



SRM

INSTITUTE OF SCIENCE & TECHNOLOGY
— Deemed to be University —

MASTER OF DENTAL SURGERY (M.D.S.) DEGREE

REGULATIONS -2017

(For students admitted from 2017 - 2018 onwards)

**ORAL & MAXILLOFACIAL PATHOLOGY AND ORAL
MICROBIOLOGY**

**FACULTY OF MEDICINE AND HEALTH SCIENCES
SRM Institute of Science and Technology
(Formerly known as SRM UNIVERSITY)
Kattankulathur – 603 203**

REGULATIONS -2017
MASTER OF DENAL SURGERY (M.D.S.)
ORAL & MAXILLOFACIAL PATHOLOGY AND ORAL MICROBIOLOGY

1. SHORT TITLE AND COMMENCEMENT:

These regulations shall be called 'MASTER OF DENTAL SURGERY REGULATIONS 2017' under SRM Institute of Science and Technology, Kattankulathur, Kancheepuram District, Tamilnadu. The regulations are in compliance to the Dental Council of India Master of Dental Surgery course regulations 2017 released in the Gazette of India dated 05.09.2017. The same has been placed and approved by the 36th Academic council meeting of SRM Institute of Science and Technology held on 25.10.2017.

The regulations shall come into force for the candidates admitted from the academic year 2017-2018 onwards.

DEFINITIONS:

ORAL PATHOLOGY & MICROBIOLOGY

Oral Pathology deals with the nature of oral diseases, their causes, processes and effects. It relates the clinical manifestation of oral diseases to the physiologic and anatomic changes associated with these diseases.

NEET:

NEET means the National Eligibility –cum-Entrance Test conducted by the National Board of Examination for admission to post-graduate courses

2. GOALS & OBJECTIVES:

2. A.GOALS

The goals of postgraduate training in various specialties are to train B.D.S. graduate who will, after successful completion of the course:

- ✓ Practice respective specialty efficiently and effectively, backed by scientific knowledge and skill.
- ✓ Exercise empathy and a caring attitude and maintain high ethical standards.
- ✓ Continue to evince keen interest in continuing professional education in the specialty and allied specialties irrespective of whether in teaching or practice.
- ✓ Willing to share the knowledge and skills with any learner, junior or a colleague.
- ✓ Develop the faculty for critical analysis and evaluation of various concepts and views, to adopt the most rational approach.

2. B.OBJECTIVES:

The objective is to train a candidate so as to ensure higher competence in both general and special area of interest and prepare him for a career in teaching, research and speciality practice. A candidate must achieve a high degree of clinical proficiency in the subject matter and develop competence in research and its methodology as related to the field concerned.

The above objectives are to be achieved by the time the candidate completes the course. The objectives may be considered as under –

1. Knowledge (Cognitive domain)
2. Skills (Psycho motor domain)
3. Human values, ethical practice and communication abilities

KNOWLEDGE:

- ✓ Demonstrate understanding of basic sciences relevant to speciality.
- ✓ Describe aetiology, patho-physiology, principles of diagnosis and management of common problems within the speciality in adults and children.
- ✓ Identify social, economic, environmental and emotional determinants in a given case and take them into account for planning treatment.
- ✓ Recognise conditions that may be outside the area of speciality/competence and to refer them to an appropriate specialist.
- ✓ Update knowledge by self-study and by attending courses, conferences, and seminars relevant to speciality.
- ✓ Undertake audit, use information technology and carryout research both and clinical with the aim of publishing or presenting the work at various scientific gatherings.

The students undergoing postgraduate courses shall be exposed to the following:-

- Basics of statistics to understand and critically evaluate published research papers.
- Few lectures on other type of exposure to human behavior studies.
- Basic understanding of pharmaco-economics.
- Introduction to the non-linear mathematics.

SKILLS:

- ✓ Take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reason
- ✓ diagnosis about the condition.
- ✓ Acquire adequate skills and competence in performing various procedure required in the specialty.

HUMAN VALUES, ETHICAL PRACTICE AND COMMUNICATION ABILITIES:

- ✓ Adopt ethical principles in all aspects of practice.
- ✓ Professional honesty and integrity are to be fostered.
- ✓ Patient care is to be delivered irrespective of social status, caste, creed or religion of the patient.
- ✓ Develop communication skills, in particular and skill to explain various option available in management and to obtain a true informed consent from the patient
- ✓ Provide leadership and get the best out of his team in a congenial working atmosphere.
- ✓ Apply high moral and ethical standards while carrying out human or animal research.
- ✓ Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
- ✓ Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

3. ELIGIBILITY FOR SELECTION CRITERIA OF STUDENTS:

A candidate for admission to the Master in Dental Surgery course, must possess a recognized degree of **Bachelor in Dental Surgery** awarded by a university or institute in India and registered with the State Dental Council and has obtained provisional or permanent registration and has undergone compulsory rotatory internship of a year in an approved/ recognized dental college:

Provided that in the case of a foreign national, the following procedure shall be followed:—

The Council may, on payment of the prescribed fee for registration, grant temporary registration for the duration of the post-graduate training restricted to the dental college/institution to which he or she is admitted for the time being exclusively for post-graduate studies:

Provided further that temporary registration to such foreign national shall be subject to the condition that such person is duly registered as medical practitioner in his/her own country from which he/she has obtained his/her basics dental qualification and that his/her degree is recognized by the corresponding state dental council or concerned authority.

