



**Programme Structure and Course Details
of
Master of Dental Surgery
in
Prosthodontics and Crown & Bridge
Batch 2025 onwards**

**Faculty of Dental Sciences
Department of Prosthodontics and Crown &
Bridge**

pm
Dean, Faculty of Dental Sciences
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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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

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Programme Specifications: MDS in Prosthodontics and Crown & Bridge

Faculty	Dental Sciences
Department	Prosthodontics and Crown & Bridge
Programme Code	073
Programme Name	MDS in Prosthodontics and Crown & Bridge
Dean of the Faculty	Dr. Silju Mathew
Head of the Department	Dr. Sivaranjani Gali

1. **Title of the Award:** MDS in Prosthodontics and Crown & Bridge
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**

The world population is rapidly ageing. Between 2000 and 2050, the proportion of the world's population over 60 years will double from about 11% to 22%. The absolute number of people aged 60 years and over is expected to increase from 605 million to 2 billion over the same period. Globally, edentulism compromises quality of life by reducing masticatory efficiency and thereby the nutrient value of food consumed. Treatment methodologies to treat edentulism have evolved over the years with near predictable results.

In India, the problem of edentulism is widely prevalent upto about fifty percent of our population being partially dentate and about 15%, being completely edentulous. In proportion to our population, this translates into mind boggling numbers and we still don't have the required number of professionals to treat and restore these patients. In addition, the lack of awareness of the consequences of edentulism, the financial inability of a large percentage of the population to avail of state of art services, raises the need of the professional to be innovative and deliver prosthodontic therapy in a manner that mitigates the patients' health

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worries.

On the other hand, Bangalore, being a cosmopolitan city also provides plenty of scope to treat patients with the highest levels of care possible. This increases the bar for research required in material science as well as bring about paradigm shifts in treatment methodologies.

A student of MDS Prosthodontics will be exposed to a wide variety of cases due to advanced training centers, location and attachment to the 1400 bed hospitals and the good standing of the institution. As prosthodontic treatment forms a major portion of private practice, effective training in Prosthodontics is essential.

The University, by providing excellent educational technologies, research facilities and an atmosphere conducive for assimilation of knowledge, wants to make available the best possible education in Prosthodontics, including crown and bridge.

15. Programme Mission

Master's degree programme in prosthodontics is aimed to design efficient training and competence to diagnose and manage clinical situations of partial and complete edentulism and rehabilitation of associated missing structure by use of removable and/or fixed prosthesis including implantology. The Programme will impart knowledge and aid to attain procedural and operative skills in removable and fixed prosthodontics, maxillofacial Prosthodontics including implantology. Postgraduates are expected to acquire advanced knowledge in all facets of Prosthodontics with high order skills in analysis, critical evaluation, professional clinical application, and the ability to solve complex problems and think rigorously and independently. The postgraduates are expected to meet the human resources requirements in the area of Prosthodontics. They may take the path of oral health research for future and a few of them may also prefer to be into academics or take up to exclusive clinical 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 analyse 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

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- 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 Prosthodontics and Crown & Bridge graduates will be able to:

- PO1.** Enhance understanding of etiology, clinical manifestations and differential diagnosis of common oral diseases affecting teeth and surrounding structures that could result in edentulism
- PO2.** Impart knowledge and ability to diagnose and plan treatment for patients with both partial and complete edentulism
- PO3.** Critically analyze various treatment options and deliver it efficiently based on evidence based dentistry
- PO4.** Impart training on techniques for various procedures for oral rehabilitation with the most appropriate prosthodontic modality
- PO5.** Meet the human resource requirement of society and translate empathy for the geriatric population into definitive solutions for them
- PO6.** Provide opportunities for a career in clinical Prosthodontics, academics and research

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 Prosthodontics incl Crown and Bridge

19. Program Educational Objectives (PEOs)

The objectives of the MDS in Prosthodontics and Crown & Bridge Programme are to:

- PEO-1.** Provide students with a strong foundation in basic and applied medical and dental sciences to address oral health issues to enable them to devise and deliver efficient solutions to challenging problems pertaining to edentulism and maxillofacial rehabilitation
- PEO-2.** Impart analytic and cognitive skills required to develop innovative solutions for R&D, Industry, and societal requirements as related to Prosthodontics and Crown & Bridge

