



**Programme Structure and Course Details
of
Master of Dental Surgery
in
Conservative Dentistry and Endodontics
Batch 2025 onwards**

**Faculty of Dental Sciences
Department of Conservative Dentistry and
Endodontics**

Rangayuth R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054
Approved by the Academic Council at its 34th meeting held on 8th March 2025
Bangalore - 560 054

University's Vision, Mission and Objectives

The M. S. Ramaiah University of Applied Sciences (MSRUAS) will focus on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy and society through their imaginative, creative and innovative pursuits. Hence, the University has articulated the following vision and objectives.

Vision

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment

Mission

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation and excellence in our teaching and research. We value integrity, quality and teamwork in all our endeavors. We inspire critical thinking, personal development and a passion for lifelong learning. We serve the technical, scientific and economic needs of our Society.

Objectives

1. To disseminate knowledge and skills through instructions, teaching, training, seminars, workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business and society
3. To promote health, human well-being and provide holistic healthcare
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunities in the society by incubating and nurturing technology product ideas and supporting technology backed business
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in
7. To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrich the experiences of faculties and students through research and developmental programmes

Programme Specifications: MDS in Conservative Dentistry and Endodontics

Faculty	Dental Sciences
Department	Conservative Dentistry and Endodontics
Programme Code	068
Programme Name	MDS in Conservative Dentistry and Endodontics
Dean of the Faculty	Dr. Silju Mathew
Head of the Department	Dr. Shruthi Nagaraja

1. **Title of the Award:** MDS in Conservative Dentistry and Endodontics
2. **Mode of Study:** Full-Time
3. **Awarding Institution /Body:** M. S. Ramaiah University of Applied Sciences, Bengaluru
4. **Joint Award:** Not Applicable
5. **Teaching Institution:** Faculty of Dental Sciences, M. S. Ramaiah University of Applied Sciences, Bengaluru
6. **Date of Programme Specifications:** March 2025
7. **Date of Programme Approval by the Academic Council of MSRUAS:** 8th March 2025
8. **Next Review Date:** March 2028
9. **Programme Approving Regulating Body and Date of Approval:**
10. **Programme Accredited Body and Date of Accreditation:**
11. **Grade Awarded by the Accreditation Body:**
12. **Programme Accreditation Validity:**
13. **Programme Benchmark:**
14. **Rationale for the Programme**

Oral health is considered as the window to overall health. Teeth and gums hold important clues to well-being in many ways. Dental caries being the most common infectious disorder affecting the teeth, loss of tooth structure due to caries, trauma or any other cause can affect the self-esteem of patients. An improved awareness and access to information has led to an increased demand for retaining one's own teeth. Globalization and modernization in the growing population has brought a surge in the demand for esthetic treatment options as well. Research in material science technology and on the disease process has made improved patient care delivery a reality. The need of the hour is prevention, interception as well as treatment of the disease at the most appropriate time.

In Indian scenario dental caries affects significant number of the population ranging from 31.5% to as high as 89%. Conservative dentists and Endodontists thus share the responsibility of tackling the burden of dental caries and related dental disorders to help retain and restore the smiles of the population. Hence, there is global demand for dental surgeons who are highly

skilled in this field. The need of the hour is hence to train specialists with sound scientific knowledge and skills to tackle ethically varied challenging clinical scenarios affecting the teeth with ease and proficiency.

15. Programme Mission

Master's degree programme in Conservative Dentistry & Endodontics aims to develop specialists who will restore and maintain natural dentition in an optimal state of health, function and esthetics. The objective is to train a candidate to ensure higher competence in the field of Conservative Dentistry and Endodontics and prepare them for a career in teaching, research and/or specialty practice.

16. Graduate Attributes (GAs)

- GA-1. Oral health knowledge:** Ability to apply knowledge of basic and applied medical and dental science to address oral health issues.
- GA-2. Problem Analysis:** Ability to analyze oral health problems, interpret data and arrive at meaningful conclusions involving appropriate investigations and diagnosis.
- GA-3. Provide Solutions:** Ability to understand the etiopathology, clinical features of oral disease and provide solutions considering public health and safety, and the cultural, societal, and environmental considerations.
- GA-4. Conduct Investigations of Complex Problems:** Ability to understand and solve complex clinical situations by conducting experimental investigations.
- GA-5. Modern Tool Usage:** Ability to apply appropriate tools and techniques and understand utilization of resources appropriately to oral health activities.
- GA-6. The Dental Expert and Society:** Ability to understand the effect of oral health solutions on legal, cultural, social, and public health and safety aspects.
- GA-7. Environment and Sustainability:** Ability to develop sustainable solutions and understand their effect on society and environment.
- GA-8. Ethics:** Ability to apply ethical principles to dental practices and professional responsibilities.
- GA-9. Individual and Teamwork:** Ability to work as a member of a team, to plan and to integrate knowledge of various dental and allied disciplines and to lead teams in multidisciplinary settings.
- GA-10. Communication:** Ability to make effective oral presentations and communicate technical ideas to a broad audience using written and oral means.
- GA-11. Project Management and Finance:** Ability to lead and manage multidisciplinary teams by applying financial principles for practice management.
- GA-12. Life-long learning:** Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning.

17. Programme Outcomes (POs)

MDS in Conservative Dentistry and Endodontics graduates will be able to:

- PO1. Acquire knowledge on theoretical sciences relevant to Restorative Dentistry and Endodontics.
- PO2. Plan multidisciplinary and preventive treatment strategies specific to the needs of the patient.
- PO3. Perform all levels of restorative procedures, non-surgical and surgical endodontics.
- PO4. Incorporate advanced diagnostics and technology in patient management.
- PO5. Understand and solve complex oral health care problems by conducting ethical investigations, research or project
- PO6. Inculcate leadership skills

18. Programme Goal

The programme goal is to produce graduates having critical, analytical and problem-solving skills, and ability to think independently, and to pursue a career in Conservative Dentistry and Endodontics

19. Program Educational Objectives (PEOs)

The objectives of the MDS in Conservative Dentistry and Endodontics programme are to:

- PEO-1. Provide students with a strong foundation in basic and applied medical and dental sciences relevant to Restorative Dentistry and Endodontics.
- PEO-2. Impart analytic and cognitive skills required to plan multidisciplinary treatment modalities and preventive strategies specific to the needs of the patient.
- PEO-3. Train students in all levels of restorative work, non-surgical and surgical endodontics incorporating advanced diagnostics and technology in patient management.
- PEO-4. Impart strong human values, entrepreneurial and leadership skills to evolve as global professionals and contribute to the well-being and welfare of the society.

20. Programme Specific Outcomes (PSOs)

At the end of the MDS in Conservative Dentistry and Endodontics programme, the graduates will be able to:

- PSO-1. Discuss etiology, pathophysiology and clinical presentation of diseases of the tooth and periapical tissues leading to their diagnosis.
- PSO-2. Predict prognosis and implement a preventive strategy and justify an evidence based treatment option to efficiently manage diseases of the tooth and its supporting tissues.
- PSO-3. Demonstrate proficiency in preventive and interventional restorative care including aesthetically challenging cases and procedures of non-surgical and surgical endodontics.

PSO-4. Work as an effective leader with good communication skills in a multidisciplinary clinical care setup inculcating best practices in management and administration.

21. Programme Structure

Year 1							
Sl. No.	Code	Course Title	Theory (H/W/Y)	Tutorials (H/W/Y)	Practical (H/W/Y)	Total Credits	Max. Marks
1	CDC501B	Preclinical and Clinical Phase Basics	4	0	28	48	400
2	MF501A	Clinical Photography*	-	-	1	1	20
3	MF502A	Basic and Advanced Life Support*	-	-	1	1	20
4	MF503A	Personality Development and Soft Skills*	-	-	1	1	20
5	MF504A	Law for Dental Professionals*	-	-	1	1	20
6	MR501A	Research Methodology	1	-	1	2	40
7	MR504A	Dissertation	-	1	-	2	-
8	CDA501A	Microrestorative & Microendodontics	1	-	1	-	-
8		Part I - Programme End Examination	-	-	-	-	100
Total			5	1	35	56	620
Total number of contact hours per week			36				

*Faculty Common Modules are conducted for 30 hours as 1 credit modules

Year 2							
Sl. No.	Code	Course Title	Theory (H/W/Y)	Tutorials (H/W/Y)	Practical (H/W/Y)	Total Credits	Max. Marks
1	CDC502B	Clinical Phase Intermediate	4	0	28	48	400
2	MR502A	Short term project/Group project	-	-	1	6	100
3	MR503A	Library Dissertation	-	1	-	4	60
4	MR504A	Dissertation	-	1	3	10	
5	MR505A	Conference Presentation	-	1	-	1	20
6	MF505A	Teacher Training Module	1	-	-	1	20
7	MG501A	Training in any other institution in India or Abroad	1	-	-	3	60
Total			6	3	32	73	660
Total number of contact hours per week			36				


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Year 3							
Sl. No.	Code	Course Title	Theory (H/W/Y)	Tutorials (H/W/Y)	Practical (H/W/Y)	Total Credits	Max. Marks
1	CDC503B	Clinical Phase Advanced	3	0	33	24	400
2	MR504A	Dissertation	-	2	2	6	200
3	MR506A	Journal Publication	-	1	-	1	20
4		Part II - Programme End Examination	-	-	-	20	600
Total			3	3	35	51	1220
Total number of contact hours per week			36				

22. Course Delivery

The course is delivered Monday to Saturday of the week according to time table including mandated library/laboratory time towards self- directed learning.

23. Teaching and Learning Methods

- Team Teaching/ Integrated Teaching
- Face to Face Lectures using Audio-Visuals
- Seminars/journal clubs/e-lectures
- Case Based Discussions
- Group Discussions, Debates, Presentations
- Demonstrations on videos, computers and models
- Clinical based learning
- Hospital based learning
- Laboratory work
- Dissertation/ Group Project work
- School visits/Outreach center visits
- Interdepartmental meets
- Continuing dental education programs/symposiums/workshops
- State/National/International conferences and conventions

24. Assessment and Grading

24.1. Components of Grading

Programme Specialization Teaching Course (PSTC) 1 - 3

There are two components-

a. Component 1 (Continuous Evaluation)

Year 1:

There are 2 components

- Theory component consisting of

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- a. Assignment to be submitted as a word processed document for 100 marks consisting of Section A and Section B
- b. Assessment as a Mock written examination for Part 1 of Component 2 for 100 marks consisting of Section A and Section B
- ii. **Clinical component consisting of**
Two clinical case discussion/clinical examination (80 marks each) along with Viva Voce (20 marks each) on the course content

Year 2:

There are 2 components

- iii. **Theory component consisting of**
 - a. Assignment to be submitted as a word processed document for 100 marks consisting of Section A and Section B
 - b. Assessment as a written examination for 100 marks consisting of Section A and Section B
- iv. **Clinical component consisting of**
Two clinical case discussion/clinical examination (80 marks each) along with Viva Voce (20 marks each) on the course content

Year 3:

There are 2 components

- v. **Theory component consisting of**
 - a. Assignment to be submitted as a word processed document for 100 marks consisting of Section A and Section B
 - b. Assessment as a Mock written examination for Part 2 of Component 2 for 300 marks
- vi. **Clinical component consisting of**
 - a. Clinical case discussion/clinical examination (80 marks) along with Viva Voce (20 marks) on the course content
 - b. Assessment as a Mock Clinical examination for Part 2 of Component 2 for 300 marks

b. Component 2 (Programme End Exam PEE),

Component 2 shall have a theory component, Clinical Component, Pedagogy and Viva Voce.

