

MDS CURRICULUM

Conservative dentistry deals with prevention and treatment of the diseases and injuries of the hard tissues and the pulp of the tooth and associated periapical lesions, along with restoration of those teeth to normal form function and aesthetics

1. GOAL

To train the postgraduate student to master the chosen specialty in all disciplines

And to inculcate a quest for research and updation.

- To acquire adequate knowledge, necessary skills and attitudes which are required for carrying out all the activities appropriate to general dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues.
- To provide critical knowledge and understanding of conservative dentistry and endodontics.
- To train the students and equip with knowledge, attitude and skills necessary to carry out procedures in conservative dentistry and endodontics.
- Learn the scientific and clinical basis of endodontics.
- Establish a foundation of lifelong learning.

2. OBJECTIVES

- (A) KNOWLEDGE
- (B) ATTITUDE

and concern for the well-being of the patient.

(C) SKILLS

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

Theoretical Knowledge:

- * Students should have a wide knowledge of basic sciences
- * Part 1 MDS applied basic medical sciences -

Seminar and academics should comprise of minimum 40 percent of concerned specialty of conservative dentistry and endodontics.

Practical and Clinical Skills:

Every pre clinical exercise should be done after theory assignment being written and discussed with faculty member.

After completion of all preclinical exercise PG students should pass a test of their ability to communicate, diagnose and carry out the clinical procedure under close super vision.

To undergo a research methodology training – not less than 5 days duration within the first 6 months.

To undergo a basic life support training not less than 3 days duration within the first 6 months

To see feasibility for a small study/clinical study/pilot study of thesis in 1st year.

To learn scientific write-up/review article in 1st year.



Theory -reference books

Assignments

Journal access

FOR NECESSARY CLINICAL SKILLS IN CONSERVATIVE DENTISTRY AND ENDODONTICS

One case of aesthetic management every month..

Two inlays/onlays every month excluding full crown

One case of post and core management every month

One case of inter disciplinary management every month.

Writing Thesis/Research papers:

Attitudes including Communication Skills:

Should be able to communicate with the patient as required.

Training in Research Methodology, Biostatistics, Ethics / Bioethics, in Dentistry, Jurisprudence and Audits:

Refrain from supporting or committing crimes against humanity and condemn all such acts .

Work freely with colleagues

All MDS candidates shall compulsorily attend the Research Methodology Workshop conducted by the University within 6 months from the date of joining the course. In this regard, the candidates will be issued a completion Certificate by the University.

Health Informatics usage of Information technology (Computer):

Should always update themselves about the most prevalent disease in their community and work towards its management.

THEORY SYLLABUS



PART I: PAPER - I: APPLIED ANATOMY OF HEAD & NECK

Enamel – development and composition, physical characteristics, chemical properties, structure. clinical structure.

Dentin – development, physical and chemical properties, structure type of dentin, innervations, age and functional changes.

Pulp – development, histological structures, innervations, functions, regressive changes, clinical considerations.

Cementum – composition, cementogenesis, structure, function, clinical consideration.

Periodontal ligament – development, structure, function and clinical consideration.

Salivary glands – structure, function, clinical considerations.

Eruption of teeth.

APPLIED PHYSIOLOGY:

Mastication, deglutition, and digestion and assimilation, fluid and electrolyte balance.

Blood composition, volume, function, blood groups, haemostasis, coagulation, blood transfusion, circulation, heart, pulse, blood pressure, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration, and endocrinology – general principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.

Physiology of saliva – composition, function, clinical significance.

Clinical significance of vitamins, diet and nutrition – balanced diet.

Physiology of pain, sympathetic and Para sympathetic nervous system, pain pathways, physiology of pulpal pain, Odontogenic and non Odontogenic pain, pain disorders – typical and atypical, biochemistry such as osmotic pressure, electrolytic dissociation, oxidation, reduction etc. Carbohydrates, proteins, lipids and their metabolism, nucleoproteins, nucleic acid and their metabolism. Enzymes, vitamins and minerals, metabolism of inorganic elements, detoxification in the body, anti metabolites, chemistry of blood lymph and urine.

