of Medical Statistics” – J.V. Smart (Staples Press London)
- 9 “Introductory Statistics for Biology” – R.E. Parkar, Edward Arnold (Publishers)- Ltd, London.
- 10 “Statistics for Biologists” – D.J. Finney (Chapman and Hall Ltd, London)

3. **PRINCIPLES OF RESEARCH METHODOLOGY**

**Core Curriculum:**

1. What is Research?
2. What is Research Methodology?
3. Types of Research:
  - a) Basis of Fundamental Research
  - b) Applied
  - c) Clinical
  - d) Experimental
  
4. How does one select a subject for Research?
  - a) Intuition
  - b) Intuition based on experience
  - c) Knowledge of subject and questions that one asks of oneself
  - d) Areas of unknown, Aspects that have not been explored. Questions that are Unanswered
  - e) Survey of relevant literature, using a library
  
5. **How does one set about a Research Problem?**
  - a) List the aims and objectives
  - b) What is there in the literature that has been done, is being done and remains to be undone?
    - i) Retrospective Research
    - ii) Prospective Research
    - iii) Advantages and disadvantages of each. What will therefore be the best in the circumstances
    - iv) Develop a protocol to give answers so as to give the necessary data to the light of the hypothesis
    - v) Evolve a hypothesis
    - vi) Advantages and disadvantages of experimental model
    - vii) Develop a model especially designed to test the hypothesis and may be confirmed data.
    - viii) How does the data from the experimental model fit the hypothesis? Are the conclusions comparable? Are there any other conclusions Possible?
  
6. **Objectivity in Research Methodology**
  - a) Open trials? Bias and safeguards against it
  - b) Double blind, Triple blind studies
  - c) Cross over methods

7. **Quantification in Research Methodology**
  - a) Instrumental Quantification Rationales and fallacies
  - b) Reproducibility
  - c) Scoring methods, especially to lend objectivity to subjective observation, Safeguards against subjective bias.
- 8 Records, Protocols and Analysis

The logic of Research

### **EXAMPLES OF SPECIAL AREAS OF RESEARCH**

- a) Clinical
  - b) Experimental
  - c) Histological & Morphological
  - d) Histochemical
  - e) Genetic and
  - f) Epidemiologic studies
9. Working knowledge of computers

### **SYLLABUS FOR 1<sup>ST</sup> M.D.S.**

#### **1. Biostatics and Research Methodology**

Basic principles of biostatics and study as applied to dentistry and research  
 Sampling and planning of health survey  
 Probability, normal distribution and indicative statistics.  
 Estimating population values  
 Analysis of variance  
 Association correlation and regression

#### **2. Applied Gross Anatomy of Head and Neck including Histology:**

Nerve supply, blood supply, lymphatic drainage and venous drainage of prodental tissues  
 Embryology  
 Genetics  
 Introduction modes of inheritance, chromosomal anomalies of oral tissues and single gene disorders.

#### **3. Physiology (General and oral)**

Taste  
 Calcium metabolism  
 Theories of mineralization  
 Hormones (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues)

#### **4 Cleft Biology**

Cell structure and function (ultrastructural and molecular aspects) intercellular functions, cell cycle and division, cell cycle regulators, cell and cell extra cellular matrix interactions  
Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

### **5. General Histology**

Light and electron microscopy considerations of Epithelial tissues and glands, bone hematopoietic system, lymphatic system, muscle neural tissue, endocrinal system (thyroid, pituitary, parathyroid)

### **6 Biochemistry:**

Methods of identification and purification

Biological oxidation

Various techniques – cell fractionation and ultra-filtration centrifugation, electrophoresis, spectrophotometry, and radioactive techniques.

### **7. General Microbiology**

Definitions of various types of infections

Routes of infection and spread

Sterilization, disinfection and antiseptics

Bacterial genetics

Physiology and growth of microorganisms.

### **8 Basic Immunology**

Basic principles of immunity, antigen and antibody reactions

Cell mediated immunity and humoral immunity

Immunology of hypersensitivity

Immunological basic of the autoimmune phenomena

Immunodeficiency with relevance to opportunistic infections

Basic principles of transplantation and tumor immunity

### **9 Systemic microbiology/applied microbiology**

Morphology, classification, pathogen city, mode of transmission, methods of prevention, collection and transport of specimen, for laboratory diagnosis, staining methods common culture media, interpretation of laboratory reports and antibiotic sensitivity tests

*Corynebacterium diphtheriae*

*Clostridia*, *Bacteroides* and *Fusobacteria*

### **Virology:**

General properties: Structure, broad classification of viruses. Pathogenesis, pathology of viral infections.