PEO-3. Provide sound theoretical and practical knowledge of oral health sciences, managerial and entrepreneurial skills to enable students to contribute to the well-being and welfare of the society

PEO-4. Inculcate strong human values and social, interpersonal and leadership skills required for professional success in evolving global professional environments

20. Programme Specific Outcomes (PSOs)

At the end of the MDS in Prosthodontics and Crown & Bridge programme, the graduate will be able to:

- PSO-1. Diagnose various causes for tooth loss leading to edentulism, suggest appropriate treatment options, by selecting ideal materials /techniques for treatment, so as to improve the quality of life in geriatric population and those with early tooth loss
- PSO-2. Critically analyse all the clinical situations, compare the various treatment options including use of newer technologies in materials and techniques and, incorporating ICT for good clinical practice
- PSO-3. Perform various clinical procedures and involving multidisciplinary approach whenever required for holistic management of the patient and pursue research based on the patients' needs
- PSO-4. Take responsibilities in managing difficult situations using multidisciplinary hospital set up for effective oral rehabilitation of the patient and, initiate scientific research presentation pertaining to patient wellbeing.

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	PRC501A	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	PRA501A	Fundamentals of Digital Dentistry	1	-	1	0	-
9		Part I - Programme End Examination	-	-	-	-	100

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Total	6	1	34	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	PRC502A	Clinical Phase Intermediate	5	0	27	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			7	3	31	73	660
Total number of contact hours per week			36				

Year 3							
Sl. No.	Code	Course Title	Theory (H/W/Y)	Tutorials (H/W/Y)	Practical (H/W/Y)	Total Credits	Max. Marks
1	PRC503A	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 timetable 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

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- h. Hospital based learning
- i. Laboratory work
- j. Dissertation/ Group Project work
- k. School visits/Outreach center visits
- l. Interdepartmental meets
- m. Continuing dental education programs/symposiums/workshops
- n. 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

i. 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 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

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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, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition and Biochemistry, Pathology and Microbiology, virology, Applied pharmacology, Research Methodology and bio statistics,. Applied Dental anatomy and histology, Oral pathology & oral Microbiology, Adult and geriatric psychology. Applied dental materials

Part-II

Paper-I: Removable Prosthodontics and Implant supported prosthesis (Implantology), Geriatric dentistry and Cranio facial Prosthodontics

Paper-II: Fixed Prosthodontics, occlusion, TMJ and esthetics

Paper-III: Descriptive and analysing type questions

Clinical Component

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

- Presentation of treated patients and records during their 3 years – 35 marks
- Case discussion and management of a complete denture patient for balanced occlusion including face bow transfer and tracing– 75 marks
- Case discussion and performing of 3 unit fixed partial denture including abutment preparation, isolation and fluid control, gingival retraction and impressions, and cementation of provisional restoration – 35 marks
- Surveying and RPD designing for a given case – 25 marks
- Implant supported prosthesis (2 nd stage protocol) – 30 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

- Course Notes
- Reference Books in the Library
- Magazines and Journals
- Internet Facility

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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 PEE 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	3	3	3	3	3	3	3	3	3	3
1	Clinical Photography*					2					2
1	Basic and Advanced Life Support*						3				3
1	Personality Development and Soft Skills*					2			2		1
1	Law for Dental Professionals*					3			2		2
1	Research Methodology					2					2
2	Clinical Phase Intermediate	3	3	3	3	3	3	3	3	3	3
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		
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											

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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	PRC501A
Course Type	Program Specialization Teaching Course
Department	Prosthodontics including Crown and Bridge
Faculty	Dental Sciences

1. Course Summary

This Course aims to enable the student to apply basic sciences to prevent and treat Edentulism and demonstrate conventional laboratory skills while exploring new ideas for fabrication of dental prostheses in a preclinical setup. This Course enables the student to discuss, plan and treat partial and complete edentulous patients with removable prostheses while emphasizing on patient education. The students design and fabricate dental prostheses using different materials. They also explore innovative technique/procedure /material for the fabrication of dental prosthesis. The students apply principles of balanced occlusion in complete dentures using facebow and semi adjustable articulators.