3. A. SELECTION OF CANDIDATE FOR POST-GRADUATE COURSES:

There shall be a uniform **NEET** for admission to the post-graduate dental courses in each academic year conducted in the manner, as prescribed by the National Board of Examination or any other authority appointed by the Central Government in this behalf. The overall superintendence, direction and control of the NEET shall vest with the Council.

3. B. QUALIFYING CRITERIA FOR ADMISSION TO POST-GRADUATE COURSES:

- (a) The candidate has to secure the following category-wise minimum percentile in NEET for admission to post-graduate courses held in a particular academic year. Provided that the percentile shall be determined on the basis of highest marks secured in the All-India common merit list in NEET for post-graduate courses:

GENERAL	50TH PERCENTILE
Person with locomotor disability of lower limbs	45 th percentile
Scheduled castes, Scheduled tribes, other backward classes	40 th percentile

Provided further, that when sufficient number of candidates in the respective categories fail to secure minimum marks as prescribed in NEET held for any academic year for admission to post-graduate courses, the Central Government in consultation with the Council may, at its discretion lower the minimum marks required for admission to post-graduate courses for candidates belonging to respective categories and marks so lowered by the Central Government shall be applicable for the said academic year only.

- (b) The reservation of seats in dental college/institutions for respective categories shall be as per applicable laws prevailing in States/Union territories. An all India merit list as well as State-wise merit list of the eligible candidates shall be prepared on the basis of the marks obtained in NEET Test and candidates shall be admitted to post-graduate courses from the said merit list only

- (c) A candidate who has failed to secure the minimum percentile as prescribed in these regulations, shall not be admitted to any post-graduate courses in any academic year.

3. C. COMMON COUNSELING:

(1) There shall be a common counseling for admission to all post-graduate specialties (MDS) on the basis of merit list of the NEET to be conducted by the Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India.

3. D. REQUIRED DOCUMENTS:

No candidate shall be admitted to any Postgraduate MDS course unless the candidate has obtained and produced eligibility certificate issued by University. The candidate has to make an application to the University with the following documents along with the prescribed fee:

- a. BDS pass / degree certificate issued by the University.
- b. Marks cards of all the university examinations passed (I to IV BDS year course).
- c. Attempt Certificate issued by the Principal.
- d. Certificate regarding the recognition of the Dental College by the Dental Council of India.
- e. Completion of paid rotatory internship certificate from a recognized college.
- f. Registration by any State Dental Council and
- g. Proof of SC/ ST or Category I, as the case may be.

Candidates should obtain the Eligibility Certificate before the last date for admission as notified by the University.

A candidate who has been admitted to postgraduate course should register his / her name in the University within a month of admission after paying the registration fee.

4. COURSE OVERVIEW:

4. A. DURATION OF THE COURSE:

The Course shall be of three years duration. All the candidates for the degree of MDS are required to pursue the prescribed course for at least three academic years course as full time candidates under the direction of the Head of the Department, who has to be a recognized postgraduate teacher in that specialty.

4. B. MAXIMUM DURATION OF THE COURSE:

The time period required for passing out of the MDS course shall be a maximum of 6 years from the date of admission in said course.

5. COMMENCEMENT OF ACADEMIC SESSION:

The classes for the course shall commence from 1st week of May and the cut –off date for admission will be 31st May.

6. MIGRATION:

Under no circumstances, the migration or the transfer of students undergoing post-graduate degree shall not be permitted by SRM Institute of Science And Technology or the authority. No interchange of the specialty in the same institution or in any other institution shall be permitted after the date of commencement of session

7. COMMENCEMENT OF EXAMINATION:

Written examination shall consist of Basic Science -Part 1, which will be conducted at the end of 1st year of MDS course. Part 2 examination shall be conducted during the 1st week of June after completion of 3 years/ 36 months. Examinations for the repeaters /arrears shall be conducted in the month of December every academic year.

The University shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations

8. STRUCTURE OF PROGRAM:

M.D.S - Oral and Maxillofacial Pathology and Oral Microbiology		
Subject Code		Subject Title
Part - I		
17MDS611	Paper-1	Applied Basic Sciences : Applied Anatomy, Physiology (General and Oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (Oral and Dental histology), Biostatistics and Research Methodology

Part – II		
17MDS621	Paper - 1	Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology
17MDS622	Paper - 2	Laboratory techniques and Diagnosis and Oral Oncology
17MDS623	Paper - 3	Descriptive and Analyzing type question
17MDS624	Paper - 4	Practical and Clinical
17MDS625	Paper - 5	Viva - Voce and Pedagogy

9. ATTENDANCE, PROGRESS AND CONDUCT:

A candidate pursuing degree/diploma course should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/ work in a clinic / laboratory /nursing home while studying post graduate course.

No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration. Each year shall be taken as a unit for the purpose of calculating attendance. Every candidate shall have not less than 80 percent of attendance in each year of the course. However, candidates should not be continuously absent as the course is a full time one.

Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself /herself from work without valid reasons.

CONDONATION:

There is no condonation for MDS courses

10. MONITORING PROGRESS OF STUDIES:

10.1. WORK DIARY / LOG BOOK:

- ✓ Every Post Graduate candidate shall maintain a record of skills [Log Book] he has acquired during the three years training period, certified by the various Heads of Departments he has undergone training.
- ✓ The candidate should record of his / her participation in the training programme conducted by the department such as journal reviews, seminars, etc. in the Log book.