### **Mycology:**

General properties of fungi, classification bases on disease, superficial, subcutaneous, deep opportunistic infections.

General principles of fungal infections, diagnosis rapid diagnosis method of collection of sample and examination for fungi.

### **10. Oral Biology (oral and dental histology)**

Structure and function of oral, dental and paraoral tissues including their ultra structure, molecular and biochemical aspects.

Study of morphology of permanent and deciduous teeth (Lectures and practical demonstrations to be given by PG students)

**11 Basic molecular biology and techniques:**

Experimental aspects – DNA extraction, PCR, western blotting.

**12. Basic histo techniques and microscopy**

Routine hematological test and clinical significance of the same

Biopsy procedures for oral lesions

Processing of tissues for paraffin lesions

Microtome and principles of microtomy

Routine stains, principles and theories of staining techniques

Microscope principles and theories of microscopy

Light microscopy and various other types including electron microscopy

Methods of tissue preparation for ground sections decalcified sections.

Academic activities

Submission of synopsis of dissertation at the end of six months.

Journal clubs and seminars to be presented by every post graduate student twice a month

To attend interdepartmental meetings

To attend dental camps based on the survey to be done

Part-I year ending examination to be conducted by the college.

**BOOKS RECOMMENDED FOR 1<sup>ST</sup> YEAR M.D.S.**

Sr. No	Acc. No	Title	Edition	Author
1	930	Dental anatomy and oral histology		Arup K Das
2	1021	Orban's Oral histology and embryology	11 <sup>th</sup>	Orbans
3	2088	Wheeler Dental anatomy, physiology and occlusion	8 <sup>th</sup>	Wheeler
4	1963	Dental anatomy and occlusion	5 <sup>th</sup>	Woelf
5	2997	Text book of dental and oral anatomy physiology and occlusion		Satish Chandra

6	4057	Oral anatomy histology and embryology	3 <sup>rd</sup>	Berkov
7	(personal)	Tencate's oral histology development structure and function	6 <sup>th</sup>	Tencate
8	2421	Histology a text and atlas	3 <sup>rd</sup>	Ross
9	989	Scientific basics of human anatomy in clinical practice		B.S. Bay
10	2430	Oral histology inheritance and development		Praveen
11		Histology		Inderbir Singh
12	3420	The dental pulp	3 <sup>rd</sup>	Seltzer

### **SYLLABUS FOR 2<sup>ND</sup> M.D.S.**

#### **1) BIOSTATISTICS AND RESEARCH METHODOLOGY**

- Basic principles of biostatistics and study as applied to dentistry and research
- Collection/organization of data/measurement scales presentation of data and analysis
- Measures of variability
- Sampling and planning of health survey
- Probability, normal distribution and indicative statistics
- Estimating population values
- Tests of significance (parametric/non-parametric qualitative methods)
- Analysis of variance
- Association, correlation and regression.

## **Approach**

- Didactic lectures on biostatistics and discussion on research methodology by eminent researchers.
- Two-day P.G. orientation course including general approach to PG course, library and main dissertation, journal club topic, selection and presentation, seminars, clinic-pathological meets, teaching methodology and use of audiovisual aids.

## 2) **APPLIED GROSS ANATOMY OF HEAD AND NECK INCLUDING HISTOLOGY**

- Temporomandibular joint
- Trigeminal nerve and facial nerve
- Muscles of mastication
- Tongue
- Salivary glands
- Nerve supply, blood supply, lymphatic drainage and venous drainage of Oro-facial tissues.
- Embryology
  - Development of face, palate, mandible, maxilla, tongue and applied aspects of the same.
  - Development of teeth and dental tissues and developmental defects of oral and maxillofacial region (Including dental tissues)
- Maxillary sinus
- Muscles of mastication & facial expression.

## **Genetics:**

Introduction to modes of inheritance, chromosomal anomalies of oral tissues and single gene disorders.