The students elicit a comprehensive case history considering age changes, occlusal concepts, esthetics and preservation of oral tissues to treat edentulism. The students deliver complete dentures and interim removable partials and counsel the patient for effective utilization of the prostheses. They also explore innovative technique/procedure /material for the fabrication of dental prosthesis. The students also design different methods of patient education using ICT.

2. Course Size and Credits:

Number of Credits	48
Credit Structure (Lecture: Tutorial: Practical)	6:0:18
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Prosthodontics including Crown and Bridge
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. Apply basic medical sciences and aspects of material science relevant to Prosthodontics
- CO-2. Demonstrate laboratory procedures and fabricate dental prosthesis using conventional and advanced dental materials
- CO-3. Plan treatment modalities for complete and partial edentulism considering esthetics and occlusal concepts
- CO-4. Perform clinical steps in fabrication of removable dentures using conventional and unconventional techniques
- CO-5. Design removable and fixed partial dentures on models for different clinical situations
- CO-6. Explore a new technique/procedure /material for the fabrication of removable dental prosthesis

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4. Course Contents

Theory

Unit 1: Applied Anatomy - Gross anatomy of Head & Neck ,cranial and facial bones, TMJ its movements , myofacial pain dysfunction syndrome and function, muscles of mastication and facial expression, muscles of neck and back including muscles of deglutition and tongue, arterial supply and venous drainage of the head and neck, anatomy of the Para nasal sinuses. Salivary glands, Pharynx, Larynx Trachea, Esophagus, Functional Anatomy mastication, deglutition, speech, respiration, and circulation, teeth eruption, morphology, occlusion and function .

Unit 2: Applied Physiology and Nutrition – Introduction to mastication, deglutition, digestion and assimilation, speech mechanism, homeostasis, fluid and electrolyte balance, blood composition, function, haemorrhage, pulse, blood pressure, shock, respiration, anoxia, hypoxia, asphyxia and artificial respiration. Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Vitamins. Physiology of saliva, physiology of pain, neuromuscular co-ordination of the stomatognathic system.

Unit 3: Applied Pharmacology and Therapeutics- Dosage and mode of administration of drugs and their hypersensitive reactions. Local anesthetics, chemotherapeutics and antibiotics analgesics and antipyretics sialogogues and antisialogogues. Chemotherapy and Radiotherapy.

Unit 4: Applied Pathology – Inflammation and repair, infection, allergy and hypersensitive reaction and neoplasm. Developmental disturbances of oral and Para oral structures, regressive changes of teeth , bacterial, viral and mycotic infections of oral cavity, dental caries, diseases of pulp and periapical tissues, physical and chemical injuries of the oral cavity, oral manifestations of metabolic and endocrine disturbances, periodontal diseases, diseases of the skin, nerves and muscles in relation to the oral cavity.

Unit 5: Applied Microbiology- Immunity, knowledge of organisms commonly associated with diseases of the oral cavity of streptococci, staphylococci, pneumococci, gonococci and meningococci, Clostridia group of organisms, Spirochetes, organisms of tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis etc. and virology.

Unit 6: Applied Radiology - Know the normal anatomical landmarks of teeth and jaws in radiographs, temporomandibular joint radiographs and neck radiograms.

Unit 7. Applied Medicine - Systemic diseases and its influence on general health and oral health. Medical emergencies in the dental offices - Prevention, preparation, medico legal consideration, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, and resuscitation.

Unit 8. Applied Surgery & Anesthesia-General principles of surgery, wound healing, incision wound care, hospital care, control of hemorrhage, sutures , splints, grafts, etc, and surgical and anesthesia techniques.


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Unit 9. Applied Dental Materials -All materials used for treatment of intra oral and extraoral craniofacial disorders - laboratory materials, technical consideration, shelf life, storage, manipulations, sterilization, and waste management. Acquire knowledge of testing biological, mechanical and other physical property of all material used for the clinical and laboratory procedures in prosthodontic therapy and practice equipment's, instruments, materials, and laboratory procedures at a higher competence with accepted methods.

Unit 10: Infection control: Cross infection control, sterilization and hospital waste management.

Unit 11: Applied Radiology - Know the normal anatomical landmarks of teeth and jaws in radiographs, temporomandibular joint radiographs and neck radiographs.