Theory component

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. Distribution of topics for each paper will be as follows:

Part-I

Paper-I: Applied Basic Sciences: Applied Anatomy, Physiology, Pathology including Oral Microbiology, Pharmacology, Biostatistics and Research Methodology and Applied Dental Materials.

Part-II

Paper-I: Conservative Dentistry

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Paper-II: Endodontics

Paper-III: Descriptive and analysis type questions

Clinical Component

Structured clinical exam for different exercises will be assessed for 200 marks.

- i. Case discussion and performing an anterior cast post and core, casting, cementation retraction and rubber base impression– 50 marks
- ii. Case discussion and Tooth Preparation of Class II inlay (metal/esthetic) and fabrication of indirect pattern -30 marks
- iii. Case discussion and performance of molar RCT up to master cone selection – 100 marks
- iv. Case Discussion-2 nos. for 20 marks

Pedagogy and Viva Voce Component

Structured Viva Voce exam for 80 marks and Pedagogy for 20 marks will be conducted during clinical exam.

Research, Faculty Common, Elective Modules:

These modules will be assessed as per the assessment norms as specified in the module specification. The assessment for these modules is through tests, presentations or any other method as specified in the module specification.

25. Student Support for Learning

1. Course Notes
2. Reference Books in the Library
3. Magazines and Journals
4. Internet Facility
5. Computing Facility
6. Laboratory Facility
7. Workshop Facility
8. Staff Support
9. Lounges for Discussions
10. Any other support that enhances their learning

26. Quality Control Measures

1. Review of Course Notes
2. Review of Question Papers and Assignment Questions
3. Student Feedback
4. Moderation of Assessed Work
5. Opportunities for students to see their assessed work
6. Review by external examiners and external examiners reports
7. Staff Student Consultative Committee meetings
8. Student exit feedback
9. Subject Assessment Board (SAB)
10. Programme Assessment Board (PAB)

27. Programme Map (Course-PO-PSO Map)

Year	Course Title	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
1	Preclinical and Clinical Phase Basics	2	1	1	1		1	3	3	2	1
1	Clinical Photography*		1	1				1	1		
1	Basic and Advanced Life Support*					2					2
1	Personality Development and Soft Skills*						3				3
1	Law for Dental Professionals*					2			2		1
1	Research Methodology					3			2		2
2	Clinical Phase Intermediate	3	3	3	3	3	2	3	3	3	2
2	Short term project/Group project					3			3		
2	Library Dissertation					3			3		
2	Conference Presentation					3			3		
2	Teacher Training Module						3				2
2	Training in any other institution in India or Abroad				3		2		2	2	2
3	Clinical Phase Advanced	3	3	3	3	3	3	3	3	3	3
3	Dissertation					3			3		
3	Journal Publication					3			3		

28. Co-curricular Activities

Students are encouraged to take part in co-curricular activities like seminars, conferences, symposia, paper writing, attending industry exhibitions, project competitions and related activities for enhancing their knowledge and networking.

29. Cultural and Literary Activities

Annual cultural festivals are held to showcase the creative talents in students. They are involved in planning and organizing the activities.

30. Sports and Athletics

Students are encouraged to take part in sports and athletic events regularly. Annual sports meet will be held to demonstrate sportsmanship and competitive spirit.



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Course Specifications

Course Title	Preclinical and Clinical Phase Basics
Course Code	CDC501B
Course Type	Program Specialization Teaching Course
Department	Conservative Dentistry and Endodontics
Faculty	Dental Sciences

1. Course Summary

This course aims to train students to develop skills in Restorative Dentistry and Endodontics in a preclinical setup and to impart theoretical background and scientific basis in a clinical set up. The student will be taught to perform simple to complex restorations on typhodont teeth as well as endodontic therapy on extracted teeth. The student will also be trained to examine the patient to arrive at an appropriate diagnosis and develop a treatment plan for managing dental caries, to identify potential dangers to pulp, rationale for endodontic treatment, plan preventive strategies and perform basic operative, esthetic and endodontic procedures.

2. Course Size and Credits:

Number of Credits	48
Credit Structure (Lecture: Tutorial: Practical)	24:0:24
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Conservative Dentistry and Endodontics
Total Course Marks	400
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this Course, the student will be able to:

- CO-1. Review basic sciences relevant to the oro-facial region and relate the importance of occlusion in restorative dentistry
- CO-2. Analyze biomaterials and adhesive systems used in Restorative Dentistry and Endodontics
- CO-3. Restore the prepared cavity on typhodont and perform various endodontic procedures on extracted teeth
- CO-4. Diagnose caries, differentiate diseases of the pulp and periapical tissues, and choose appropriate treatment strategy
- CO-5. Perform restorative, simple esthetic and endodontic procedures on patients
- CO-6. Select appropriate restorative material according to biological response of pulp and risk assessment of the patient



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10

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4. Course Contents

Theory

Unit 1. Applied Anatomy of Head and Neck – Development of face, paranasal sinuses and the associated structures and their anomalies, cranial and facial bones, TMJ anatomy and function, arterial and venous drainage of head and neck, muscles of face and neck including muscles of mastication and deglutition, brief consideration of structures and function of brain. Brief consideration of all cranial nerves and autonomic nervous system of head and neck. Salivary glands, functional anatomy of mastication, deglutition and speech. Applied histology, histology of skin, oral mucosa, connective tissue, bone cartilage, blood vessels, lymphatics, nerves, muscles, tongue.

Unit 2. Applied Physiology- Mastication, deglutition, 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, 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, vitamin and minerals, metabolism of inorganic elements, detoxification in the body, anti-metabolites, chemistry of blood lymph and urine.

Unit 3. 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. Blood dyscrasias. Developmental disturbances of oral and Para oral structures. Bacterial, viral, mycotic infections of the oral cavity.

Unit 4. Microbiology- 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.

Unit 5. Pharmacology- Dosage and route of administration of drugs, actions, and fate of drug in body, drug addiction, tolerance of hypersensitivity reactions. Local anesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anesthetics, ideal properties, techniques and complications. General anesthesia – premedications, neuro – muscular blocking agents, induction agents, inhalation anesthesia, and agents used for assessment of anesthetic problems in medically compromised patients. Anesthetic emergencies. Antihistamines, corticosteroids, chemotherapeutic and antibiotics, drug resistance, hemostasis, and hemostatic agents, anticoagulants, sympathomimetic drugs, vitamins and minerals, anti-sialagogue. Immuno suppressants. Drug interactions, antiseptics, disinfectants, anti-viral agents, drugs acting on CNS.

Unit 6. Dental Anatomy & Histology Enamel – development and composition, physical characteristics, chemical properties, structure. Age changes – 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, physiology of pulpal pain. Dentin- Pulp Complex Cementum–composition, cementogenesis, structure, function, clinical consideration. Periodontal ligament – development, structure, function, and clinical consideration. Saliva – composition, function, clinical considerations including diagnostics. Detailed anatomy of deciduous and permanent teeth, form, function, alignment, contact, occlusion. Internal anatomy of permanent teeth and its significance. Regressive changes of teeth.

Unit 7. Dental Caries- epidemiology, recent concept of etiological factors, pathophysiology, Histopathology, caries activity tests and caries risk assessment.

Unit 8. Pulp and Periapical Pathology- Odontogenic and non-Odontogenic pain, pulpal reaction to dental caries, trauma, dental procedures and various restorative materials, Diseases of pulp and periapex.

Unit 9. Endodontic Microbiology –Pathways of pulpal and periapical infections, pathogenesis, host defense, bacterial virulence factors, healing, theory of focal infections, Microbes of relevance to dentistry – Streptococci, Staphylococci, Lactobacilli, Corynebacterium, Actinomyces, Clostridium, Neisseria, Vibrio, Bacteroides, Fusobacteria, Spirochetes, Mycobacterium, virus and fungi. Identification and isolation of microorganisms from infected root canals. Culture medium and culturing techniques (Aerobic and anaerobic interpretation and antibiotic sensitivity test).

Unit 10. Applied Dental Materials- Physical and mechanical properties of dental materials, Impression materials, detailed study of various restorative materials, dental cements for restoration, luting and pulp protection (luting, liners, bases) cavity varnishes, Restorative resins and recent advances in composite resins, Bonding agents, , dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments, casting procedures & defects. Dental ceramics. Tarnish and corrosion. Finishing and polishing materials. Methods of testing biocompatibility of dental materials, Hand and rotary instruments (including Dental bur design and mechanics of cutting) for operative dentistry procedures and other modalities of tooth preparation.

Unit 11: Restorative Dentistry - Principles and steps in tooth preparation for silver amalgam, Composite, and GIC restorations and indirect restorations. Examination, diagnosis and treatment planning in restorative dentistry, Occlusion as related to conservative dentistry, contact, contour, its significance Diagnostic aids, prevention of dental caries and management – recent advances, Separation of teeth, matrices used in restorative dentistry, Infection control procedures in dentistry, Isolation equipment's, Gingival Tissue management during operative procedures, Management of non-carious lesion, Adhesion in dentistry-Smear layer, Hybrid layer, Dentin bonding systems, Failures and its management in direct restorations, Biologic response of pulp to various restorative materials and operative procedures.

Unit 12: Endodontics - Access cavity preparation – objectives and principles, working length determination-basic& radiographic technique, Endodontic instruments –hand and rotary, Instrumentation technique for straight canals. Case selection and Endodontic treatment planning, Diagnostic procedure -various aids used for diagnosis in endodontics, Rationale and principles of endodontics, Endodontic radiology, Local anesthesia, Root canal irrigants and intra canal medicaments, Endodontic microbiology, Obturating materials, obturation

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techniques, Tooth discoloration - etiology, conservative management, Hypersensitivity-theories, causes and management

Preclinical Work on Typhodont teeth

1. Class II amalgam cavities – (MO, DO, MOD) - 06
 - a. Conservative preparation-03
 - b. Conventional preparation-03
 - c. Cusp Capping -01
2. Inlay cavity preparation on premolars and molars – MO, DO, MOD- 10
 - a. Wax pattern-06
 - b. Casting-04
3. Onlay preparation on molars -02,
Casting-01
4. Full Crown
 - a. Anterior-05
 - b. Posterior-05

Pre-Clinical work on natural teeth

1. Inlay on molars and premolars (MO, DO, and MOD)- 06
 - a. Wax pattern-02
 - b. Casting-02
2. Amalgam cavity preparation
 - a. Conventional- 02
 - b. Conservative-02
 - c. Cusp Capping -01
3. Pin retained amalgam on molar teeth-02
4. Onlay on molars-03
5. Full crown premolars and molars-04
6. Full crown anterior-06
Fabrication of crowns with characterization – all ceramic, metal ceramic and full metal crowns – 1 each
7. Veneers anterior teeth (indirect method)-02
Fabricate Temporary crowns and veneers
8. Composite Inlay (Class II)-03
Direct Composite: Tooth Preparation and Composite Layering Techniques with characterizations on Anterior and Posterior Teeth – 2 each, Diastema closure: 2. Angle build ups: 2, Composite filling (Class I,II,III,V: 5 each)
9. Full tooth wax carving – all permanent teeth
Fabrication of anterior and posterior wax models by Drop Wax technique – wax in increments to produce tooth morphology – 1 U& L Anterior, 1 U& L Premolar, 1 U& L Molar
- 10 Management of Proximal Caries using Deep Marginal Elevations - 2
11. Digital Impressions and Digital Designing of Inlays, Onlays, Veneers and Crowns - 1 each
12. Fabrication of bite guards and occlusal splints – 1