PATHOLOGY:

Inflammation, repair, degeneration, necrosis and gangrene.

Circulatory disturbances – ischemia, hyperemia, edema, thrombosis, embolism, infarction, allergy and hypersensitivity reaction.

Neoplasms – classifications of tumors, characteristics of benign and malignant tumors spread tumors.

Developmental disturbances of oral and Para oral structures, dental caries, regressive changes of teeth, pulp, periapical pathology, pulp reaction to dental caries and dental procedures.

Bacterial, viral, mycotic infections of the oral cavity.



MICROBIOLOGY:

Pathways of pulpal infection, oral flora and micro organisms associated with endodontic diseases, pathogenesis, host defense, bacterial virulence factors, healing, theory of focal infections, microbes or relevance to dentistry – Streptococci, Staphylococci, Lactobacilli, Cornyebacterium, Actinomycetes, Clostridium, Neisseria, Vibrio, Bacteriodes, Fusobacteria, Spirochetes, Mycobacterium, Virus and Fungi.

Cross infection, infection control, infection control procedure, sterilization and disinfection.

Immunology – antigen antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts, viral hepatitis, HIV infections and aids. Identification and isolation of microorganisms from infected root canals. Culture medium and culturing technique (Aerobic and anaerobic interpretation and antibiotic sensitivity test).

PHARMACOLOGY:

Dosage and route of administration of drugs, actions and fate of drug in body, drug addiction, tolerance of hypersensitivity reactions.

Local anaesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anaesthetic, ideal properties, techniques and complications.

General anaesthesia – pre medications, neuro muscular blocking agents, induction agents, inhalation anaesthesia, and agents uses, assessment of anaesthetic problems in medically compromised patients. Antihistamines, corticosterods, chemotherapeutic and antibiotics, drug resistance, haemostasis, and haemostatic agents, anticoagulants, sympathomimetic drugs,

vitamins and minerals (A, B, C, D, E, K IRON), anti-sialogogue, immunosupressants, drug interactions, antiseptics, disinfectant agents, drugs acting on CNS.

BIOSTATISTICS:

Introduction, Basic concepts, Sampling, Health information systems – collection, compilation, presentation of data. Elementary statistical methods – presentation of statistical data, Statistical averages – measures of central tendency, measures of dispersion, Normal distribution. Tests of significance – parametric and non – parametric tests (Fisher extract test, Sign test, Median test, Mann Whitney test, Kruskall Wallis one way analysis, Friedman two way analysis, Regression analysis), Correlation and regression, Use of computers

RESEARCH METHODOLOGY:

Essential features of a protocol for research in humans.

Experimental and non-experimental study designs.

Ethical considerations of research.

APPLIED DENTAL MATERIALS:

Physical and mechanical properties of dental materials, biocompatibility.

Impression materials, detailed study of various restorative materials, restorative resin and recent advances in composite resins, bonding – recent developments – tarnish and corrosion, dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments, casting procedures, defects, dental cements for restoration and pulp protection (luting, liners, bases) cavity varnishes.

Part-II PAPER-I: CONSERVATIVE DENTISTRY



- 1. Examination, diagnosis and treatment plan.
- 2. Occlusion as related to conservative dentistry, contact, contour, its significance. Separation of teeth, matrices, used in conservative dentistry.
- 3. Dental caries epidemiology, recent concept of etiological factors, pathophysiology, Histopathology, diagnosis, caries activity tests, prevention of dental caries and management recent methods.
- 4. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.
- 5. Dental burs and other modalities of tooth reparation recent developments (air abrasions, lasers etc)
- 6. Infection control procedures in conservative dentistry, isolation equipments etc.
- 7. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
- 8. Direct and indirect composite restorations.
- 9. Indirect tooth colored restorations ceramic, inlays and onlays, veneers, crowns, recent advances in fabrication and materials.
 - a. Tissue management.
- 10. Impression procedures used for indirect restorations.
- 11. Cast metal restorations, indications, contraindications, tooth preparation for class 2 inlay, Onlay full crown restorations.

Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and

- 12. Direct gold restorations.
- 13. Recent advances in restorative materials and procedures.
- 14. Management of non-carious lesion.
- 15. Advance knowledge of minimal intervention dentistry.
- 16. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth.
- 17. Hypersensitivity, theories, causes and management.
- 18. Lasers in conservative Dentistry.
- 19. CAD-CAM & CAD-CIM in restorative dentistry.
- 20. Dental imaging and its applications in restorative dentistry (clinical photography)
- 21. Principles of esthetics.

Facial analysis

Principles of esthetic integration

Treatment planning in esthetic dentistry

Part-II PAPER-II: ENDODONTICS



- 1. Rationale of endodontics.
- 2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
- 3. Dentin and pulp complex.
- 4. Pulp and periapical pathology.
- 5. Pathobiology of periapex.
- 6. Diagnostic procedure recent advances and various aids used for diagnosis.
 - a. Orofacial dental pain emergencies: endodontic diagnosis and management
- 7. Case selection and treatment planning.
- 8. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc.)
- 9. Access cavity preparation objectives and principles.
- 10. Endodontic instruments and instrumentation recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.
- 11. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
- 12. Root canal irrigants and intra canal medicaments used including non-surgical Endodontics by calcium hydroxide.
- 13. Endodontic microbiology.
- 14. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
- 15. Traumatic injuries and management- endodontic treatment for young permanent teeth. Pediatric Endodontics treatment of immature apex.
- 16. Endodontic surgeries, recent development technique and devices, endo-osseous endodontic implants- treatment of immature apex.
- 17. Endodontic interrelationship, Endo-Perio lesion and management.
- 18. Drugs and chemicals used in Endodontics
- 19. Endo emergencies and management.
- 20. Restoration of endodontically treated teeth, recent advances.
- 21. Geriatric Endodontics
- 22. Endo emergencies and management.
- 23. Biologic response of pulp to various restorative materials and operative procedures.
- 24. Lasers in Endodontics.
- 25. Multidisciplinary approach to endodontics situations.
- 26. Endodontics radiology digital technology in endodontics practice.
- 27. Local anesthesia in endodontics.



- 28. Procedural errors in endodontics and their management.
- 29. Endodontics failures and retreatment.
- 30. Resorptions and its management.
- 31. Microscopes in endodontics.
- 32. Single visit endodontics, current concepts and controversies.

ADDITIONAL TOPICS

Effect of age and systemic health endodontics, with emphasis on treatment of medically complex endodontic patient.

therapy

Effects of dental implants on treatment planning of prosthodontics, periodontics and endodontics

Part – II PAPER – III: Descriptive and analysing type question

PRE CLINICAL WORK SCHEDULE

S. No	Work	Time Scheduled
1.	Wax carving exercises	2 weeks
2.	Tooth sectioning exercises	1 week
3.	Conservative exercises on both typhodont & natural tooth	1 month
4	Endodontic exercises	1 month
5	Tooth preparation exercises for partial and full crown	15 days
6	Casting procedures	15 days
7	Arrangement in display box and grace time	1 week

Note: Entire Pre Clinical work has to be completed and submitted within first four months from the date of commencement of the course.



PRE-CLINICAL CURRICULUM

OPERATIVE DENTISTRY

I	WAX CARVING EXERCISE
II	NATURAL TOOTH EXERCISES
III	EXERCISES ON TYPHODONT

ENDODONTICS

I	TOOTH SECTIONING
II	ENDODONTIC EXERCISES
III	POST AND CORE EXERCISE
IV	RESIN BLOCK PREPARATION
V	DETERMINATION OF CANAL CURVATURE
VI	ABERRANT ROOT CANAL EXERCISE
VII	ENDODONTIC MICROSURGERY IN MANDIBLE