- ✓ Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.
- ✓ The Head of the Department shall scrutinize the Log Book every 3 months.
- ✓ At the end of the course, the candidate should summarise the contents and the Log Book certified by the Head of the Department and Head of the Institution.
- ✓ The Log Book should be submitted at the time of University practical / Clinical examination for the scrutiny of the board of Examiners.

10.2. PERIODIC TESTS:

In case of degree courses of three years duration, the concerned departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical /clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the University, when called for.

10.3. RECORDS:

Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University when called for.

11. DISSERTATION:

The trainees shall prepare a dissertation based on the clinical or experimental work or any other study conducted by them under the supervision of the guide.

11.1. DISSERTATION:

The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.

Every candidate shall submit to the Registrar of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within **six months** from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University. The dissertation should be written under the following headings:

i	Introduction
ii	Aims or Objectives of study
iii	Review of Literature
iv	Material and Methods
v	Results
vi	Discussion
vii	Conclusion
viii	Summary

The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

The completed dissertation should be submitted six months before the final examination as per calendar of events.

The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

Guide: The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work is as laid down by Dental Council of India.

Co-guide: A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognised for teaching/training by the Dental Council of India. The co-guide shall be a recognised postgraduate teacher of the University.

Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

12. EXAMINATION:

ELIGIBILITY: The following requirements shall be fulfilled by the candidate to become eligible for the final examination.

- (i) **Attendance:** Every candidate shall secure (80% attendance during each academic year).

- (ii) **Progress and conduct:** Every candidate shall participate in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year organized by the concerned department.
- (iii) **Work diary and log book:** Every candidate shall maintain a work diary and log book as per Annexure-I appended to these regulations for recording his or her participation in the training programmes conducted by the department. The work diary and log book shall be verified and certified by the Head of the Department of the institution. The certification of satisfactory progress is based on the work diary and log book.

UNIVERSITY EXAMINATION:

The university examination shall consist of theory, practical and clinical examination and viva-voce and Pedagogy

12.1. THEORY:

Part-I: Shall consist of one paper there shall be a theory examination in the Basic Sciences at the end of 1st year of course. The question papers shall be set and evaluated by the concerned Department/Specialty. The candidates shall have to secure a minimum of 50% in the Basic Sciences and shall have to pass the Part-I examination at least six months prior to the final (Part-II) examination.

Part-II: Shall consist of

- i. Three theory papers
- ii. Practical and Clinical Examination;
- iii. Viva-voce
- iv. Pedagogy

A candidate who wishes to study in a second specialty, shall have to undergo the full course of three years duration in that specialty.

12.2 DISSERTATION:

Every candidate appearing for the post-graduate degree examination shall at least six months prior to the examinations, submit with his form for examination, four typewritten copies of the dissertation undertaken by the candidate, prepared under the direction and guidance of his/her guide. The dissertation so submitted shall be referred to the examiners for their examination and acceptance of it shall be a condition precedent to allow the candidate to appear for the written part of the examination.

Provided that a candidate whose dissertation has been accepted by the examiner, but declared failed at the examination, shall be permitted to re-appear at the subsequent examination without a new dissertation: Provided further that if the dissertation is rejected by the examiner, the examiner shall assign reasons therefor with suggestions for its improvement to the candidate and such candidate shall resubmit his/ her dissertation to the examiner who shall accept it before appearing in the examination.

CLINICAL/PRACTICAL EXAMINATION:

Clinical/practical examination is designed to test the clinical skill, performance and competence of the candidate in skills such as communication, clinical examination, medical/dental procedures or prescription, exercise prescription, latest techniques, evaluation and interpretation of results so as to undertake independent work as a specialist. SRM Institute of Science and Technology shall ensure that the candidate has been given ample opportunity to perform various clinical procedures. The practical/clinical examination in all the specialties shall be conducted for six candidates in two days.

Provided that practical/clinical examination may be extended for one day, if it is not complete in two days.

VIVA-VOCE EXAMINATION:

Viva voce examination aims at assessing the depth of knowledge, logical reasoning, and confidence and communication skill of the students.

SCHEME OF EXAMINATION:

Theory: Part-I: Basic Sciences Paper - **100 MARKS**

Part-II: Paper-I, Paper-II & Paper-III - **300 Marks** (100 MARKS FOR EACH PAPER)

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course. Part-II Examination shall be conducted at the end of Third year of MDS course. Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration. Paper-I & Paper-II shall consist of two long answer questions carrying 25 marks each and five questions carrying 10 marks each. Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers.

12.3 DISTRIBUTION OF MARKS:

THEORY:

(TOTAL 400 MARKS)

- (1) **PART I UNIVERSITY EXAMINATION** **(100 MARKS)**
There shall be 10 questions of 10 marks each **(TOTAL OF 100 MARKS)**
- (2) **PART II** **(3 PAPERS OF 100 MARKS):**
- (i) **Paper-I:** 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. **(TOTAL OF 100 MARKS)**
 - (ii) **Paper-II:** 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. **(TOTAL OF 100 MARKS)**
 - (iii) **Paper III:** 2 out of 3 essay questions **(50 X 2 = 100 MARKS)**

PRACTICAL EXAMINATION: 200 MARKS

VIVA-VOCE AND PEDOGOGY: 100 MARKS

(MODEL QUESTION PATTERN)
MDS DEGREE EXAMINATIONS
PART I
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

TIME: 3 HRS
Answer All the Questions

MAX.MARKS:100
(10X10=100 MARKS)