Endodontics

1. Sectioning of all maxillary and mandibular teeth.
2. Access cavity opening and root canal therapy in relation to maxillary and mandibular Permanent teeth;
 - i. Anterior
 - a. Conventional
 - b. Step back
 - c. Crown down
 - d. Obturation-03
 - ii Premolar-04 (2 upper and 2 lower : 2 rotary instrumentation), thermoplasticised obturation-1 each
 - iii Molar-06 (3 upper – 2 first molars and 1 second molar, 3 lower – 2 first molars and 1 second molar), rotary instrumentation – 3, obturation- 1 each
3. Post and core preparation and fabrication in relation to anterior and posterior teeth
 - a. Anterior - 05 (casting 3)
 - b. Posterior - 05 (casting 2)
4. Post and core preparation and fabrication in relation to anterior and posterior teeth
 - Anterior - 05 (casting 3, Fibre post -2)
 - Posterior - 05 (casting 2, Pre-fabricated Metal Post - 1)
5. Removable dies - 04
6. Pre-clinical Audit Course - Micro Restorative & Micro Endodontics to be completed in First MDS
- 7..Preparation of Minimally Invasive Access Cavity in Posteriors - 3
Documentation of challenging canal anatomies such as MB2, Mid Mesial, additional canals under magnification – 3
Obturation with thermoplasticised – 3
Sectional vertical compaction obturation Anterior teeth - 1
 - Apical Barrier Technique on natural teeth models – 2
 - Instrument retrieval on extracted teeth – 1
 - Perforation repair: coronal, middle third - 1
- 8..Photography: Submission of Photographs as per AACD & ACDI guidelines

Note: Technique work to be completed in the first four months

Clinical Work

1. Radiographic Techniques and CBCT interpretations – 2 each
2. Perform Caries index, Oral Hygiene Index, Fluorosis index and Caries Risk Assessment – 2 each
- 3.Surgery posting training – 4 days
 - i. Infection control practices
 - ii. Different anaesthesia techniques
 - iii. Administration of Intramuscular and Intravenous Medications
 - iv. Suturing Techniques and removal
 - v. Incision & Drainage
 - vi. Observation of Periapical surgery and Cyst Enucleation
 - vii. Practical training and handling medical emergencies
 - viii. Periapical Surgical flap designs and suturing techniques on models
- 4.Prosthodontics training – 5 days



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- ix. Impression techniques
- x. Recording of Centric Relation and Facebow transfer to adjustable articulators
- xi. Occlusal equilibration of casts mounted on articulators
5. Comprehensive management of patients requiring basic restorative and deep caries management including risk assessment: 75 cases
6. Management of patients requiring basic endodontic care - 30 cases

5. Course Map (CO-PO-PSO Map)

	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3			1	3		2	1		
CO-2	3	2		2	2			2	2	
CO-3		2	1		1		1			1
CO-4		3	1	3	2	1	3	3	2	1
CO-5		2	3	3	2	2		2	3	2
CO-6	1	3		2		1	2	3		1

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Course Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Classroom Interaction		240
1. Face to Face Lectures	05	
2. Seminars, Journal clubs, IDM	180	
3. Guest Lecture	03	
4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	24	
5. Case Study Presentation	28	
Demonstrations		1480
1. Demonstration using Videos	06	
2. Demonstration using Physical Models/Systems	10	
3. Demonstration on a Computer	04	
Clinical / Practical Work		
1. Pre-Clinical area	630	
2. Clinical Area	730	
3. Hospital Setup		
4. Field work/dental camp		

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5. Outreach centers	100	
6. Industry/Field Visit		
Term Tests, Laboratory Examination/Written Examination, Presentations	80	
Total Duration in Hours	1800	

7. Course Assessment and Reassessment

The details of the components and subcomponents of Course assessment are presented in the Programme Specifications document pertaining to the MDS in Conservative Dentistry and Endodontics Programme. The procedure to determine the final course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or PEE) or subcomponent of CE (SC1, SC2, SC3 or SC4), COs are assessed as illustrated in the following Table.

Focus of COs on each Component or Subcomponent of Evaluation				
Subcomponent	Component 1: CE			
	Theory		Practical/Clinical	
Subcomponent Type	SC1 - Written assessment	SC2 - Assignment	SC3 - Clinical Assessment and Viva Voce I	SC4 - Clinical Assessment and Viva Voce II
Maximum Marks	100	100	100	100
CO-1	x			x
CO-2	x	X		x
CO-3			X	
CO-4	X	X	X	X
CO-5			x	
CO-6	X		x	X
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.				

The Course Leader assigned to the course, in consultation with the Head of the Department, shall provide the focus of COs in each component of assessment in the above template at the beginning of the year. Course reassessment policies are presented in the Academic Regulations document.

8. Achieving COs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Course
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study

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3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination, Practical/Clinical work
6.	Practical Skills	Assignment, Practical/Clinical work
7.	Group Work	Group Project, IDM
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	Patient interaction, Viva - Voce
11.	Presentation Skills	Seminar, JC, IDM, Conference
12.	Behavioral Skills	Chair side Patient management, Peer Interaction
13.	Information Management	ICT, Case Records, EHR
14.	Personal Management	Record Maintenance
15.	Leadership Skills	Group Projects, Workshops, Seminars etc.

9. Course Resources

a. Essential Reading

1. Chaurasia B. (2004) Human Anatomy. 6th Ed New Delhi, India: CBS Publishers & Distributors.
2. Ganong. W (2005) Review of medical physiology. 24th ed. New York: McGraw-Hill Medical.
3. Guyton A and Hall. J (2000) Textbook of Medical Physiology. 10th ed. Philadelphia: Saunders.
4. Ananthanarayan. R and Paniker. C Textbook of microbiology. 8th ed. Bombay: Orient Longman
5. Kumar. G (2014) Orban's Oral Histology & Embryology. 13th ed. London: Elsevier Health Sciences APAC.
6. Nanci. A and Ten Cate. A (2003) Ten Cate's oral histology. 8th ed. St. Louis: Mosby.
7. Nelson. S, Ash. M. (2010) Wheeler's dental anatomy, physiology, and occlusion. 9th ed St. Louis, Mo.: Saunders/Elsevier.
8. Singh I. (2011) Textbook of Human Histology. 7th ed. New Delhi: Jaypee Brothers Medical Publishers.
9. Kumar V, Cotran. R and Robbins. S (2003) Robbins basic pathology. 8th ed Philadelphia, PA: Saunders.
10. Tripathi. K (2008) Essentials of medical pharmacology. 6th ed. New Delhi: Jaypee Bros.
11. Anusavice. K and Phillips. R (2014) Phillips' science of dental materials. 12th ed. St. Louis, Mo: Saunders.
12. B. O. Krasse. Caries risk, a practical guide for assessment and control. Quintessence Books.
13. Charbeneau. G and Brandau, H. (1988) Principles and practice of operative dentistry. 3rd ed Philadelphia: Lea & Febiger.
14. Marzouk. M, Simonton. A, Gross. R and Cargas. H (1985) Operative dentistry. St. Louis: Ishiyaku Euro America.
15. Roberson. T, Heymann. H, Swift .E and Sturdevant, C (2006) Sturdevant's Art and Science of Operative Dentistry. 5th Ed. St. Louis, Mo.: Mosby.
16. Grossman. L, Oliet. S and Del Rio. C (1988) Endodontic Practice. 12th ed. Philadelphia: Lea & Febiger.
17. Hargreaves K, Cohen. S and Berman. L (2011) Cohen's Pathways of the Pulp. 6th ed. St Louis, Mo.: Mosby Elsevier.

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18. John I. Ingle, Leif K. Bakland, J. Craig Baumgartner (2008) Ingle's Endodontics 6. Hamilton, ON: BC Decker
19. Paul. S (1997) Adhesive luting procedures. Berlin: Quintessence. Roulet. J and Vanherle. G (2005) Adhesive technology for restorative dentistry. London: Quintessence.
20. White. S and Pharoah. M (2009) Oral radiology. St. Louis, Mo.: Mosby/Elsevier.
21. Summitt. J (2006) Fundamentals of operative dentistry. Chicago: Quintessence Pub.

b. Recommended Reading

1. Gray H, Standring. S, Ellis H and Berkovitz. B (2005) Gray's Anatomy. Edinburgh: Elsevier Churchill Livingstone.
2. Sadler. T and Langman. J (2010) Langman's Medical Embryology. Philadelphia: Lippincott William & Wilkins
3. Underwood. J (2000) General and systematic Pathology. Edinburgh: Churchill Livingstone.
4. Vasudevan. D, Sreekumari. S and Vaidyanathan. K (2011) Textbook of biochemistry for medical students. Kochi: Jaypee Brothers Medical Pub.
5. Summitt. J (2006) Fundamentals of Operative Dentistry. Chicago: Quintessence Pub.
6. Fouad. A (2009) Endodontic microbiology. Ames, Iowa: Wiley-Blackwell.
7. Banerjee. and Watson. T (2011) Pickard's Manual of Operative Dentistry. Oxford: OUP Oxford.
8. Weine. F.S (2004) Endodontic Therapy. 6th ed. St. Louis [Mo.]: Mosby.
9. Craig. R, Powers. J and Sakaguchi. R. Craig's restorative dental materials. 11th ed. St. Louis, Mo.: Mosby
10. Brannstrom. M (1982) Dentin and pulp in restorative dentistry. London: Wolfe Medical Publications.
11. Dietschi. D and Spreafico. R (1997) Adhesive metal-free restorations. Chicago: Quintessence Pub.
12. Goldstein. R and Garber. D (1995) Complete dental bleaching. Chicago: Quintessence Pub. Co.
13. Greenwall. L (2003) Bleaching techniques in restorative dentistry. London: Martin Dunitz.
14. Hargreaves. K, Goodis. H and Seltzer. S (2002) Seltzer and Bender's dental pulp. Chicago: Quintessence Pub. Co.
15. Haywood. V (2007) Tooth whitening. Chicago: Quintessence Pub.
16. Lussi. A. Dental Erosion. Unionville: S. Karger AG.
17. Mjor. I. (2002) Pulp-dentin biology in restorative dentistry. Chicago: Quintessence Pub.
18. Murray. J and Bennett. T (1985) Color atlas of acid etch technique. Littleton, Mass.: PSG.
19. Tylman. S and Malone. W (1978) Tylman's Theory and practice of fixed Prosthodontics. St. Louis: Mosby.
20. Walton. R and Torabinejad, M (2009) Endodontics. St. Louis, Mo.: Saunders/Elsevier.

c. Journals

1. Journal of Dental Research
2. Quintessence International
3. International Dental Journal
4. Journal of American Dental Association
5. British Dental Journal
6. Australian Dental Journal
7. Journal of Canadian Dental Association

8. Caries Research
9. Journal of Endodontics
10. International Endodontic Journal
11. Endodontology
12. Dental Update
13. Journal of Conservative Dentistry
14. Operative Dentistry
15. Endodontic Topics
16. Dental Materials

d. Websites

1. Federal Way Endo
2. Packer Endo | Aliso Viejo Endodontics
3. North Texas | Plano Endodontist
4. Irvine Endodontics | Irvine Endodontist
5. Orlando specialists
6. Endoexperience
7. Boston specialists
8. HELINET
9. EBSCO



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Course Title	Clinical Phase Intermediate
Course Code	CDC502B
Course Type	Program Specialization Teaching Course
Department	Conservative Dentistry and Endodontics
Faculty	Dental Sciences

1. Course Summary

The students will be taught to make appropriate clinical decisions to assess treatment needs of the patients and deliver restorative care applying principles of prevention and minimal intervention. This course trains students to justify and inculcate multi-disciplinary treatment approaches in managing various restorative, aesthetic and endodontic challenges. The student will also be taught to incorporate advanced technology and appraise use of molecular biology techniques in diagnosing and treating non-surgical and surgical endodontic cases and manage emergencies competently.