Unit 12. Complete Denture - Denture base materials, prosthetic denture teeth, denture lining materials and tissue conditioners, cast metal alloys as denture, bases - base metal alloys. Articulators Impression materials and techniques, Selecting and arranging artificial teeth laboratory procedure - wax contouring, flasking and processing, laboratory remount procedures and selective, finishing and polishing.

Unit 13: Applied Clinical Prosthodontics- Complete Denture Prosthesis – Definitions, terminology, G.P.T. *Scope of Prosthodontics*. The Cranio Mandibular system and its functions, biomechanics of the edentulous state. Effects of aging of edentulous patients, nutrition care for the denture wearing patient and preparing patient for complete dentures. Diagnosis and treatment planning for edentulous and partially edentulous patients, developing an analogue / substitute for the maxillary and mandibular denture bearing area, preliminary and final impressions, mandibular movements, maxillo mandibular relation and concepts of occlusion. Recording of Mandibular movements, maxillo mandibular relations, selecting and arranging artificial teeth and occlusion for the edentulous patient. Try in, speech considerations with complete dentures, speech analysis and prosthetic considerations. Laboratory procedures, denture fit and insertion and after care.

Unit 14. Cast Partial Denture- Scope, definition and terminology, classification of partially edentulous arches, Kennedy's classification, and Applegate's rules for applying the Kennedy classification. Components of RPD Surveying - Description of dental surveyor, purposes of surveyor, procedure of survey. Laboratory Procedures for cast partial denture.

Unit 15: Applied Clinical Prosthodontics- Removable Partial Prosthodontics - Diagnosis and treatment planning for partially edentulous patients. Objectives of prosthodontic treatment, records, systemic evaluation, oral examination, preparation of diagnostic cast, interpretation of examination data and radiographic interpretation. Impression Materials and procedures for Removable Partial Dentures: rigid materials, thermoplastic materials, elastic materials, special impression techniques for partially edentulous arch. Methods for obtaining functional support for the distal extension base. Repairs and additions to removable partial dentures and management of failed prosthesis.

Unit 16. Fixed Prosthodontics- Biomechanical principle of tooth preparations - individual tooth preparations - Complete metal Crowns - P.F.M., all porcelain, porcelain jacket crowns partial 3/4 crowns.  Registrar
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half and half, laminates, inlays. Resin Bond retainer, gingival marginal preparations, design, material selection, and biological and mechanical considerations.

Unit 17: Basic Health Informatics- Applications of computer and Microsoft office in clinics, use of newer technologies for diagnosis, treatment planning and fabrication of prosthesis and delivering dental health education for different age groups.

Unit 18. Recent Advancements in Prosthodontic Materials: Advances in material sciences, techniques and fabrication.

Preclinical Work

1. Manipulation of gypsum product to prepare geometric shapes
2. All the laboratory steps in fabrication of class 1 conventional with characterization and any 3 unconventional dentures
3. Teeth arrangement for fabrication of class 2 and 3 occlusions
4. Fabrication of maxillofacial prosthesis involving eye, ear, finger, nasal and cranial structures
5. Laboratory steps in fabrication of cast partial denture for Kennedy's class 1 and Surveying & designing, wax pattern only for class 2, 3, 4
6. Tooth preparation and laboratory steps in fabrication of fixed partial dentures on typodont models
7. Preclinical work on study jaws or Advanced Learning Centre on surgical procedures involved with the placement of oral implants

Clinical Work

Comprehensive management of both partial and complete edentulism using removable appliances – 15 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				1	1	2		
CO-2		1		2		1	2	1		
CO-3			3	3	2	1		2	3	1
CO-4	1		3	3	2	1		2	3	1
CO-5	1		3	3	2	1		2	3	1
CO-6	1				2	2		3		
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
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	04	
2. Demonstration using Physical Models/Systems	04	
3. Demonstration on a Computer	02	
Clinical / Practical Work		
1. Pre-Clinical area	650	
2. Clinical Area	600	
3. Hospital Setup	--	
4. Field work/dental camp	100	
5. Outreach centres	100	
6. Industry/Field Visit	20	
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 Prosthodontics and Crown & Bridge 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.