## **Approach**

- To be covered as didactic lectures/seminars
- Posting in department of anatomy for dissection of head, face and neck

3) **PHYSIOLOGY (GENERAL AND ORAL)**

- Saliva
- Pain
- Mastication
- Taste
- Deglutition
- Wound healing
- Vitamins (Influence on growth, development and structure of oral soft and hard tissues and para-oral tissues)
- Calcium metabolism
- Theories of mineralization
- Tooth eruption and shedding.
- Hormones (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues.
- Blood and its constituents

**Approach:**

To be covered as didactic lectures

4) **CELL BIOLOGY**

- Cell structure and function (ultrastructural and molecular aspects) intercellular junctions, cell cycle and division, cell cycle regulators, cell-cell and extra cellular matrix interactions.
- Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

**Approach**

To be covered as seminars and didactic lecture/seminars

5) **GENERAL HISTOLOGY**

Light and electron microscopy considerations of epithelial tissues and glands, bone hematopoietic system, lymphatic system, muscle neural tissue, endrocrinal system (thyroid, pituitary, parathyroid)

### **Approach**

- Topics to be covered as didactic lectures/seminars
- Postings in the department of anatomy and histology for slide discussion
- Record book to be maintained

### 6) **BIOCHEMISTRY**

- Chemistry of carbohydrates, lipids and proteins
- Methods of identification and purification
- Metabolism of carbohydrates, lipids and proteins
- Biological oxidation
- Various techniques- cell fractionation and ultrafiltration, centrifugation, Electrophoresis, Spectrophotometry, and radioactive techniques.

### **Approach**

- Topics to be covered as didactic lectures/seminars
- Postings to the department of biochemistry to familiarize with various techniques
- Record book to be maintained.

### 7) **GENERAL PATHOLOGY**

- Inflammation and chemical mediators, thrombosis, embolism, necrosis, repair, degeneration, shock, hemorrhage pathogenic mechanisms at molecular level and blood dyscrasias, carcinogenesis and neoplasia

### **Approach**

To be covered as seminars and didactic lectures.

### 8) **GENERAL MICROBIOLOGY**

- Definitions of various types of infections

- Routes of infection and spread
- Sterilization, disinfection and antiseptics
- Bacterial genetics
- Physiology and growth of microorganisms

**Approach**

- To be covered as seminars and didactic lectures
- Record book to be maintained

9) **BASIC IMMUNOLOGY**

- Basic principles of immunity, antigen and antibody reactions
- Cell mediated immunity and humoral immunity
- Immunology of hypersensitivity
- Immunological basis of the autoimmune phenomena
- Immunodeficiency with relevance to opportunistic infection
- Basic principles of transplantation and tumor immunity.

**Approach:**

To be covered as didactic lectures/seminars

10) **SYSTEMATIC MICROBIOLOGY/APPLIED MICROBIOLOGY**

Morphology, classification, pathogenicity, Mode of transmission, methods of prevention, collection and transport of specimen for laboratory diagnosis, Staining methods, common culture media, interpretation of laboratory reports and antibiotic sensitivity tests.

- Staphylococci
- Streptococci
- Corynebacterium diphtheria
- Mycobacteria
- Clostridia, bacteroides and fusobacteria

- Actinomycetales
- Spirochetes

### **Virology:**

**General Properties:** Structure, broad classification of virusus, pathogenesis, pathology of viral Infections

**Herpes Virus:** List of viruses included, lesions produced, pathogenesis. Latency principles and laboratory diagnosis.

**Hepatitis Virus:** List of viruses, pathogenesis and mode of infection, list of diagnostic tests, and their interpretations, methods of prevention and control.

**Human Immunodeficiency virus:** Structure with relevance to Laboratory diagnosis, type of infection, laboratory tests and their interpretation, universal precautions, specific precautions and recent in diagnosis and prophylaxis.

### **Mycology**

- General properties of fungi, classification bases on disease, superficial, subcutaneous, deep opportunistic infections
- General principles of fungal infections, diagnosis rapid diagnosis method of collection of sample and examination for fungi

### **Approach**

- To be covered as seminars and didactic lectures.
- Postings to the department of microbiology to familiarize with relevant diagnostic methods
- Record book to be maintained.

### **11) ORAL BIOLOGY (ORAL AND DENTAL HISTOLOGY)**

- Structure and function of oral, dental and paraoral tissues including their ultra-structure, molecular and biochemical aspects.
- Study of morphology of permanent and deciduous teeth(Lecture and practical demonstrations to be given by PG students)

### **Approach**

- To be covered as seminars and didactic lectures.
- Slide discussion on histological appearance of normal oral tissues.
- Record book to be maintained.

### 12) **BASIC MOLECULAR BIOLOGY AND TECHNIQUES**

Experimental aspects – DNA extraction, PCR, western blotting.