2. Course Size and Credits:

Number of Credits	48
Credit Structure (Lecture: Tutorial: Practical)	24:0:24
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Conservative Dentistry and Endodontics
Total Course Marks	400
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this Course, the student will be able to:

- CO-1. Formulate a multi -disciplinary approach in treating challenging aesthetic cases and traumatic injuries
- CO-2. Justify restorative treatment strategies for compromised teeth
- CO-3. Appraise techniques of prevention and minimal intervention in restorative care
- CO-4. Perform endodontic treatment and retreatment with rotary instruments integrating advanced dental imaging, magnification and Lasers
- CO-5. Review advanced surgical modalities of endodontic treatment
- CO-6. Evaluate the scope and application of molecular biology techniques in endodontics

4. Course Contents

Theory

Unit 1. Restorative Dentistry - Recent concepts in managing dental caries incorporating Minimal Intervention techniques, Complex restorations including pin retained restorations, Principles and techniques of tooth preparation for indirect metal and Esthetic restorations, recent advances in materials and Impression procedures and methods of fabrication. Direct gold restorations—cavity designs & technical considerations. Adhesion in dentistry-challenges & recent advances, Principles of esthetics - color, facial analysis, smile design, multidisciplinary treatment planning including management of discolored teeth.

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Unit 2. Endodontics - Endo-perio interrelationship and management, Management of Endodontic pain, Endo emergencies and Procedural errors, Resorption and its management, Endodontic treatment for primary and young permanent teeth, Recent advances in endodontic diagnosis including Magnification, digital technology, rotary, sonic, ultra-sonic instruments, surgical and microsurgical instruments, intra canal medicaments, irrigation and obturation systems. Management of curved canals. Post Endodontic treatment planning in the management of discolored and grossly mutilated teeth including different Post and Core systems, Principles of Endodontic Surgery including microendodontic procedures, Modalities of treatment of immature apex, Non -surgical re- treatment, Geriatric endodontics. Recent concepts in the management of traumatic injuries

Unit 3. Molecular biology techniques in Endodontic diagnostics – microbial ecology, tools & techniques -nucleic acid based & protein based tests, clinical applications

Unit 4. Lasers in Conservative Dentistry& Endodontics - Fundamentals, types, clinical applications, limitations, future scope

Clinical Work

1. Management of patients requiring restorative care including complex cases- 25 cases
2. Management of patients requiring esthetic rehabilitation - 20 cases
3. Management of patients requiring endodontic care, endodontic emergencies utilizing advanced technology in diagnostics and treatment –80 cases
4. Management of patients requiring full mouth rehabilitation care - 2 cases
5. Clinical Work to be Documented under Magnification for Audit Course (Micro Restorative & Micro Endodontics) -
6. Molar Endodontics under Operating Microscope- 05

5. Course Map (CO-PO-PSO Map)

	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	2	3	3	2		1	2	3	3	2
CO-2	3	3	3	2	2		2	3	3	2
CO-3	3	2	3	2	1		2	2	2	
CO-4	3	3	3	3			2	3	3	2
CO-5	3				2		3			
CO-6	3				2		3			
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Course Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Classroom Interaction		
1. Face to Face Lectures	05	240
2. Seminars, Journal clubs, IDM	180	
3. Guest Lecture	05	

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4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	10	1480
5. Case Study Presentation	40	
Demonstrations		
1. Demonstration using Videos	10	
2. Demonstration using Physical Models/Systems	25	
3. Demonstration on a Computer		
Clinical Work		
1. Pre-Clinical area		
2. Clinical Area	1345	
3. Hospital Setup		
4. Dental camp		
5. Outreach centres	100	
6. Industry/Field Visit	--	
Term Tests, Laboratory Examination/Written Examination, Presentations	80	
Total Duration in Hours	1800	

7. Course Assessment and Reassessment

The details of the components and subcomponents of Course assessment are presented in the Programme Specifications document pertaining to the MDS in Conservative Dentistry and Endodontics Programme. The procedure to determine the final Course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or PEE) or subcomponent of CE (SC1, SC2, SC3 or SC4), COs are assessed as illustrated in the following Table

Focus of COs on each Component or Subcomponent of Evaluation				
Component 1: CE				
Subcomponent ►	Theory		Practical/Clinical	
Subcomponent Type ►	SC1 - Written assessment	SC2 - Assignment	SC3 - Clinical Assessment and Viva Voce I	SC4 - Clinical Assessment and Viva Voce II
Maximum Marks ►	100	100	100	100
CO-1	x		x	x
CO-2			x	x
CO-3	x	x		x
CO-4	x	x	x	x
CO-5	x			x
CO-6		x		x
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.				

The Course Leader assigned to the course, in consultation with the Head of the Department, shall provide the focus of COs in each component of assessment in the above template at the beginning of the semester. Course reassessment policies are presented in the Academic Regulations document.

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8. Achieving COs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Course
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination, Practical/Clinical work
6.	Practical Skills	Assignment, Practical/Clinical work
7.	Group Work	Group Project, IDM
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	Patient interaction, Viva - Voce
11.	Presentation Skills	Seminar, JC, IDM, Conference
12.	Behavioral Skills	Chair side Patient management, Peer Interaction
13.	Information Management	ICT, Case Records, EHR
14.	Personal Management	Record Maintenance
15.	Leadership Skills	Group Projects, Workshops, Seminars etc.

9. Course Resources

a. Essential Reading

- Summitt. J (2006). Fundamentals of operative dentistry. Chicago: Quintessence Pub.
- Marzouk. M, Simonton. A, Gross. R and Cargas. H (1985) Operative dentistry. St. Louis: Ishiyaku EuroAmerica.
- Roberson. T, Heymann. H, Swift. E and Sturdevant, C (2006) Sturdevant's Art and Science of Operative Dentistry. 5th ed. St. Louis, Mo.: Mosby.
- John I. Ingle, Leif K. Bakland, J. Craig Baumgartner (2008) Ingle's Endodontics 6. Hamilton, ON: BC Decker.
- Hargreaves. K, Cohen. S and Berman. L (2011) Cohen's pathways of the Pulp. St. Louis, Mo: Mosby Elsevier
- Shillingburg. H (1997). Fundamentals of fixed Prosthodontics. Chicago: Quintessence Pub. Co.
- Kim. S (2001) Color atlas of microsurgery in endodontics. Philadelphia: W.B. Saunders.
- Wilson. N (2007) Minimally invasive dentistry. London: Quintessence Pub.
- Kelleher. M (2008) Dental bleaching. London: Quintessence.
- Merino. E (2009) Endodontic Microsurgery. London: Quintessence Pub.
- Robert .A. Convisar (2010) Principles and practice of Laser Dentistry. Mosby, Elsevier.
- Ashraf F. Fouad (2009) Endodontic Microbiology. Wiley-Blackwell.
- Joachim. E. Z and Jorg N (2008) Cone beam volumetric imaging in dental, oral and maxillofacial medicine: Quintessence Pub. Co.

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15. Andreasen, J, Andreasen, F, Andersson, L (2007) Textbook and color atlas of traumatic injuries to the teeth. Oxford, UK: Blackwell Munksgaard.

b. Recommended Reading

1. Terry, D, Geller, W (2013). Esthetic & Restorative Dentistry. Chicago: Quintessence Pub. Co.
2. Dietschi, D and Spreafico, R (1997) Adhesive metal-free restorations. Chicago: Quintessence Pub.
3. Rosenstiel, S, Land, M and Fujimoto, J (2006) Contemporary fixed prosthodontics. St. Louis, Mo: Mosby Elsevier.
4. Paul, S (1997) Adhesive luting procedures. Berlin: Quintessence.
5. Albrektsson, T (2001) Tissue preservation in caries treatment. London: Quintessence.
6. Roulet, J and Degrange, M (2000) Adhesion. Chicago: Quintessence.
7. Weine, F. W (1996) Endodontic therapy. St. Louis [Mo.]: Mosby.
8. Gulabivala, K and Ng, Y. Endodontics. Elsevier Publications
9. Pitt Ford, T, Rhodes, J and Pitt Ford, H (2002) Endodontics. London: Martin Dunitz.
10. Walton, R and Torabinejad, M (2009) Endodontics. St. Louis, Mo.: Saunders/Elsevier.
11. Brannstrom, M (1982) Dentin and Pulp in restorative dentistry. London: Wolfe Medical Publications
14. Walton, R and Torabinejad, M (1996) Principles and practice of Endodontics. Philadelphia: W.B. Saunders.
15. Mount, G and Hume, W (1998) Preservation and restoration of tooth structure. London: Mosby.
16. Goldstein, R (1998) Esthetics in Dentistry. Hamilton, Ont.: B.C. Decker.

c. Journals

1. Journal of Dental Research
2. Quintessence International
3. International Dental Journal
4. Journal of American Dental Association
5. British Dental Journal
6. Australian Dental Journal
7. Journal of Canadian Dental Association
8. Caries Research
9. Journal of Endodontics
10. International Endodontic Journal
11. Australian Endodontic Journal
12. Endodontology
13. Dental Update
14. Journal of Conservative Dentistry
15. Operative Dentistry
16. Endodontic Topics
17. Dental Materials
18. Journal of Esthetic & Restorative dentistry

d. Websites

1. Federal Way Endo
2. Packer Endo | Aliso Viejo Endodontics
3. North Texas | Plano Endodontist



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4. Irvine Endodontics | Irvine Endodontist
5. Orlando specialists
6. Endoexperience
7. Boston specialists
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Course Title	Clinical Phase Advanced
Course Code	CDC503B
Course Type	Program Specialization Teaching Course
Department	Conservative Dentistry and Endodontics
Faculty	Dental Sciences

1. Course Summary

This Course aims to impart essential knowledge and clinical skills for proficient management of restorative, endodontic and inter-disciplinary cases at the highest level. The Course also emphasizes on assessment, analysis, disease prevention and multidisciplinary treatment planning. The students will be trained to perform with confidence single visit endodontics, complicated endodontic treatment including management of procedural errors, as well as make clinical decisions and perform various endodontic and surgical procedures independently.