- 1.-----
- 2.-----
- 3.-----
- 4.-----
- 5.-----
- 6.-----
- 7.-----
- 8.-----
- 9.-----
- 10.-----

(MODEL QUESTION PATTERN)
MDS DEGREE EXAMINATIONS
PART II- PAPER I
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

TIME: 3 HRS
Answer All the Questions

Section A

MAX.MARKS:100
(2X25=50 MARKS)

- 1.-----
- 2.-----

Section B

Answer All the Questions

(5X10=50 MARKS)

- 3.-----
- 4.-----
- 5.-----
- 6.-----
- 7.-----

(MODEL QUESTION PATTERN)
MDS DEGREE EXAMINATIONS
PART II- PAPER II
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

TIME : 3 HRS

MAX.MARKS:100

Section A

Answer All the Questions

(2X25=50 MARKS)

- 1.-----
- 2.-----

Section B

Answer All the Questions

(5X10=50 MARKS)

- 3.-----
- 4.-----
- 5.-----
- 6.-----
- 7.-----

(MODEL QUESTION PATTERN)
MDS DEGREE EXAMINATIONS
PART II- PAPER III
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

TIME : 3 HRS

MAX.MARKS:100

Section A

Answer Any 2 Questions

(2X50=100 MARKS)

- 1.-----
- 2.-----
- 3.-----

M.D.S - Oral and Maxillofacial Pathology and Oral Microbiology				
Subject Code		Subject Title	Passing minimum	Maximum marks
Part - I				
17MDS611	Paper-1	Applied Basic Sciences : Applied Anatomy, Physiology (General and Oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (Oral and Dental histology), Biostatistics and Research Methodology	50	100
		Theory aggregate	50	100
Part – II				
17MDS621	Paper - 1	Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology		100
17MDS622	Paper - 2	Laboratory techniques and Diagnosis and Oral Oncology		100
17MDS623	Paper - 3	Descriptive and Analysing type question		100
		Theory aggregate	150	300
17MDS624	Paper - 4	Practical and Clinical		200
17MDS625	Paper - 5	Viva - Voce and Pedagogy		100
		Practical aggregate	150	300

***Note:** The Topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

PRACTICAL EXAMINATIONS: PRACTICAL / CLINICAL EXAMINATION:	200 MARKS
CASE PRESENTATION:	
LONG CASE :	20 MARKS
SHORT CASE:	10 MARKS
CLINICAL HAEMATOLOGY (ANY TWO INVESTIGATIONS) :	20 MARKS
Hb%, bleeding time, clotting time, Total WBC count, Differential WBC count and ESR	
Smear presentation:	20 MARKS
Cytology or microbial smear and staining	
PARAFFIN SECTIONING AND H & E STAINING:	30 MARKS
HISTOPATHOLOGY SLIDE DISCUSSION:	100 MARKS

VIVA-VOCE AND PEDAGOGY: 100 Marks

- ✓ Viva-Voce examination: 80 marks
All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and 'communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.
- ✓ Pedagogy Exercise: 20 marks
A topic will be given to each candidate in the beginning of clinical examination. He/ she will be asked to make a presentation on the topic for 8-10 minutes.

13. EVALUATION METHOD

13.1. EXAMINERS:

PART I:

There shall be one internal and one external examiner for three students appointed by the affiliating university for evaluating the answer scripts of the same specialty. However, the number of examiner/s may be increased with the corresponding increase in number of students.

PART II:

There shall be four examiners in each subject. Out of them, two (50%) shall be external examiners and two (50%) shall be internal examiners. Both external examiners shall be from a university other than the affiliating university and one examiner shall be from a university of different State.

13.2. QUALIFICATION AND EXPERIENCE FOR EXAMINERS:

The qualification and experience for appointment of an examiner shall be as under:-

- (i) Shall possess qualification and experience of a Professor in a post-graduate degree programme;
- (ii) A person who is not a regular post-graduate teacher in the subject shall not be appointed as an examiner;
- (iii) The internal examiner in a subject shall not accept external examinership in a college for the same academic year;
- (iv) No person shall be appointed as an external examiner for the same institution for more than two consecutive years. However, if there is a break of one year, the person can be re-appointed.

13.3. VALUATION OF ANSWER BOOKS:

PART-I & II:

Answer books shall be evaluated by four examiners, two internal and two external and the average marks shall be computed.

14. PASSING MINIMUM:

To pass the university examination, a candidate shall secure in both theory examination and in practical/clinical including viva voce independently with an aggregate of 50% of total marks allotted (50 out of 100 marks in Part I examination and 150 marks out of 300 in Part II examination in theory and 150 out of 300, clinical plus viva voce together). A candidate securing marks below 50% as mentioned above shall be declared to have failed in the examination. A candidate who is declared successful in the examination shall be granted a Degree of Master of Dental Surgery in the respective specialty.

15. RE-VALUATION AND RE-TOTALLING:

There is no provision for re-evaluation or re-totalling of answer books.

16. CLASSIFICATION:

As the Master of Dental Surgery course is more of training and practice oriented giving class is precluded.

MEDALS AND RANKINGS:

All papers should be cleared in the first attempt and percentage of marks secured should be above 60.