### **Approach**

- To be covered as didactic lectures/seminars.
- Postings in centres where facilities are available for demonstration of routine molecular biology techniques.
- Record book to be maintained.

### 13 **BASIC HISTO TECHNIQUES AND MICROSCOPY**

- Routine hematological tests and clinical significance of the same.
- Biopsy procedures for oral lesions.
- Processing of tissues for paraffin lesions.
- Microtome and principles of microtomy.
- Routine stains principles and theories of staining techniques.
- Microscope, principles and theories of microscopy.
- Light microscopy and various other types including electron microscopy.
- Methods of tissue preparation for ground sections, decalcified sections.

### **Approach**

- Topics to be covered as seminars.
- Preparation of round and decalcified sections, tissue processing, sectioning and staining.
- Record book to be maintained.

### **ACADEMIC ACTIVITIES:**

- Submission of synopsis of dissertation at the end of six months
- Journal clubs and seminars to be presented to every post graduate student twice a month
- To attend interdepartmental meetings
- To attend dental camps based on the survey to be done
- Part I year ending examination to be conducted by the college.

### **SYLLABUS FOR 3<sup>RD</sup> M.D.S**

#### **ORAL PATHOLOGY**

- Developmental defects of oral and maxillofacial region and abnormalities of teeth
- Dental caries (Introduction, Epidemiology, microbiology, cariogenic bacterial including properties, acid production in plaque, development of lesion, response of dentine pulp unit, histopathology, root caries, sequelae and immunology)
- Pulpal and peri-apical diseases.
- Infections of oral and para oral regions (bacterial, viral and fungal infections)
- Non-neoplastic disorders of salivary glands.
- Bone pathology
- Hematological disorders
- Physical and chemical injuries, allergic and immunological diseases
- Cysts of Oro facial region (odontogenic & non-odontogenic)
- Dermatologic diseases
- Periodontal diseases
- Oral manifestations of systemic diseases
- Facial pain and neuromuscular disorders including TMJ disorders
- Regressive alterations of teeth

## **CLINICAL PATHOLOGY**

- Laboratory investigations. Hematology, Microbiology and Urine analysis
- Posting to clinical pathology for relevant training
- Record book to be maintained.

## **SPECIALIZED HISTOTECHNIQUES AND SPECIAL STAINS**

Special staining techniques for different tissues.

Immunohistochemistry.

Preparation of frozen sections and cytological smears.

### **Approach:**

Training to be imparted in the department or in other institutions having the facility

Record book to be maintained.

## **RECORDING OF CASE HISTORY AND CLINICO PATHOLOGICAL DISCUSSIONS:**

### **Approach**

Posting to the department of oral medicine. Diagnosis and Radiology and oral and maxillofacial surgery. Record of case histories to be maintained.

## **DERMATOLOGY**

Study of selected mucocutaneous lesions-etio-pathogenesis, pathology, clinical presentation and diagnosis.

### **Approach**

- Posting to the dept. of Dermatology of a medical college
- Topics to be covered as seminars
- Record of cases seen to be maintained

## **ORAL ONCOLOGY**

Detailed study including pathogenesis, molecular and biochemical changes of various tumors, tumor like lesions and premalignant lesions affecting the hard and soft tissues of oral and para-oral tissues,. Tumor markers

### **Approach**

To be covered as seminars

Posting to a cancer center to familiarize with the pathological appearances, diagnosis, radio-diagnosis and treatment modalities.

### **ORAL MICROBIOLOGY AND IMMUNOLOGY**

- Normal Oral microbial flora
- Defense mechanism of the oral cavity
- Microbiology and immunology of Dental caries and periodontal diseases
- Dental caries (Introduction, epidemiology, microbiology, cariogenic bacteria including properties, acid production in plaque, development of lesion, response of dentin-pulp unit, histopathology, root caries, sequelae and immunology)
- Tumor immunology
- Infections of pulp and periapical and periodontal tissues
- Oral sepsis and bacteremia
- Microbial genetics
- Infections of oral and para oral regions (bacterial, viral and fungal infections)

### **Approach**

To be covered as seminars

### **FORENSIC ODONTOLOGY**

Legal procedures like inquest, medico-legal evidences post mortem examination of violence around mouth and neck identification of deceased individual dental importance.

Bite marks rugae patterns and lip print.

### **Approach**

To be covered as seminars

Posting to a cancer center to familiarize with the pathological appearances, diagnosis, and radio-diagnosis and treatment modalities.