2. Course Size and Credits:

Number of Credits	24
Credit Structure (Lecture: Tutorial: Practical)	12:0:12
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Conservative Dentistry & Endodontics
Total Course Marks	400
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this Course, the student will be able to:

- CO1. Develop treatment strategy specific to needs of the patient at a specialist level
- CO2. Analyze the emerging trends in restorative dentistry and integrate advanced restorative techniques
- CO3. Manage effectively surgical, non-surgical endodontic, and procedural errors
- CO4. Analyze the emerging trends in Endodontics and perform advanced endodontic procedures
- CO5. Execute a protocol for preventing diseases of the teeth and associated periapex
- CO6. Deliver the highest standard of oral health care by working as a team and demonstrate practice management skills

4. Course Contents

Theory

1. Restorative dentistry -Minimal intervention dentistry-current Concepts, Indirect tooth colored restorations- Recent advances in fabrication and materials, Principles of advanced esthetics & Treatment planning in advanced esthetic dentistry, CAD-CAM in restorative dentistry, emerging trends in Restorative/ Esthetic dentistry

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Bangalore - 560 054

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Bangalore - 560 054

2. Endodontics - Endo-osseous endodontic implants - biology of bone, regeneration and wound healing, Multidisciplinary approach to endodontic treatment, Single visit endodontics- current concepts and controversies, Surgical endodontics- micro endodontics, procedural errors and management, Endodontic failure and retreatment, Regeneration in Endodontics –Current Concepts & techniques, emerging trends in Endodontics
3. Practice management

Clinical Work

1. Management of patients requiring preventive and restorative care - 50 cases
2. Management of patients requiring endodontic and surgical care including patients with multidisciplinary treatment needs – 50 cases
3. Management of patients requiring full mouth rehabilitation - 2 cases
4. Clinical Work to be Documented under Magnification for Audit Course (Micro Restorative & Micro Endodontics) -
5. Complex Endodontics under Operating Microscope- 05

5. Course Map (CO-PO-PSO Map)

	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	2	3	3	2				2		
CO-2	1	1	2	3	1				3	
CO-3		2	3	2						3
CO-4		2	3	3	1			1	3	
CO-5		3	2	1				3	3	
CO-6					3	3				3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Course Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Classroom Interaction		150
1. Face to Face Lectures	03	
2. Seminars, Journal clubs, IDM	90	
3. Guest Lecture	03	
4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	29	
5. Case Study Presentation	25	
Demonstrations		
1. Demonstration using Videos		
2. Demonstration using Physical Models/Systems		
3. Demonstration on a Computer		
Clinical Work		
1. Pre-Clinical area		
2. Clinical Area	1390	
3. Hospital Setup		
4. Dental camp		
5. Outreach centres	100	


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27


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6. Industry/Field Visit	1490
Term Tests, Laboratory Examination/Written Examination, Presentations	160
Total Duration in Hours	1800

7. Course Assessment and Reassessment

The details of the components and subcomponents of Course assessment are presented in the Programme Specifications document pertaining to the MDS in Conservative Dentistry and Endodontics Programme. The procedure to determine the final Course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or PEE) or subcomponent of CE (SC1, SC2, SC3 or SC4), COs are assessed as illustrated in the following Table.

Focus of COs on each Component or Subcomponent of Evaluation				
Subcomponent ►	Component 1: CE			
	Theory		Practical/Clinical	
Subcomponent Type ►	SC1 - Written assessment	SC2 - Assignment	SC3 - Clinical Assessment and Viva Voce I	SC4 - Clinical Assessment and Viva Voce II
Maximum Marks ►	100	100	100	100
CO-1	X		X	X
CO-2	X	X		X
CO-3			X	
CO-4	X	X		X
CO-5	X		X	
CO-6				X
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.				

The Course Leader assigned to the Course, in consultation with the Head of the Department, shall provide the focus of COs in each component of assessment in the above template at the beginning of the semester. Course reassessment policies are presented in the Academic Regulations document.

8. Achieving COs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Course
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination,

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Bangalore - 560 054

		Practical/Clinical work
6.	Practical Skills	Assignment, Practical/Clinical work
7.	Group Work	Group Project, IDM
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	Patient interaction, Viva - Voce
11.	Presentation Skills	Seminar, JC, IDM, Conference
12.	Behavioral Skills	Chair side Patient management, Peer Interaction
13.	Information Management	ICT, Case Records, EHR
14.	Personal Management	Record Maintenance
15.	Leadership Skills	Group Projects, Workshops, Seminars etc.

9. Course Resources

a. Essential Reading

1. Mount G.Jand Ngo H (2000). Minimal intervention: A new concept for operative dentistry. Quintessence international (Berlin, Germany)
2. Huang. G and Thesleff. I (2013) Stem cells in craniofacial development and regeneration. Hoboken, N.J.: Wiley-Blackwell.
3. Gutmann J.L, Dumsha .T.C, Lovdahl P& HovlandE.J (2006) Problem solving in Endodontics 4th editionSt. Louis: Mosby-Elsevier.
4. Mao, J., Kim, S., Zhou, J., Ye, L., Cho, S., Suzuki, T., Fu, S., Yang, R. and Zhou, X. (2012). Regenerative Endodontics. Dental Clinics of North America.
5. Mjor, I. (2002). Pulp-dentin biology in restorative dentistry. Chicago: Quintessence
6. Mormann, W. (2006). State of the art of CAD/CAM restorations. London: Quintessence.
7. Summit, J. (2006). Fundamentals of operative dentistry. Chicago: Quintessence Pub.
8. Gutmann, J. and Harrison, J. (1991). Surgical endodontics.
9. Merino, E. (2009). Endodontic microsurgery. London: Quintessence.
10. Summit, J. (2006). Fundamentals of operative dentistry. Chicago: Quintessence Pub.
11. Betty Ladley Finkbeiner, Charles Allan Finkbeiner (2006). Practice management for the dental team. Canada. Mosby Elsevier.

b. Recommended Reading

1. Albers. H (2002) Tooth-colored restoratives. Hamilton, Ont.: BC Decker.
2. Goldstein. R (1998) Esthetics in dentistry. Hamilton, Ont.: B.C. Decker.
3. Jordan R (1993) Esthetic composite bonding. St. Louis: Mosby-Yearbook.
4. Bellizzi. R and Loushine. R (1991) A clinical atlas of endodontic surgery. Chicago [u.a.]: Quintessence.

c. Journals

1. Journal of Dental Research
2. Quintessence International
3. International Dental Journal
4. Journal of American Dental Association
5. British Dental Journal
6. Australian dental journal
7. Journal of Canadian Dental Association
8. Journal of Endodontics



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Bangalore - 560 054

9. International Endodontic Journal
10. Australian Endodontic Journal
11. Journal of Conservative Dentistry
12. Operative Dentistry
13. Dental Traumatology
14. Endodontology
15. Caries Research
16. Journal of Esthetic and Restorative Dentistry
17. Endodontic Topics
18. Dental Materials
19. Dental Clinics of North America

d. Websites

1. Federal Way Endo
2. Packer Endo | Aliso Viejo Endodontics
3. North Texas | Plano Endodontist
4. Irvine Endodontics | Irvine Endodontist
5. Orlando specialists
6. Endoexperience
7. Boston specialists
8. Tri county specialists
9. West end specialists
10. HELINET
11. EBSCO



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Module Specifications

Module Title	Clinical Photography
Module Code	MF501A
Module Type	Faculty Common Module
Department	Orthodontics and Dentofacial Orthopedics
Faculty	Dental Sciences

1. Module Summary

The aim of this module is to promote the use of digital photography in dental practices, and to give the necessary information and techniques to achieve good quality and consistent results. This module will cover all aspects of the use of digital photography in dental practice and will be taken through photography from the basics to choosing correct equipment, setting up equipment to optimum settings, techniques for consistent imaging and the safe storage of images.

The student will be able to gain skills and experience of Clinical Photography through introduction to the range of services provided in the specialism and the interaction with patients and patient-centred practice. On completion of this module the student will be able to perform some routine standardized representational photography of patients.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Orthodontics and Dentofacial Orthopedics
Total Module Marks	20
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Describe the basic parts and functions of the camera, Principles behind the working of a camera, types of camera and components of a SLR camera.

MO-2. Demonstrate how to use a DSLR.

MO-3. Perform the skills of taking both intraoral and extraoral photographs of the module.

4. Module Contents

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Theory

1. Introduction: why take photography in dentistry, why go Digital
2. Basic terms: Resolution, focal depth, shutter speed, macro function/ lens
3. Camera basics: Types of cameras, parts of camera, working mechanism, suggested cameras for dental photography, standardization of photography, components of a SLR camera
4. Photographic set up: background, lighting, flash, room specifications
5. Clinical requirements for photographic records: Digital camera setup/ring flash/macro lens, special cheek retractors, dental mirrors
6. Clinical photography: extraoral and intraoral photography, helpful hints
7. Post processing your digital images: Downloading to the computer, editing of photographs, saving the images

Practical Work

1. Demonstration of the parts of the camera
2. Choosing the settings for photography
3. Extraoral and intraoral profiling of the patient

5.Module Map (MO-PO-PSO Map)

MOs	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3			3			3	3		
MO-3			3		3	3		3		3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6.Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in Hours
Face to Face Lectures	6
Demonstration using Physical Models/Systems	7
Assessment and practical project	2
Total Duration in Hours	15

7.Module Assessment and Reassessment

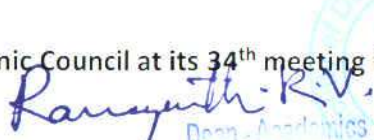
The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme


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32


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Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation			
	Component 1: CE		
Subcomponent ►	Theory		
Subcomponent Type ►	SC1 - Assessment	SC2 - Assignment	
Maximum Marks ►	10	10	
MO-1	x	x	
MO-2	x	x	
MO-2	x	x	

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8.Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9.Module Resources

a. Essential Reading

1. Graber, Vanarsdall. Orthodontics Current Principles Techniques; 4th Ed
2. Matrishva B. Vyas. Clinical photography in dentistry. Jaypee publication.
3. Wolfgang Bengal. Mastering Digital Dental Photography. Quintessence 2006.
4. Shadi S. Samawi. A Short Guide to Clinics! Digital Photography in Orthodontics
5. Eduardo C. Digital Dental Photography: A Clinician's Guide. Wiley-Blackwell. 2010.
6. Ahmad, Irfan . Digital and Conventional Dental Photography - A Practical Clinical Manual.


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Quintessence Publishing Company.

7. Gábor Matyási. Interactive Dental Photography. Truewhy saloon.

8. Warren Rosenberg. How to Master Digital Dental Photography

9. Eliakim Mizrahi, Taylor & Francis Group. Orthodontic pearls: A selection of practical tips and clinical expertise. 2004

Module Title	Basic and Advanced Life Support
Module Code	MF502A
Module Type	Faculty Common Module
Department	Oral and Maxillofacial Surgery
Faculty	Dental Sciences

1. Module Summary

The Basic Life Support Program aims to educate health care work force to provide emergency life support, cardiopulmonary resuscitation and the use of automatic external defibrillator in adults, children and infants as applicable. The student also learns the basics of airway management, relief of choking, use of adjuvant for rescue breathing for adult, child and infants.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Oral and Maxillofacial Surgery
Total Module Marks	20
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Describe and demonstrate effective cardio pulmonary resuscitation with automatic External Defibrillator use for adults and children with 1 rescuer and 2 rescuers.

MO-2. Describe and demonstrate effective cardio pulmonary resuscitation for infants with 1 rescuer and 2 rescuers.

MO-3. Differentiate between adult, child and infant rescue techniques.