CONSERVATIVE DENTISTRY PRECLINICAL EXERCISES

S.NO	EXERCISES	QUOTA
I	Plaster models 1. Class I amalgam cavity preparation	
	2. Class I with extension	1
		1
	3. Class II amalgam cavity preparation	3
	Class II inlay cavity preparation	4
II	Typhodont teeth 1. Class II amalgam cavities	
	Conservative preparation	03
	Conventional preparation	03
	2. Inlay cavity preparation on premolars and molars-MO,DO,	02
	MOD	
	Preparation, wax pattern & processing	00
	Onlay preparation on molars	02
	Preparation, wax pattern & processing	
	4. Full crown	04
	Anterior-Preparation & casting	02
	Posterior- Preparation, Processing	02
III	Preclinical work on Natural teeth	
	1. Inlay on molars and premolars MO, DO and MOD	05
	 Cavity preparation, wax pattern and casting 	
	2. Amalgam cavity preparation	04
	a. Conservative preparation	02
	b. Conventional preparation	02
	3. Onlay preparation on molars	02
	Preparation	
	Preparation &casting(1	
	To be processed)	
	4. Full crown anterior (PFM, Composite & Ceramic)	03
	Preparation & Processing	
	5. Full crown premolars and molars	04



	Preparation	02			
	Preparation & casting				
	6. Composite				
	a. Composite filling (Class I, II, III & V)	05			
	b. Veneers anterior teeth (indirect method)	02			
	c. Composite Inlay (Class I &II)	02			
	 Preparation 				
	d. Diastema closure	02			
	e. Angle buildup	02			
IV	Full tooth wax carving - all permanent teeth				
V	Sectioning of all maxillary and mandibular teeth				
VI	Sectioning of teeth in relation to deciduous molar, 2 nd primary				
	upper and lower molar-1 each				



ENDODONTICS PRECLINICAL EXERCISES

S.NO	WORK DONE	NO. OF EXERCISES
IV	Access cavity opening and root canal therapy in relation	
	to maxillary and mandibular permanent teeth	
	Anteriors	
	 Conventional preparation 	06
	Step back	02
	Crown down	02
	Obturation (2-Lateral and 1-Thermoplasticised)	03
	PREMOLAR RCT	
	 Maxillary 	02
	Mandibular	02
	Obturation (1each)	02
	MOLAR RCT	
	Maxillary first molar	02
	Mandibular first molar	02
	Maxillary second molar	01
	Mandibular second molar	01
	Obturation (1each)	02
	Post and core preparation and fabrication in relation to	
	anterior and posterior teeth	
	Anteriors (10 nos)	
	Prefabricated	05
	cast post	05
	Posteriors (10 nos)	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Prefabricated	05
V	cast post	02

Note - All preclinicals work is to be completed within 4 months of joining PG



CLINICAL REQUIREMENTS FIRST YEAR MDS

DESCRIPTION	DCI REQUIREMENT (2019)	DONE	SIGNATURE
Composite	30		
GIC	30		
Complex amalgam restorations	5		
Ceramic jacket crowns	5		
Composite inlay + veneers (Direct& Indirect)	10		
Post and core for Anterior	10		
Bleaching vital	5		
Bleaching non vital	5		
RCT anterior	20		
Endo surgery- observation and assisting	5		

ACADEMIC WORK-FIRST YEAR MDS

- 1. Topic for dissertation (within 3 months)
- 2. Topic for Library Dissertation (within 5 months)
- 3. Seminars 5
- 4. Journal clubs 5
- 5. Clinical Case Presentation 5
- 6. Ethical Clearance Dissertation from IRD 5 Months
- 7. Submission of synopsis at the end of 6 months
- 8. Teaching lecture (under graduates) -5
- 9. Prepare and present scientific poster in conference-2
- 10. Internal assessment- theory and clinical



CLINICAL REQUIREMENTS

SECOND YEAR MDS

DCI Requirement (2019)

CLINICAL WORK:

S.NO	DESCRIPTION	REQUIREMENT
1.	Ceramic jacket crowns	10
2.	Post and core for ante rior teeth	10
3.	Post and core for posterior teeth	15
4.	Composite restoration	15
5.	Full crown for posterior teeth	15
6.	Cast gold inlay	05
7.	Other special types of work such as	10
	splinting -reattachment of fractured teeth	
	etc	
8.	Anterior RCT	50
9.	Posterior RCT	150
10.	Endo surgery performed independently	05
11.	Management of endo perio problems	05
12.	Angle build up composite	05
13.	Diastema closure	05
14.	Composite veneers	05

ACADEMIC WORK-SECOND YEAR MDS

- 1. Under graduate teaching program as allotted by the HOD
- 2. Seminars-5
- 3. Journal club-5
- 4. Journal club-5
- 5. Case discussion-5
- 6. Teaching lecture (under graduates) -1
- 7. Dissertation work
- 8. Preparation of scientific paper and poster presentation in conference and clinical society meeting
- 9. Internal assessment theory and clinical
- 10. Submission of Library Dissertation



THIRD YEAR MDS

DCI REQUIREMENT (2019)

CLINICAL WORK:

1.	Cast gold inlay-onlay, cuspal restoration	10
2.	Post and core	20
3.	Molar endodontics	150
4.	Endo surgery	05
5.	All other types of surgeries including crown lengthening, perioesthetics, hemi sectioning, endodontic implants, replantation.	15
6.	Diastema closure	05
7.	Angle build up	05

ACADEMIC WORK

- 1. Seminars-5
- 2. Journal club-5
- 3. Teaching lecture (under graduates)- 3
- 4. Dissertation work to be submitted 6 months before final examination
- 5. Internal assessment theory and clinical
- 6. Scientific paper presentations

EXAMINATION PATTERN



UNIVERSITY THEORY EXAMINATION

Part-I (FIRST YEAR)

Paper – I : Applied Basic Sciences: Applied Anatomy, Physiology, Pathology including Oral Microbiology, Pharmacology, Biostatistics and Research methodology

and Applied Dental Materials.

Part-II (THIRD YEAR)

Paper – I : Conservative Dentistry

Paper – II: Endodontics

Paper – III : Descriptive and analysing type question

UNIVERSITY PRACTICAL / CLINICAL EXAMINATION

Clinical (THIRD YEAR)

200 Marks - PRACTICAL

100 MARKS -VIVA AND PEDAGOGY

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 6, the programmer can be extended to 3rd day



I - YEAR TIME TABLE

DAY	8.30 - 9.30 AM	9.30 AM - 1.30 PM	1.30 PM – 2.00 PM	2.00 PM - 4.30 PM
MONDAY	Subject Discussion Hour	Pre - Clinics Work	L u n c h	Basic Science Class
TUESDAY	Subject Discussion Hour	Pre - Clinics Work	L u n c h	Basic Science Class
WEDNES DAY	Journal Club	Pre - Clinics Work	L u n c h	Basic Science Class
THURS DAY	Seminar	Pre - Clinics Work	L u n c h	Basic Science Class
FRIDAY	Pre - Clinics Work	Pre - Clinics Work	L u n c h	Clinical O.P Work
SATUR DAY	Pre - Clinics Work (8.30am - 10.30am)	Pre - Clinics Work (10.30am - 1.00 pm)	-	Test Hour



II YEAR - TIME TABLE

DAY	8.30 - 9.30AM	9.30AM - 1.00PM	1.00PM - 1.30PM	1:30PM - 4.30PM
MONDAY	Special Case Discussion	Clinics Work	Lunch	Clinical Work
TUESDAY	Seminar	Clinics Work	Lunch	Library Reading
WEDNESDAY	Seminar	Clinics Work	Lunch	Clinical Work
THURSDAY	Journal Club	Clinics Work	Lunch	Library Reading
FRIDAY	Case Discussion	Clinics Work	Lunch	Clinical Work
SATURDAY	Clinics Work	Clinics Work	Lunch	Test Hour