17. SYLLABUS:

Part-I -Applied Basic Sciences

Part-II

Paper-I: Oral pathology, Oral microbiology and Immunology and Forensic Odontology

Paper-II: Laboratory techniques and Diagnosis and Oral Oncology

Paper-III: Descriptive and analyzing type question

DETAILED SYLLABUS:

PART I	Applied Basic Sciences: Applied anatomy, Physiology (General and oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (oral and dental histology), Biostatistics and Research Methodology
PART II	
Paper-1	Oral pathology, Oral Microbiology and Immunology and Forensic Odontology
Paper-2	Laboratory techniques and Diagnosis and Oral Oncology
Paper-3	Descriptive and analyzing type question

PART I

SUBJECT CODE	PAPER	SUBJECT TITLE
17MDS611	PAPER 1	Applied Basic Sciences : Applied Anatomy, Physiology (General and Oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (Oral and Dental histology), Biostatistics and Research Methodology

PART I

PAPER – 1: APPLIED ANATOMY, PHYSIOLOGY, PATHOLOGY AND RESEARCH METHODOLOGY

1. APPLIED GROSS ANATOMY OF HEAD AND NECK INCLUDING HISTOLOGY:

- a. Temporomandibular joint
- b. Trigeminal nerve and facial nerve
- c. Muscles of mastication
- d. Tongue

- e. Salivary glands
- f. Nerve supply; blood supply, lymphatic drainage and venous drainage of Oro dental tissues.
- g. Embryology
 - i. Development of face, palate, mandible, maxilla, tongue and applied aspects of the same
 - ii. Development of teeth and dental tissues and developmental defects of oral and maxillofacial region and abnormalities of teeth
- h. Maxillary sinus
 - i. Jaw muscles and facial muscles.

GENETICS:

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

2. CELL BIOLOGY:

- (i) Cell-structure and function (ultra-structural and molecular aspects), intercellular junctions, cell cycle and division, cell cycle regulators, cell-cell and cell-extracellular matrix interactions.
- (ii) Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

3. 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)

4. PHYSIOLOGY (GENERAL AND ORAL):

- a. Saliva
- b. Pain
- c. Mastication
- d. Taste, Deglutition
- e. Wound healing
- f. Vitamins (Influence on growth, development and structure of oral soft and hard tissues and paraoral tissues.)
- g. Calcium metabolism.
- h. Theories of mineralization.
- i. Tooth eruption and shedding.

- j. Hormones. (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues.)
- k. Blood and its constituents.

5. GENERALPATHOLOGY:

Inflammation and chemical mediators, thrombosis, embolism, necrosis, repair, degeneration, shock, hemorrhage pathogenic mechanisms at molecular level and blood dyscrasias, Carcinogenesis and Neoplasia.

6. BIOSTATISTICS AND RESEARCH METHODOLOGY:

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

7. BIOCHEMISTRY:

1. Chemistry of carbohydrates, lipids, proteins ,Methods of identification and purification
2. Metabolism of carbohydrates, lipids, proteins
3. Biological oxidation
4. Various techniques: cell fractionation and ultrafiltration, centrifugation,, electrophoresis, spectrophotometry, and radioactive techniques.

8. GENERAL MICROBIOLOGY:

1. Definitions of various types of infections,
2. Routes of infection and spread
3. Sterilization, disinfection and antiseptics
4. Bacterial genetics
5. Physiology and growth of microorganisms

9. BASIC IMMUNOLOGY

1. Basic principles of immunity, antigen and antibody reactions

2. Cell mediated immunity and humoral immunity
3. Immunology of hyper sensitivity
4. Immunological basis of the autoimmune phenomena
5. Immunodeficiency with relevance to opportunistic infections
6. Basic principles of transplantation and tumor immunity

10. SYSTEMIC MICROBIOLOGY/APPLIED MICROBIOLOGY:

1. 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
2. Staphylococci
3. Streptococci
4. *Corynebacterium diphtheria*
5. Mycobacteria
6. Clostridia, bacteroides and fusobacteria
7. Actinomycetales
8. Spirochetes

Virology:

General properties: Structure, broad classification of viruses, 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 test and their interpretations, methods of prevention and control

Human Immunodeficiency virus: Structure with relevance to laboratory diagnosis, type of infection, laboratory tests and their interpretations, universal precautions, specific precautions and recent trends in diagnosis and prophylaxis

Mycology:

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

11. ORAL BIOLOGY (ORAL AND DENTAHISTOLOGY):

1. Structure and function of oral, dental and para oral tissues including their ultra-structure, molecular and biochemical aspects.
2. Study of morphology of permanent and deciduous teeth

12. BASIC MOLECULAR BIOLOGY AND TECHNIQUES:

Experimental aspects- DNA extraction, PCR, western blotting

13. BASIC HISTO TECHNIQUES AND MICROSCOPY:

1. Routine hematological tests and clinical significance of the same
2. Biopsy procedures for oral lesions
3. Grossing and Tissue Fixation
4. Processing of tissues for Paraffin sections
5. Microtome and principles of microtomy
6. Routine stains, principles and theories of staining techniques (including Microbial staining)
7. Microscope, principles and theories of microscopy
8. Light microscopy and various other types including electron microscopy
9. Methods of tissue preparation for ground sections, decalcified sections.