MO-4. Demonstrate rescue breathing for adult, child and infant

MO-5. Demonstrate bag mask technique for adult, child and infant

MO-6. Demonstrate relief of choking for adult, child and infant

4. Module Contents

Unit 1: Cardio pulmonary resuscitation with automatic External Defibrillator use for adults with 1 and 2 rescuer Signs and symptoms, Steps of CPR and demonstration, Steps of AED use and demonstration

Unit 2: Cardio pulmonary resuscitation with automatic External Defibrillator use for children with 1 and 2 rescuers Signs and symptoms, Steps of CPR with 1 rescuer, Steps of CPR with 2 rescuers, Steps

of CPR and AED demonstration with 2 rescuers

Unit 3: Differences between adult, child and infant techniques, Rescue breathing for adults, Rescue breathing for infants and children Signs and symptoms, causes, methods, Bag mask technique for Adults, children and infants Rationale and method of use Demonstration, Relief of choking for adults, children and infants Signs and symptoms, causes Demonstration and Methods of rescue.

5. Module Map (MO-PO-PSO Map)

MOs	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3			3			3	3		
MO-3			3		3	3		3		3
MO-4	3	3			3		2	2		
MO-5					3			2		
MO-6					3				2	
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in Hours
Face to face lectures	4
Advanced Learning Centre	24
Term Tests, Laboratory Examination/Written Examination, Presentations	2
Total Duration in Hours incl assessment	30

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation			
Subcomponent	Component 1: CE		
	Theory		
Subcomponent Type	SC1 - Assessment	SC2 - Assignment	
Maximum Marks	10	10	
MO-1	x	x	
MO-2	x	x	
MO-3	x	x	
MO-4	x	x	
MO-5	x	x	
MO-6	x	x	

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Bangalore - 560 054

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

1. Emergency Response Manual


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Module Title	Personality Development and Soft Skills
Module Code	MF503A
Module Type	Faculty Common Module
Department	Directorate of Transferable Skills and Leadership Development
Faculty	Dental Sciences

1. Module Summary

This module aims to help the student understand the nuances of interpersonal skills and orients them to handle work situations in a professional manner.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Directorate of Transferable Skills and Leadership Development
Total Module Marks	20
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Explain the concept of interpersonal effectiveness

MO-2. Identify the nuances of working in teams, conflict handling, and time management

MO-3. Apply the principles of interpersonal communication towards professional betterment

MO-4. Apply time management tools for optimal usage of time

4. Module Contents

Unit 1: Communication Skills for Interpersonal Effectiveness: Explanation of interpersonal effectiveness and its importance, working in teams, Understanding self – Johari Window, Conflict handling at workplace

Unit 2: Time Management: The concept of time management and self-management, time management matrix, time management tools

5. Module Map (MO-PO-PSO Map)

MOs	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3						3	3		
MO-3			3		3	3		3		3

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Ramya R.V.
37
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Bangalore - 560 054

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MO-4	3	3			3		2	2		
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in Hours
Face to Face Lectures	10
Group discussions	4
Assessment	1
Total Duration in hours including assessment	15

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation		
	Component 1: CE	
Subcomponent ►	Theory	
Subcomponent Type ►	SC1 - Assessment	SC2 - Assignment
Maximum Marks ►	10	10
MO-1	x	x
MO-2	x	x
MO-3	x	x
MO-4	x	x

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study



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9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Modules notes and ppt



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Module Title	Law for Dental Professionals
Module Code	MF501A
Module Type	Faculty Common Module
Department	School of Law
Faculty	Dental Sciences

1. Module Summary

This Course creates awareness regarding ethical and professional behaviour in both clinical and societal setups while keeping in mind the legal aspects of their behaviour. The students are taught to identify various situations that may present an ethical dilemma in everyday clinical life and act in a professional manner. The students are also trained to understand the legal system in India and its functioning especially in relation to medicolegal situations.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	3:0:1
Total Hours of Interaction	15
Number of Weeks in a term	20
Department Responsible	School of Law
Total Course Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this course, the student will be able to:

MO-1. Describe the structure and functioning of legal system of India

MO-2. Differentiate between various laws relevant to dentistry

MO-3. Identify clinical situations that pose ethical dilemma to be resolved with sound ethical principles

MO-4. Apply principles of professionalism in the practice of dentistry

MO-5. Communicate effectively with patients, colleagues and public to instill a positive dental attitude

MO-6. Prepare plan of action in case of litigation against the doctor

4. Module Contents

1	Introduction to Constitution of India		
2	Laws relevant to dentistry	i.	Civil, criminal laws and code of Procedure
		ii.	Laws relevant to consent
		iii.	Laws relevant to care
		iv.	Laws relevant to confidentiality
		v.	Consumer protection act
3	Ethics and code of conduct in dentistry	i	In clinical scenario
		ii	In research
4	Professionalism in dentistry	i	Concept and principles of professionalism
5	Communicating effectively		

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1						1				1
MO-2						1				1
MO-3					2	3				3
MO-4						3				3
MO-5				2	2	3				3
MO-6					2	2				2

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in hours	Total Duration in Hours
Face to Face Lectures		10
Demonstrations		00
1. Demonstration using Videos	00	
2. Demonstration using Physical Models /Patients	00	
Practical Work		00
Pre-Clinical laboratories	00	
Clinical Area – FDS	00	
Workplace based assessment methods	00	
Hospital Setup – MSRH	00	
Field work/dental camp	00	
Outreach centres	00	
Advanced Learning Centre	00	
Projects	00	
Innovative methods – DOPS, mini CEX, OSCE/OSPE	00	
Others		4
1. Case Study Presentation	04	
2. Guest Lecture	00	
3. Industry / Field Visit	00	
4. Brain Storming Sessions	00	
5. Group Discussions	05	
6. Discussing Possible Innovations	00	
Term Tests, Laboratory Examination/Written Examination, Presentations		1
Total Duration in Hours		15

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.


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Focus of MOs on each Component or Subcomponent of Evaluation			
	Component 1: CE		
Subcomponent ►	Theory		
Subcomponent Type ►	SC1 - Assessment	SC2 – Assignment	
Maximum Marks ►	10	10	
MO-1	x	X	
MO-2	x	X	
MO-3	x	X	
MO-4	x	X	
MO-5	x	X	
MO-6	x	X	

The Module Leader assigned to the course, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the course
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

a. Essential Reading

1. Module notes
2. Paul G. Medical Law for the Dental Surgeons. 1st Ed., Jaypee Publishers.



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Module Title	Teacher Training Module
Module Code	MF505A
Module Type	Elective Module
Faculty	Dental Sciences

1. Module Summary

The aim of this module is to equip students with necessary skills and competencies to deliver pedagogy by making him/her experience teaching. The student is trained to develop notes, plan lesson, use teaching learning methods and media effectively. The student is also trained to develop teaching or training content and session notes on an allotted topic and deliver the same to a group of students. They have to reflect on the student feedback and discuss the corrective measures with the supervisors.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Health Profession Education Unit
Total Module Marks	20
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

- MO-1.** Develop teaching notes on the allotted topic
- MO-2.** Deliver lecture to a group of students
- MO-3.** Submit questions for assessment relevant to the allotted topic
- MO-4.** Analyze student feedback to initiate corrective actions.

4. Module Contents

Unit 1: Educational objectives - Cognitive, Psychomotor, Affective

Unit 2: Writing learning outcomes

Unit 3: Teaching learning methods - Large group, small group, individual and domain based, teacher centered and student centered methods

Unit 4: Media - Power point presentations, use of chalk and board, handouts etc.

Unit 5: Tips for effective presentation

Unit 6: Assessment methodology - Different assessment methods, aligning with learning outcomes



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5. Module Map (MO-PO-PSO Map)

MOs	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3			3			3	3		
MO-3			3		3	3		3		3
MO-4		3		3			2		3	
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Theory		20
1. Lectures	10	
2. Symposium/panel discussion		
3. Small Group discussion	5	
4. Team teaching	5	
5. Role Play/Case based discussion		
Self-directed learning		10
1. Assignment		
2. Conferences/ seminars/CDE's	-	
3. Workshops	-	
4. Information Centre	5	
5. Observership		
Term Tests, Laboratory Examination/Written Examination, Presentations	5	
Total Duration in Hours incl. assessment	30	

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation		
Subcomponent	Component 1: CE	
	Theory	
Subcomponent Type	SC1 - Assessment	SC2 - Presentation
Maximum Marks	10	10
MO-1	X	x
MO-2	X	x
MO-3	X	x
MO-4	X	x


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The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year.

Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

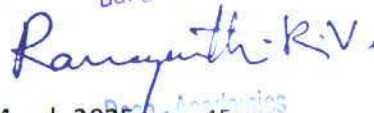
S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

1. Srinvasa D.K., Ananthakrishnan N, Sethuraman K.R, Santosh Kumar. (eds.) *Medical Education: Principles & Practice, (Revised Edition)* 1995.
2. Ananthakrishnan N, Sethuraman K.R, Santosh Kumar. (eds.) *Medical Education: Principles & Practice , Volume II –Trainers' Manual*, National Teacher Training Centre, Jawaharlal Institute of Medical Education and Research, (JIPMER), Pondicherry
3. Singh T., Gupta P., Singh D.(eds.) *Principles of Medical Education*, Fourth edition IAP National Publication House, Gwalior, JAYPEE Brothers, 2013



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Module Title	Research Methodology
Module Code	MR501A
Module Type	Research Module
Department	Public Health Dentistry
Faculty	Dental Sciences

1. Module Summary

This module deals with the principles of research, research methodology and significant phases of research including sampling methodologies and its importance and development and validation of study tools. The students will be taught the significant role of Literature Review in a research cycle and the expectations from good literature review as well as procedure for systematic literature review. The essential aspects of technical communication to develop desirable writing skills for the preparation of research document including research paper as well as the skills for an effective presentation will also be discussed. The module also emphasizes the desirable close knit relation between innovation and concept of out of the box thinking. Students will get an insight into the privilege, honor and the associated responsibilities of a researcher.

2. Module Size and Credits:

Number of Credits	2
Credit Structure (Lecture: Tutorial: Practical)	15:0:30
Total Hours of Interaction	45
Number of Weeks in a Term	1
Department Responsible	Public Health Dentistry
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

- MO-1. Describe the value, scope, relevance and mandatory steps of research as well as principles of effective research
- MO-2. Apply the procedures outlined for systematic literature review
- MO-3. Develop and present well-structured research proposal and research paper invoking clearly outlined principles
- MO-4. Identify and apply the essential skills desirable for an effective technical presentation

4. Module Contents

Unit 1 : Foundations of Research – Definitions of Research, Mandatory Steps in Research, Types of Research, Relevance of Research for Innovation and Technology Development, Effective Research and Self Discipline.

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46

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Unit 2 : Out Of the Box Thinking and Systematic approach in Research – Transformation to Impossible Thinking, Convergent and Divergent Thinking, Generation, Evaluation and Selection of Ideas.

Unit 3: Literature Review – Importance of Literature Review, Constituents of Good Literature Review, Strategies for Literature Search, Referencing, Paraphrasing, and Summarizing Academic Standards and Ethics Statistical Methods and Data Analysis

Unit 4: Research Proposal – Structure of a Good Research Proposal, Getting Started, Tips for Compilation of Good Research Proposal. Technical Communication - Research Paper for Publication- Significance of Problem Statement and its scope, Formulation of Hypothesis, Adequacy of Methodology, Significance of Presentation and Discussion of Results, Relevance and Importance of references.

Unit 5 : Effective Presentation – Preparation, Templates, Balance between Good Design and Good Content, Planning and Sequencing, PAMPERS (Projection, Articulation, Modulation, Punctuation, Enunciation, Repetition and Speed) rule, PEOPLE (Position & Gestures, Eye Contact, Orientation, Proximation, Looks & Appearance, and Expressions & Emotion) rule, 4P's Rule (Plan, Prepare, Practice and Present), Essentials of Effectiveness, Effective Pausing and Inclusive Answering.