## **HISTOPATHOLOGY - SLIDE DISCUSSION**

Record book to be maintained

## **LABORATORY TECHNIQUES AND DIAGNOSIS**

- Routine hematological tests and clinical significance of the same
- Biopsy procedures for oral lesions
- Processing of tissues for paraffin sections
- Microtome and principles of microtomy
- Routine stains, principles and theories of staining techniques
- Microscope, principles and theories of microscopy
- Light microscopy and various other types including electron microscopy
- Methods of tissue preparation for ground sections, decalcified sections
- Special stains and staining techniques for different tissues
- Immunohistochemistry
- Preparation of frozen sections and cytological smears

## **OTHER TOPICS IN ORAL PATHOLOGY**

- Detailed description of diseases affecting oral mucosa, teeth supporting tissues & jaws
- Cysts of the oral & para oral regions
- Systemic diseases affecting oral cavity.

### **Approach**

Seminars & slide discussions. Record notebook to be maintained. Training in histo pathology slide reporting.

## **EXPERIMENTAL ASPECTS OF ORAL DISEASES**

### **Approach**

Posting is desirable in centers where animal experimentation is carried out in familiarize with laboratory techniques, upkeep & care of experimental animals.

## **RECENT ADVANCES IN ORAL PATHOLOGY**

### **Approach**

Update of knowledge in Oral Pathology through study of recent journals & Internet browsing, Journal and Group discussions.

## **ACADEMIC ACTIVITIES**

- Library assignment to be submitted at the end of 6 months
- Commencement of dissertation work
- Journal clubs and seminars to be presented by every PG student
- Clinico-pathological discussions once in a month by every PG student
- To attend interdepartmental meetings
- Lecture and practical classes and slide discussions to be taken for 11 BDS students in oral and dental anatomy, dental histology and oral physiology.
- Year ending examination (theory and practical) to be conducted by the college

## **Syllabus for M.D.S.**

### **Topics**

- Non-neoplastic disorders of salivary glands
- Bone pathology
- Physical and chemical injuries
- Allergic and immunological diseases
- Cysts of Oro facial region (odontogenic & non odontogenic)
- Oral manifestations of systemic diseases

### **Approach**

To be covered as seminars

Slide discussions of the same

Record book to be maintained

### **ACADEMIC ACTIVITIES**

- Completion of dissertation work and submission of the same, six months before the final examination.
- Study of journals, Internet browsing, and group discussions, to update knowledge in the recent advances in oral pathology
- Lecture and practical demonstrations for 3<sup>rd</sup> BDS Students in oral pathology and microbiology.
- Reporting of histopathology slides.
- Journal clubs and seminars to be presented by every post graduate student twice a month.
- Clinico-pathological discussions by every student once in a month.
- To attend inter-departmental meetings.

### **3.1.3 FORMATIVE EVALUATION PATTERN**

#### **MONITORING LEARNING PROGRESS**

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching/learning activities. It may be structured and assessment is done using checklists that assess various aspects. Checklists are given in section IV.



- :- One article/ manuscript submission
- :- Attending subject annual conference
- :- Progress report on final dissertation

**III MDS**

Module 1:- Submission of final dissertation

- :- Doing IHC staining
- :- 5 Journal clubs
- :- 5 Seminars
- :- 3 Slide Seminar
- :- slide reporting exercise

Module 2 :- Slide reporting & slide seminar

- :- Revision exercise
- :- Mock practical drills

**3.1.4 SUMMATIVE EVALUATION PATTERN**

**University Examination of M.D.S**

<b>Seat No</b>	<b>Paper I (Marks 100)</b>	<b>Paper II (Marks 100)</b>	<b>Paper III (Marks 100)</b>	<b>Paper IV (Marks 100)</b>

S.No.	Name of the Examiner	Designation	Signature with Date
1		Convener	
2		Internal	
3		External	
4		External	

### M.D.S. Practical Exam

Exercise		Marks	Time
Day-1			
Case history	1. short	20	20 minutes
	2. Long	40	45minutes
Chair side viva		20	30 minutes approx
Haemogram		30	30 minutes approx
H/P Staining		35	30 minutes approx
Gram Staining		30	30 minutes approx
Microscope viva		25	30 minutes approx
Day-2			
Slide Reporting		100	45 Minutes
Grand viva		50	1 hours Minimum
Dissertation viva		50	1 hours Minimum
<b>Total</b>		400	