III YEAR - TIME TABLE

DAY	8.30 - 9.30AM	9.30AM - 1.00PM	1.00PM - 1.30PM	1:30PM - 4.30PM
MONDAY	Seminar	Clinics Work	Lunch	Clinical Work
TUESDAY	Journal Club	Clinics Work	Lunch	Clinical Work
WEDNESDAY	Seminar	Clinics Work	Lunch	Library Work
THURSDAY	Thesis Discussion	Clinics Work	Lunch	Clinics Work
FRIDAY	Special Case Discussion	Clinics Work	Lunch	Library Work
SATURDAY	Lab Work	Clinics Work	Lunch	Library Work



INSTRUMENTS / MATERIALS / TEXT BOOKS LIST TO BE POSSESSED BY THE POST GRADUATE IN THE DEPT. OF CONSERVATIVE DENTISTRY AND ENDODONTICS

I YEAR MDS		
	Text books	
	 Mandatory (Minimum) Recommended text books(most recent edition) to 	
	beself- purchased by the PG student during the course	
	Conservative text books	
	1) Operative dentistry-Sturdevant	
4.45 MONTH	2) Operative dentistry-Marzouk	
	Endodontic text books	
	1) Pathways of pulp-Cohen	
1-4 th MONTH	2) Endodontics- <i>Ingle</i>	
	3) Problem solving in endodontics-Gutmann	
	4) Endodontic therapy-Franklin weine	
	Miscellaneous text books-	
	*will be suggested for purchase during the course.	
	Preclinicals	
	Natural teeth and typhodont teeth -1 full set(to self-reimburse depending on the self-reimburse)	
	theexercise and usage)	
	Contra angle hand piece (Micromotor&Aerotor), Endogauge,file ho lder box,	
	Hand files K -Files(from size 1 -80) and H -files (from size 1 -40) Gutta percha	
	points(from size 15-80). Complete set of natural teeth(to self-reimburse	
	depending on the exercise and usage),etc*	
	Restorative hand instruments(complete kit), For dental amalgam, composite	
	resins and wax pattern carving(PKT instrument kit)	
	Tooth preparation burs(Micromotor & Aerotor) inlay, onlay, crown and	
	accesscavity preparation bur kit,etc*	
	Wax blocks-2 sets.	
	Restorative instruments kit, Endodontic chair side armamentarium,(File halded a) Pierra et instruments RO 46 Instrument to the state of the st	
	holderbox) Diagnostic instruments, DG 16, Instrument tray,etc*	
	Android/Apple Tab with Pen(Provided by college on payment) Place and Clinical counts (by their paym)	
5-7thMONTH	Black color Clinical scrubs(by their own) CLINICS	
5-7 LINONTH		
	 Complete endodontic armamentarium(ref. Grossman Text book fordetails))Rubber dam armamentarium. 	
	To self- reimburse the following on usage / distortion	
	Sorted Hand files(from size 1-80), paper points, Gutta percha points, Protaper	
	Hand files, Path finder files(No 6,No 8 and No10),suture thread,etc*	
8th MONTH	Endomotor unit, Endodontic hand piece	
onwards	Ultrasonic root canal irrigation device with associated irrigation files	
Jimai do	To self-reimburse the following on usage / distortion	
	Sorted Hand and rotary file, single cone gutta-percha, paper points, etc*	
10 th MONTH	Instruments of 5 th -9 th month plus the following:	
onwards	Digital Apex locators(most recent generation)	
onwarus	Polytical Apex locators (most recent generation)	



12 th MONTH onwards	Instruments of 5 th -11 th month plus the following: Endosurgical LoupesRetreatmet files Endo surgical burs
	Tungsten carbide cross cut burs-round(No.2),taper fissure bur, etc*
II YEAR & III YEAR MDS	
13 MONTH onwards till the end of course.	 All instruments that have been advocated at the time of beginning of clinics tobe continued in their usage till the end of the PG Programme. It is mandatory that all dental burs, endodontic hand and rotary files, be discarded after their recommended usage/distortion and they be self-reimbursed by the student .(to avoid endodontic failures).

Miscellaneous:

Microsoft Tablet Pc