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3			3			3	3		
MO-3			3		3	3		3		3
MO-4	3	3			3		2	2		
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in Hours
Face to Face Lecture	15
Interaction/tutorial	26
Written Examination, Assignment, Presentations	4
Total Duration in Hours	45

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7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation		
	Component 1: CE	
Subcomponent ►	Theory	
Subcomponent Type ►	SC1 - Written assessment	SC2 - Assignment
Maximum Marks ►	50	50
MO-1	x	x
MO-2	x	x
MO-3	x	x
MO-4	x	x
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.		

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--


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9. Module Resources

Essential Reading

1. Class notes
2. Booth WC, Colomb and GG Williams. (2005) The craft of Research, Chicago University.
3. William MK and Trochim. (2003) Research methods, 2nd edition, Biztantra Publications
4. Jonathan Grix. (2004) The foundation of Research, Palgrave Study Guides
5. Park's text book of Preventive and Social Medicine by K.Park. 2013, Banarasidas
6. Bhanot Publishers 22nd Edition ISBN-10: 9382219021, ISBN-13: 978-9382219026.
7. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health by David L.
8. Katz, Joann G.Elmore, Dorothea M.G.Wild, Sean C.Lucan. 2014, Saunders Elsevier publication 4th Edition ISBN-13: 978-1455706587, ISBN-10: 1455706582.
9. Health research methodology: a guide for training in research methods (western pacific education in action series no.5) by WHO, 2001, World Health Organization 2nd edition ISBN-10: 929061157X , ISBN-13: 978-9290611578.
10. Research Methodology: Methods & Techniques Kothari C.R., Gaurav Garg 2013, New Age International Publishers, 3rd edition ISBN-13: 978-8122436235.
11. Introduction to Biostatistics by Mahajan B.K. 2010 7th Edition JPB Publishers ISBN-10: 8184487134, ISBN-13: 978-818448713.
12. Oral health Surveys basic methods by WHO, 2013, 5th edition World Health Organisation ISBN: 978 92 4 154864 9.

Recommended Reading

1. Wisker Gina. (2001) The post graduate research handbook, Palgrave
2. Rogg G and Petre M (2004) The unwritten rules of PhD research, open university



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Module Title	Short Term Project/ Group Project
Module Code	MR502A
Module Type	Research Module
Department	Respective Department
Faculty	Dental Sciences

1. Module Summary

The aim of the module is that the student group should be able to design a research project either individually or as a group in their areas of specialization with in short period. The students are required to develop a report for assessment. The student is expected to finalize the report in form of a manuscript and submit to the constituted committee. Students can choose a project from the priority areas of research of the Faculty.

2. Module Size and Credits:

Number of Credits	6
Credit Structure (Lecture: Tutorial: Practical)	15:0:30
Total Hours of Interaction	150
Number of Weeks in a Term	1
Department Responsible	Respective Department
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

- MO-1. Work in a team and undertake a project in their area of specialization
- MO-2. Apply the design methods and techniques for executing the project
- MO-3. Apply appropriate methodology while formulating a project

4. Module Contents

Need for undertaking a project, design specifications, design, analysis, design evaluation and presentation

Project Management

Costing, Finance Management, Procurement, Project Development, Testing, Project

Evaluation, Exhibition, Presentation

Team building, Team work, Leadership skills

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3						3	3		
MO-3			3		3	3		3		3

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

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6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Face to Face Lectures	-	60
Others		
1. Guest Lecture	-	
2. Industry/Field Visit		
3. Brain Storming Sessions	10	
4. Group Discussions	40	
5. Discussing Possible Innovations	10	
Report writing, Presentations		90
Total Duration in Hours		150

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

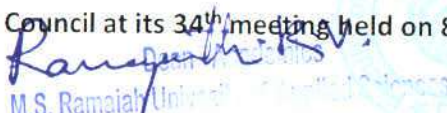
Focus of MOs on each Component or Subcomponent of Evaluation				
		Component 1: CE		
Subcomponent ►	Theory			
Subcomponent Type ►	SC1 - Presentation	SC2 - Report		
Maximum Marks ►	50	50		
MO-1	x	x		
MO-2	x	x		
MO-3	x	x		
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.				

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.


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8.Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9.Module Resources

Essential Reading

Class notes

Relevant books, articles and electronic resources




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Module Title	Library Dissertation
Module Code	MR503A
Module Type	Research Module
Department	Respective Department
Faculty	Dental Sciences

1. Module Summary

This module deals with survey, review and critical appraisal of literature. The students will be able to use various search engines to identify and select literature with good scientific value. This module emphasizes the student to apply good practices and guidelines of a systematic and structured literature review to collect, comprehend, sort and document the available information in open literature. In the context of reviewed contemporary research work, student acquires wider breadth of knowledge and will be able to formulate research question to be addressed in the main dissertation. The module insists on the preparation and submission of manuscript for publication

2. Module Size and Credits:

Number of Credits	4
Credit Structure (Lecture: Tutorial: Practical)	15:0:30
Total Hours of Interaction	120
Number of Weeks in a Term	26
Department Responsible	Respective Department
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

- MO-1. Differentiate types of scientific literature, search strategies and research designs
- MO-2. Select topic relevant to the field of study
- MO-3. Select literature utilising different search engines
- MO-4. Review the selected literature and compile it
- MO-5. Formulate a research question based on the outcome of literature review
- MO-6. Prepare scientific manuscript for publication

4. Module Contents

Core specialty content

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3						3	3		
MO-3			3		3	3		3		3
MO-4	3	3			3		2	2		
MO-5		2			3			2		2
MO-6			2						2	

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

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6. Module Teaching and Learning Methods

Teaching and Learning Methods	Duration in Hours
Interaction/tutorial/self-directed learning	114
Term Tests, Laboratory Examination/Written Examination, Presentations	6
Total Duration in Hours	120

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation			
	Component 1: CE		
Subcomponent ►	Theory		
Subcomponent Type ►	SC1 - Presentation	SC2 - Report	
Maximum Marks ►	50	50	
MO-1	x	x	
MO-2	x	x	
MO-3	x	x	
MO-4	x	x	
MO-5	x	x	
MO-6	x	x	

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment


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7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Relevant books, articles and electronic resources



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Module Title	Dissertation
Module Code	MR504A
Module Type	Research Module
Department	Respective Department
Faculty	Dental Sciences

1. Module Summary

This module is intended to give an insight to the students on application of principles of research methodology, preparation of research project proposal, research project management, execution of research project and effective technical communication and presentation. It also emphasizes the need and the relevance of a structured approach to identify a research topic and undertake research. This module provides an opportunity for students to apply theories and techniques learnt during programme work. It involves in-depth work in the chosen area of study.

2. Module Size and Credits:

Number of Credits	18
Credit Structure (Lecture: Tutorial: Practical)	15:0:30
Total Hours of Interaction	360
Number of Weeks in a Term	52
Department Responsible	Respective Department
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

- MO-1.** Critically review scholarly literature collected from various sources for the dissertation purpose and formulate a research problem
- MO-2.** Prepare and present a research proposal
- MO-3.** Conduct research to achieve research objectives
- MO-4.** Propose new ideas/methodologies or procedures for further improvement of the research undertaken
- MO-5.** Create research document and write research papers for publications
- MO-6.** Defend the research findings in front of scholarly audience

4. Module Contents

- 1. Research Methodology
- 2. Information search, retrieval and review
- 3. Project definition and project planning
- 4. Use of conceptual models and frameworks
- 5. Problem solving and Evaluation

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56

6. Interpretations and drawing conclusions
7. Proposing ideas or methods for further work
8. Thesis writing
9. Oral presentation
10. Authoring Research paper

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3						3	3		
MO-3			3		3	3		3		3
MO-4	3	3			3		2	2		3
MO-5		3				3		3		
MO-6			3						3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Information search, retrieval and review, Project definition and project planning	Reading Journal papers , books and other relevant materials and problem formulation	80
Use of conceptual models and Frameworks	Individual work with supervisors guidance	40
Problem solving and Evaluation	Individual work with supervisors guidance	60
Interpretations and drawing Conclusions	Individual work with supervisors guidance	40
Proposing ideas or methods for further work	Individual work with supervisors guidance	20
Presentation, Thesis/Report Writing and Viva Voce, Authoring Research paper	Presentation and Viva voce	110
	Thesis/Report writing, Authoring research paper	
Tests/Examinations/presentations		10
Total Duration in Hours		360

7. Module Assessment and Reassessment

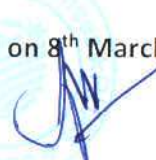
The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme


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Programme Structure and Course Details of MDS in Conservative Dentistry and Endodontics 2025

Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation			
	Component 1: CE		
Subcomponent ►	Theory		
Subcomponent Type ►	SC1 - Presentation	SC2 - Report	
Maximum Marks ►	50	50	
MO-1	x	x	
MO-2	x	x	
MO-3	x	x	
MO-4	x	x	
MO-5	x	x	
MO-6	x	x	
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.			

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Relevant books, articles and electronic resources

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Module Title	Conference Presentation
Module Code	MR505A
Module Type	Research Module
Department	Respective Department
Faculty	Dental Sciences

1. Module Summary

The aim of this module is to make a student submit and present a research paper in a conference based on his/her research work during his/her programme. The student is required to carry out original research, author a conference paper and present it. The student is also required to submit the paper to a conference approved by the department and make a presentation to the examiners in the faculty.

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Respective Department
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Choose a contemporary topic in his/her area of study for research

MO-2. Write a conference paper based on research and present in the conference

4. Module Contents

1. Selection of topic for research
2. Critical review on the chosen topic
3. Collection of relevant data
4. Presentation and Analysis of data
5. Interpretation of data

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		
MO-2	3						3	3		

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution


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6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Conference Publication	Research work	10
	Authoring and Presentation of paper	5
	Presentation preparations	10
Evaluation of Report and Presentations		5
Total Duration in Hours		30

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation			
		Component 1: CE	
Subcomponent ►	Theory		
Subcomponent Type ►	SC1 - Presentation	SC2 - Report	
Maximum Marks ►	50	50	
MO-1	x	x	
MO-2	x	x	
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.			

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

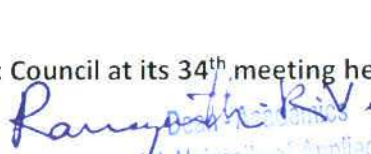
The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment


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Programme Structure and Course Details of MDS in Conservative Dentistry and Endodontics 2025

4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Relevant books, articles and electronic resources



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Module Title	Journal Publication
Module Code	MR506A
Module Type	Research Module
Department	Respective Department
Faculty	Dental Sciences

1. Module Summary

The aim of this module is to make a student submit a research paper to a journal based on his/her research work during the programme. The student is required to carry out original research, author a journal paper for publication. The student is also required to submit the research paper to a peer reviewed, indexed journal approved by the department and make a presentation to the examiners in the faculty

2. Module Size and Credits:

Number of Credits	1
Credit Structure (Lecture: Tutorial: Practical)	0:0:30
Total Hours of Interaction	30
Number of Weeks in a Term	26
Department Responsible	Respective Department
Total Module Marks	100
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Choose a contemporary topic in his/her area of study for research

MO-2. Write a research paper based on research and publish in a journal

4. Module Contents

1. Selection of topic for research
2. Critical review on the chosen topic
3. Collection of relevant data
4. Presentation and Analysis of data
5. Interpretation of data

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3	---				2	2		
MO-2	3						3	3		

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution



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6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Journal Publication	Research work	10
	Authoring and Presentation of paper	10
	Presentation preparations	5
Evaluation of Report and Presentations		5
Total Duration in Hours		30

7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation		
	Component 1: CE	
Subcomponent ►	Theory	
Subcomponent Type ►	SC1 - Presentation	SC2 - Report
Maximum Marks ►	50	50
MO-1	x	x
MO-2	x	x
The details of SC1, SC2, SC3 or SC4 are presented in the Programme Specifications Document.		