PART II

SUBJECT CODE	PAPER	SUBJECT TITLE
17MDS621	PAPER 1	Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology

PAPER 1

ORAL PATHOLOGY:

1. Developmental defects of oral and maxillofacial region and abnormalities of teeth
2. 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).
3. Pulpal and Periapical diseases
4. Spread of Oral infections, Healing of Oral wounds
5. Infections of oral and Para oral regions (bacterial, viral and fungal infections)
6. Non – neoplastic disorders of salivary glands

7. Bone pathology
8. Hematological disorders
9. Physical and chemical injuries, allergic and Immunological diseases.
10. Cysts of oral cavity (odontogenic, non – odontogenic origin, parasitic, pseudo cysts)
11. Dermatologic diseases.
12. Periodontal diseases
13. Oral manifestations of systemic diseases and metabolic disorders
14. Facial pain and neuromuscular disorders including TMJ disorders
15. Regressive alterations of teeth

CLINICAL PATHOLOGY

1. Laboratory investigations –Hematology, Microbiology and urine analysis

ORAL MICROBIOLOGY AND IMMUNOLOGY:

1. Normal Oral microbial flora
2. Defense mechanism of the oral cavity
3. Microbiology and immunology of Dental caries and Periodontal diseases
4. 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, immunology and Caries vaccines)
5. Tumor immunology
6. Infections of Pulp and Periapical and periodontal tissues
7. Oral sepsis and Bacterimia
8. Microbial genetics
9. Infections of oral and Para oral regions (bacterial, viral and fungal infections)

DERMATOLOGY:

Study of selected mucocutaneous lesions – etiopathogenesis, pathology, clinical presentation and diagnosis

FORENSIC ODONTOLOGY:

1. Legal procedures like inquest, medico-legal evidences post mortem examination of violence around mouth and neck, identification of deceased individual using age estimation with the help of teeth and jaw bone, Amelogyphics, Saliva -dental importance.
2. Bite marks, rugae patterns and lip prints

PART II

SUBJECT CODE	PAPER	SUBJECT TITLE
17MDS622	PAPER 2	Laboratory techniques and Diagnosis and Oral Oncology

PAPER – II LABORATORY TECHNIQUES & DIAGNOSIS AND ORAL ONCOLOGY LABORATORY TECHNIQUES AND DIAGNOSIS:

1. Routine hematological tests and clinical significance of the same
2. Biopsy procedures for oral lesions
3. Grossing and Tissue Fixation
4. Processing of tissues for Paraffin sections
5. Microtome and principles of microtomy
6. Routine stains, principles and theories of staining techniques (including Microbial staining)
7. Microscope, principles and theories of microscopy
8. Light microscopy and various other types including electron microscopy
9. Methods of tissue preparation for ground sections, decalcified sections.
10. H&E and Special stains and staining techniques for different tissues including Connective tissues, proteins, carbohydrates, fats, nucleic acids, pigments and minerals
11. Immunohisto chemistry, Enzyme Histochemistry, Immunofluorescence
12. Preparation of frozen sections and cytological smears

SPECIALIZED HISTOTECHNIQUES AND SPECIAL STAINS:

1. Special staining techniques for different tissues
2. Immunohistochemistry
3. Preparation of frozen sections and cytological smears

BASIC MOLECULAR BIOLOGY AND TECHNIQUES:

1. DNA extraction, PCR, western blotting, ELISA, Flow cytometry, Microarray, ISH, FISH

ORAL ONCOLOGY:

1. Detailed study including Pathogenesis, molecular and biochemical changes of Benign and Malignant tumours including Salivary gland and Odontogenic tumours, tumor like lesions and Premalignant lesions affecting the hard and soft tissues of oral and para oral tissues
2. Tumour markers

PART II

SUBJECT CODE	PAPER	SUBJECT TITLE
17MDS623	PAPER 3	Descriptive and Analysing type question

PAPER-III: Descriptive and analyzing question

18. TEACHING AND LEARNING ACTIVITIES:

18.1. LECTURES:

There shall be some didactic lectures in the specialty and in the allied fields. The departments shall encourage guest lectures in the required areas and integrated lectures by multi-disciplinary teams on selected topics, to strengthen the training programmes.

18.2. JOURNAL REVIEW:

The journal review meetings shall be held at least once a week. All trainees associate and staff associated with the post-graduate programme are expected to participate actively and enter relevant details in the logbook. The trainee shall make presentations from the allotted journals of selected articles. A model check list for the evaluation of journal review presentation is annexed at Schedule-I of these regulations.

18.3. SEMINARS:

The seminars shall be held at least twice a week in each department. All trainees are expected to participate actively and enter relevant details in logbook. A model check list for the evaluation of seminar presentation is annexed at Schedule-II of these regulations.

18.4. SYMPOSIUM:

It is recommended to hold symposium on topics covering multiple disciplines.

18.5. CLINICAL POSTINGS:

Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases, a model check list for evaluation of clinical postings is annexed at Schedule-III of these regulations.

18.6. CLINICO- PATHOLOGICAL CONFERENCE:

The clinico pathological conference shall be held once a month involving the faculties of Oral Medicine and Radiology, Oral Pathology and allied clinical

departments. The trainees shall be encouraged to present the clinical details, radiological and histo-pathological interpretations and participation in the discussions.

18.7. INTER-DEPARTMENT AL MEETINGS:

To encourage integration among various specialties, there shall be inter-departmental meeting chaired by the Dean with all heads of post-graduate departments at least once a month.

18.8. TEACHING SKILLS:

All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions. A model check list for evaluation of teaching skills is annexed at Schedule-IV of these regulations.

18.9. DENTAL EDUCATION PROGRAMMES:

Each department shall organize dental education programmes on regular basis involving other institutions. The trainees shall also be encouraged to attend such programmes conducted outside their university or institute.