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment


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Programme Structure and Course Details of MDS in Conservative Dentistry and Endodontics 2025

5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Relevant books, articles and electronic resources,




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Module Title	Training in any other institution in India or Abroad
Module Code	MG501A
Module Type	Elective Module
Faculty	Dental Sciences

1. Module Summary

The aim of this module is to make a student undergo training in an area of his/her interest to develop proficiency within the faculties available in any other institution in India or abroad. The student will choose a topic for training and undergo training in a professional setup. The student should develop a report and make a presentation on his/her training undergone.

2. Module Size and Credits:

Number of Credits	3
Credit Structure (Lecture: Tutorial: Practical)	0:0:90
Total Hours of Interaction	90
Number of Weeks in a Term	26
Department Responsible	Respective Department
Total Module Marks	20
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Module Outcomes (MOs)

After the successful completion of this Module, the student will be able to:

MO-1. Apply tools and techniques proficiently in the area of the training undergone for efficient execution of the stated objective

MO-2. Make presentation on training obtained

4. Module Contents

Related to training programme

5. Module Map (MO-PO-PSO Map)

MO's	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
MO-1	3	3					2	2		

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Module Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Training	Training	80
	Report writing	
	Presentation preparation	
Evaluation of Report and Presentations		10
Total Duration in Hours		90


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7. Module Assessment and Reassessment

The details of the components and subcomponents of Module assessment are presented in the Programme Specifications document pertaining to the MDS (respective specialty) Programme. The procedure to determine the final Module marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the MOs. In CE component or subcomponent of CE (SC1, SC2), MOs are assessed as illustrated in the following Table.

Focus of MOs on each Component or Subcomponent of Evaluation		
	Component 1: CE	
Subcomponent ►	Theory	
Subcomponent Type ►	SC1 - Assessment	SC2 - Assignment
Maximum Marks ►	10	10
MO-1	X	x

The Module Leader assigned to the Module, in consultation with the Head of the Department, shall provide the focus of MOs in each component of assessment in the above template at the beginning of the year. Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the Module
1.	Knowledge	Classroom lectures
2.	Understanding	Classroom lectures, Self-study
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination
6.	Practical Skills	Assignment
7.	Group Work	--
8.	Self-Learning	Self-study
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--
13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Relevant books, articles and electronic resources


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Course Specifications: Micro-Restorative and Micro-Endodontics

Course Title	Micro-Restorative and Micro-Endodontics
Course Code	CDA501A
Course Type	Audit Course
Department	Conservative Dentistry and Endodontics
Faculty	Dental Sciences

I. Course Summary

1. Aim and Summary

Microscope-assisted restorative dentistry and Endodontics are a science with a well-established theoretical and scientific foundation with widespread clinical applications in restoration, rehabilitation, regeneration, and maintenance of the dental hard tissues, dental pulp, and periradicular tissues to their optimal function. This unique curriculum aims at enabling students to execute restorative and endodontic treatment with the help of a microscope in the most ergonomic manner. With improved visibility, dentistry becomes more precise, and certain tasks that are difficult to do without the help of a microscope become simple to complete. This broadens their area of practice by enabling more accurate diagnostic and treatment alternatives. It also encourages students to achieve precision in their work, resulting in a skillful and proficient dental professional.

2. Course Size and Credits:

Number of Credits	00
Credit Structure (Lecture: Tutorial: Practical)	1:0:2
Total Hours of Interaction	45
Number of Weeks in a term	20
Department Responsible	Conservative Dentistry and Endodontics
Total Course Marks	50
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO-1. Orient and understand the principles of magnification.

CO-2. Evaluate the need for magnification in Endodontics and develop skills necessary for performing the same.

CO-3. Perform basic and complex restorative and endodontic procedures exclusively under dental operating microscopes


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4. Course Contents

Theory and Clinical:

Unit 1: Orientation to Microscopes, Principles of magnification and parts of dental operating microscope, Ergonomics – Microscope, operator, and patient positioning, IPD determination, Microscope focusing, Par-focal adjustment, Hand-mirror-scope co-ordination exercises, Operatory set-up for magnification, Micro-photography and documentation, Rubber Dam Isolation in complex cases, Simple restorations in anterior and posterior teeth including deep margin elevation

Unit 2: Armamentarium in micro-endodontics, Vital pulp therapy – current concepts, Complex restorations including inlays, onlays, crown preparations, Access cavity preparation under magnification for all teeth, Access refinement using Ultrasonics, Ultrasonic tips usage, function, and principles, Micro-access, tracing of aberrant anatomies – MB2, Mid-mesial, Hand and rotary instrumentation under magnification, Advanced systems of root canal disinfection, Contemporary Obturation techniques and systems, Prevention of procedural errors.

Unit 3: Re-treatment principles and concepts, Instrument selection for calcified canals, Identification of missed canals, Perforation repair and management, Management of separated instruments, Instrument retrieval principles and techniques, Role of magnification in management of ledges and canal obstructions, Regenerative Endodontics

Preclinical Exercises on natural teeth/ typhodont under magnification:

1. Hand-eye coordination exercises
2. Cavity preparation for direct restoration in posteriors - 2
3. Preparation for indirect restorations – 2
4. Preparation of minimally invasive access cavity in posteriors -2
5. Instrument retrieval -1

Clinical Exercises performed under magnification:

1. Direct restorations -03
2. Indirect restorations -01
3. Variations in canal anatomy -02
4. Procedural Errors – 02
5. Retreatment Cases - 02
6. Vital Pulp therapy - 01

5. Course Map (CO-PO-PSO Map)

	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3			3			3			
CO-2			3	3	2			2		
CO-3			3	3		2			3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

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6. Course Teaching and Learning Methods

Teaching and Learning Methods	Duration in hours	Total Duration in Hours
Face to Face Lectures		06
Demonstrations		02
1. Demonstration using Videos	00	
2. Demonstration using Physical Models /Patients	02	
Practical Work		31
Pre-Clinical laboratories	06	
Clinical Area	25	
Workplace based assessment methods	00	
Hospital Setup – MSRH	00	
Field work/dental camp	00	
Outreach centres	00	
Advanced Learning Centre	00	
Projects	00	
Innovative methods – DOPS, mini CEX, OSCE/OSPE	00	
Others		05
1. Case Study Presentation	03	
2. Guest Lecture	00	
3. Industry / Field Visit	00	
4. Brain Storming Sessions	00	
5. Group Discussions	02	
6. Discussing Possible Innovations	00	
Term Tests, Laboratory Examination/Written Examination, Presentations		1
Total Duration in Hours		45

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment is presented in the Programme Specifications document pertaining to the Master of Dental Surgery Programme. The procedure to determine the final course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or Presentation) or subcomponent of CE, COs are assessed as illustrated in the following table.

Focus of COs on each Component or Subcomponent of Evaluation	
	Component 1: CE (100% Weightage)
Subcomponent ►	SC1: CE
Maximum Marks ►	50
CO-1	X
CO-2	X

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CO-3	X
The details are presented in the Programme Specifications Document.	

The Course Leader assigned to the course, in consultation with the Head of the Department, shall provide the focus of COs in each component of assessment in the above template at the beginning of the semester.

Course reassessment policies are presented in the Academic Regulations document.

8. Achieving COs

The following skills are directly or indirectly imparted to the students in the following teaching and learning methods:

S. No	Curriculum and Capabilities Skills	How imparted during the course
1.	Knowledge	Lectures, Case Based Discussion, Small Group discussion, Information Centre
2.	Understanding	Lectures, Case Based Discussion, Small Group discussion, Information Centre, Assignment
3.	Critical Skills	Case Based Discussion, Assignment
4.	Analytical Skills	Class room lectures
5.	Problem Solving Skills	Case Based Discussion, Small Group discussion, Assignment
6.	Practical Skills	Clinical posting
7.	Group Work	Case Based Discussion, Small Group discussion
8.	Self-Learning	Assignment, Clinical posting, Information Centre
9.	Written Communication Skills	Assignment
10.	Verbal Communication Skills	Clinical posting
11.	Presentation Skills	Case Presentation
12.	Behavioral Skills	Clinical posting
13.	Information Management	Assignment, Information Centre
14.	Personal Management	Clinical posting
15.	Leadership Skills	Case Based Discussion, Small Group discussion

9. Course Resources

a. Essential Reading

1. Kim, S., Kratchman, S., Karabucak, B., Kohli, M. and Setzer, Feds, 2017. Microsurgery in Endodontics. John Wiley & Sons.
2. Merino, E.M. and Machtou, P., 2009. Endodontic microsurgery. London: Quintessence.
3. Castellucci, Arnaldo. 2004. Magnification in Endodontics: The Use of the Operating Microscope. Oral Health, 94(3), pp.37-50.
4. Ingle, J.I. and Bakland, L.K., 1998. Endodontics. Baltimore: A Lea & Febiger Book.

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b. Recommended Reading

1. Grossman. L, Oliet. S and Del Rio. C, 1988. Endodontic Practice. Philadelphia: Lea & Febiger.
2. Hargreaves K, Cohen. S and Berman. L, 2011. Cohen's pathways of the pulp. 6th ed. St. Louis, Mo.: Mosby Elsevier.
3. John I. Ingle, Leif K. Bakland, J. Craig Baumgartner, 2008 Ingle's Endodontics 6. Hamilton, BC Decker.
4. Weine. F.S., 2004. Endodontic therapy. 6th ed. St. Louis: Mosby.
5. Mjör, I.A., 2002. Pulp-dentin biology in restorative dentistry. Chicago: Quintessence Pub



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**Annexure I – MDS in Conservative Dentistry and Endodontics
Curriculum Framework and Assessment**

S. No.	Course Code	Course Title	Credits	Assessment Marks
I	Programme Specialization Teaching Course			
1	CDC501B	Preclinical and Clinical Phase Basics	48	400
2	CDC502B	Clinical Phase Intermediate	48	400
3	CDC503B	Clinical Phase Advanced	24	400
II	Research Modules			
1	MR501A	Research Methodology	2	40
2	MR502A	Short term project/Group project	6	100
3	MR503A	Library Dissertation	4	60
4	MR504A	Dissertation	10	200
5	MR505A	Conference Presentation	1	20
6	MR506A	Journal Publication	1	20
III	Faculty-Common Modules			
1	MF501A	Clinical Photography	1	20
2	MF502A	Basic and Advanced Life Support	1	20
3	MF503A	Personality Development and Soft Skills	1	20
4	MF504A	Law for Dental Professionals	1	20
IV	Elective Modules			
1	MG501A	Training in any other institution in India or Abroad	3	60
2	MF505A	Teacher Training Module	1	20
VI	Audit Course			
1	CDA501A	Microrestorative and Microendodontics	-	-
V	Programme End Examination			
1	a. Part I Programme End Examination b. Part II Programme End Examination		20	700
	Total		180	2500

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