18.10. CONFERENCES / WORKSHOPS / ADVANCED COURSES:

The trainees shall be encouraged to attend conference/ workshops/advanced courses and also to present at least two scientific papers and two posters at State / national level specialty and allied conferences / conventions during the training period.

18.11. ROTATION AND POSTING IN OTHER DEPARTMENTS:

To bring in more integration among the specialties and allied fields, each department shall workout a programme to rotate the trainees in related disciplines.

18.12. DISSERTATION / THESIS:

A model check list for evaluation of dissertation presentation and continuous evaluation of dissertation work by guide / co-guide is annexed at Schedule-V of these regulations. A model overall assessment sheet to be filled by all the trainees undergoing post-graduate course is annexed at Schedule-VI of these regulations.

18.13. MINIMUM REQUIRED QUOTA:

All the students of the specialty departments shall complete the minimum quota for the teaching and learning activities, as follows:—

- (a) Journal Clubs : 5 in a year
- (b) Seminars : 5 in a year

- (c) Clinical Case Presentations : 4 in a year
- (d) Lectures taken for undergraduates: 1 in a year
- (e) Scientific Paper / Poster Presentations In State / : National Level Conferences : 4 papers/posters during three years of training workshop period
- (f) Clinical Pathological Conferences : 2 presentations during three years of training period
- (g) Scientific Publications (optional) : one publication in any indexed scientific journal
- (h) Submission of Synopsis: one synopsis within six months from the date of commencement of the course.
- (i) Submission of Dissertation months : one dissertation within six months before appearing for the university examination
- (j) Submission of Library Dissertation :one dissertation within eighteen months from the date of commencement of the course

18.14. ACADEMIC QUOTA:

1. Visit to center of Animal experimentation to familiarize with Laboratory techniques, upkeep and care of animals
2. Completion of Dissertation work and submission of the same, six months before the Final Examination
3. Study of Journals, Internet Browsing, and group discussions, to update knowledge in the recent advances in Oral Pathology
4. Lecture and Practical demonstrations for third B.D.S students in Oral pathology and Microbiology
5. Reporting of histopathology slides
6. Journal clubs and Seminars to be presented by every post graduate student twice a month
7. Clinico-pathological discussions by every student once in a month.
8. To attend Inter-departmental meetings.

19. RECOMMENDED LIST OF TEXTBOOKS & JOURNALS:

TEXT BOOKS:

1. Anatomy of Orofacial Structures Ed7 Brand Richard.
2. Andersons Pathology. Vol.1; 8th Ed. [Set] Kissane, John.M.
3. Atlas of Head and Neck Pathology: Ed 2 Weing, Bruce M.
4. Atlas of Oral & Maxillofacial Pathology Regezi.
5. Atlas of Oral and Maxillofacial Histopathology Lumerman S Harry.
6. Biopsy Pathology Of The Oral Tissues Odell, E. W
7. Caesons Essentail Oral Pathology & Oral Cawson R A,

8. Medicine, Ed 8
9. Cancer Medicine. Vol.2; 3rd Ed. Holland, James. F
10. Cellular & Molecular Immunology 7th Ed Abbas K Abdul
11. Cellular Pathology, Ed.2 Cook, D.J
12. Clinical Outline Of Oral Pathology Eversole
13. Contemporary Oral and Maxillofacial SAPP,J.P Pathology Ed.2
14. Craniofacial Embryogenetics and Development: Sperber, Geoffrey H Ed 2.
15. Cysts Of Oral And Maxillofacial Regions, Ed.4 Shear, Mervyn
16. Dental Embryology Histology And Anatomy 2 Nd Bath Balogh Ed
17. Dental Morphology: An Illustrated Guide: Ed 2van Beek, Geoffrey C
18. Diagnosis Imaging Of Child Abuse Kleinman, K. Paul
19. Diagnostic Histopathology Of Tumors - Volume 1 Fletcher
20. Diagnostic Histopathology Of Tumors - Volume 2 Fletcher
21. Diagnostic Surgical Pathology : 5th Ed Vol 1mills E Stacey
22. Diagnostic Surgical Pathology : 5th Ed Vol 2mills E Stacey
23. Differential Diagnosis Of Oral Lesions Wood-Goaz
24. Enzinger and Weiss Soft Tissue Tumors 4th Ed Weiss, Sharon. W
25. Essentials of Oral Histology & Embryology – An Avery, James K Clinical Approach, Ed.
26. Fine Needle Aspiration Cytology Orell,S.R (Et Al)
27. Oral Anatomy, Histology And Embryology ,Ed 4 Berkovitz B K B
28. Oral And Maxillofacial Diseases Scully,Crispian
29. Oral And Maxillofacial Infections Topazian, R.H
30. Oral Cells And Tissues Garant P R
31. Oral Cells And Tissues Garant, Phillias R
32. Oral Pathology: Clinical Pathologic Regezi, Joseph.A Correlations
33. Orofacial Disease: Update For The Dental Crispian, Scully Clinical Team 1st Ed

JOURNALS RECOMMENDED:

S.NO	JOURNAL TITLE	PUBLISHER	NATIONAL/ INTERNATIONAL
1	Cancer	Wiley blackwell	International
2.	Journal of oral pathology and medicine	Wiley blackwell	International
3	Molecular oral microbiology	Wiley blackwell	International
4	Cancer cytopathology	Wiley blackwell	International
5	American journal of clinical pathology (ajcp)	Ascp	International
6	Haematologica	Ferrata storti foundation	International
7	Journal of investigative dermatology	Nature publishing group	International
8	Oral oncology	Elsevier	International
9	Seminars in oncology	Elsevier science direct	International
10	The American journal of pathology	Official journal of the 5 American society of investigative pathology	International
11	Oral surgery, oral medicine, oral pathology , oral radiology (ooo)	Elsevier	International
12	Indian journal of cancer	Medknow publication	National
13	Journal of oral and maxillofacial pathology (jomfp)	wolter kluwer	International
14.	Oral diseases	Wiley	International
15	Indian journal of forensic odontology	Red flower publication	National
16	Archieves of oral biology	Elsevier	International
17	Lancet oncology	Elsevier	International
18	Nature	Nature publishing group - macmillan	International
19	American jounal of surgical pathology	Lww	International

**20. CHECKLISTS
CHECKLISTS AND LOGBOOKS**

**CHECKLIST-1
MODEL CHECK LIST FOR EVALUATION OF JOURNAL REVIEW
PRESENTATIONS.**

Name of the Trainee:

Date:

Name of the Faculty / Observer:

Sl. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross-references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper/ subject					
6.	Audio - Visual aids used					
7.	Ability to discuss the paper					
8.	Clarity of presentation					
9.	Any other observation					
Total Score						

CHECKLIST-2
MODEL CHECK LIST FOR EVALUATION OF SEMINAR PRESENTATIONS.

Name of the Trainee:

Date:

Name of the Faculty / Observer:

Sl No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Whether other relevant publications consulted					
2	Whether cross - references have been consulted					
3	Completeness of Preparation					
4	Clarity of Presentation					
5	Understanding of subject					
6	Ability to answer the questions					
7	Time scheduling					
8	Appropriate use of Audio -Visual aids					
9	Overall performance					
10	Any other observation					
Total score						

CHECKLIST-3
MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN OPD

Name of the Trainee:
 Name of the Unit Head:

Date:

SI. No.	Items for observation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases					
6.	Investigations work-up					
7.	Chair - side manners					
8.	Rapport with patients					
9.	Overall quality of clinical work					
Total score						

Please use a separate sheet for each faculty member

CHECKLIST - 4
EVALUATION FORM FOR CLINICAL CASE PRESENTATION

Name of the Trainee:

Date:

Name of the faculty / Observer:

Sl. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness of history					
2.	Whether all relevant points elicited					
3.	Clarity of presentation					
4.	Logical order					
5.	Mentioned all positive and negative					
6.	Accuracy of general physical examination					
7.	Investigations required Complete list					
8.	Relevant order Intepretation of Investigations					
	Ability to discuss differential diagnosis.					
9.	Ability to discuss diagnosis.					
10.	Others					
Grand Total						

Please use a separate sheet for each faculty member

CHECKLIST-5
MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL

Name of the Trainee:

Date:

Name of the faculty Observer:

Sl. No.		Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and / or illustrations		
6.	Speaking style (enjoyable, monotonous, etc. Specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Ask questions		
10.	Answer questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

Please use a separate sheet for each faculty member

CHECKLIST-6
MODEL CHECKLIST FOR DISSERTATION PRESENTATION

Name of the Trainee:

Date:

Name of the faculty / Observer:

Sl. No.	Prints to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest show in selecting topic					
2.	Appropriate review					
3.	Discussion with guide and other faculty					
4.	Quality of protocol					
5.	Preparation of Proforma					
Total Score						

CHECKLIST-7
CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE/CO-GUIDE

Name of the Trainee:

Date

Name of the Faculty/Observer:

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide / co- guide					
2.	Regular collection of case material					
3.	Depth of Analysis / Discussion					
4.	Department presentation of findings					
5.	Quality of final output					
6.	Others					
Total score						

CHECKLIST - 8
OVERALL ASSESSMENT SHEET

Name of the College:

Date:

Check List No	PARTICULARS	A	B	C	D	E	F	G	H	I
1.	Journal Review Presentation									
2.	Seminars									
3.	Clinical work in wards									
4-	Clinical presentation									
5.	Teaching skill practice									
6.										
TOTAL										

Signature of HOD

Signature of Dean

The above overall assessment sheet used along with the logbook should form the basis for certifying satisfactory completion of course of study, in addition to the attendance requirement.

Key:

Mean score: Is the sum of all the scores of checklists 1 to 7 **A, B,.....**: Name of trainees

**LOG BOOK - TABLE 1
ACADEMIC ACTIVITIES ATTENDED**

Name :
Admission Year :
College :

Date	Type of activity - Specify Seminar, Journal club, Presentation, UG teaching	Particulars

**LOG BOOK - TABLE 2
ACADEMIC PRESENTATIONS MADE BY THE TRAINEE**

Name :
Admission Year :
College :

Date	Topic	Type of activity - Specify Seminar, Journal club, Presentation, UG teaching

**LOG BOOK - TABLE 3
DIAGNOSTIC AND OPERATIVE PROCEDURES PERFORMED**

Name :
Admission Year :
College :

Date	Name	OP No.	Procedure	Category O, A, PA, PI

Key:

- O - WASHED UP AND OBSERVED - INITIAL 6 MONTHS OF ADMISSION**
- A - ASSISTED A MORE SENIOR SURGEON -1 YEAR MDS**
- PA - PERFORMED PROCEDURE UNDER THE DIRECT SUPERVISION OF A SENIOR SURGEON - II YEAR MDS**
- PI - PERFORMED INDEPENDENTLY - III YEAR MDS**