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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
CO-5	x	x	x	x
CO-6	x	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, Seminars, Journal clubs, Experiential Learning
2.	Understanding	Classroom lectures, Self-study, Seminars, Journal clubs, Experiential Learning
3.	Critical Skills	Assignment, Class room lectures, Seminars, Journal clubs, Experiential Learning
4.	Analytical Skills	Assignment Class room lectures, Seminars, Journal clubs, Experiential Learning
5.	Problem Solving Skills	Assignment, Examination, Clinical posting, Experiential Learning
6.	Practical Skills	Assignment, Pre-clinical and Clinical posting
7.	Group Work	Assignment, Clinical posting, Experiential Learning
8.	Self-Learning	Self-study, Assignment, Clinical posting, Tutorials, Experiential Learning
9.	Written communication Skills	Assignment, Examination
10.	Verbal communication Skills	Clinical posting, Experiential Learning
11.	Presentation Skills	Clinical posting, Seminars, Journal clubs and IDM
12.	Behavioral Skills	Clinical posting, Experiential Learning

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13.	Information Management	Assignment, Tutorial, Seminars, Journal clubs
14.	Personal Management	Clinical posting, Experiential Learning
15.	Leadership Skills	Group discussion, Experiential Learning

9. Course Resources

a. Essential Reading

1. Henry Gray (2009) Gray's Anatomy for Students Elsevier publishers, 40th edition.
2. B.D.Chaurasia (2008) Human Anatomy, Head, Neck and Brain. CBS publishers, 4th edition.
3. T.W.Sadler (2006) Langman's Medical Embryology, Lippincott William & Wilkins, 12th edition.
4. Stanley J. Nelson (2009) Wheeler's Dental Anatomy, Physiology and Occlusion, Elsevier Health Sciences, 9th edition.
5. IB Singh (2006) Textbook of Human Histology, Jaypee Brothers Publishers, 6th Edition.
6. Kenneth J anusavice (2012) Phillips science of dental materials, Sunders publications, 12th edition.
7. Robert G. Craig, John M. Powers (2001) Restorative dental materials, Mosby publishers, 11th edition.
8. McCabe J F (2008) Applied dental materials, Wiley Blackwell publishers, 9th edition.
9. Zarb- Bolender (2014) Boucher's prosthodontics treatment for edentulous patients, Elsevier, New Delhi, 13th edition.
10. Charles M Heartwell, Jr, Arthur O. Rahn (1993) Textbook of complete dentures, Lea & Febiger, London, 5th edition.
11. Sheldon Winkler (1996) Essentials of complete denture prosthodontics, A.I.T.B.S, New Delhi, 2nd edition.
11. Morrow. Rudd. Rhoads (1980) Dental laboratory procedures, Complete Dentures, Mosby, 1st edition.
12. Alan. B. & David Brown (2010) McCracken's Removable Partial Prosthodontics, Mobsy, 12th edition.
13. Rodney, David, Charles (2008) Kenneth L. Stewart Clinical removable Partial prosthodontics. Quintessence 4th edition
14. Morrow. Rudd. Rhoads (1986) Dental laboratory procedures, Removable Partial Dentures. Mosby 2nd edition.

b. Recommended Reading

1. Sampson, Montgomery, Henryson (1991) Atlas of the Human Skull, Texas A&M University press
2. Netter. Lewis (2014) Atlas of Anatomy, McGraw-Hill Companies, 6th edition.
3. Cochard (2013) Netter's Atlas of Human Embryology, Saunders, 1st edition updated
4. Chris. H. Miller, Charles John Palenik (2013), Infection control and management of hazardous materials for the dental team. Elseviers 5th edition.
5. Mahalaxmi (2013) Basics of dental materials, Lippincott William.
6. H.R.B. Fenn. & Liddelw (2004) Clinical dental Prosthetics, CBS, Delhi, 2nd edition

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7. Grant Alan A (1992) Removable denture Prosthodontics.Churchill Livingstone 2nd Edition.
8. James. S. Brudvik (1999) Advanced removable Partial dentures, 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 Prosthodontics
9. Journal of Prosthetic Dentistry
10. New England journal of medicine
11. Cell Research
12. Journal of Oral Rehabilitation
13. Oxford journals
14. British Dental Journal
15. Quintessence
16. International Journal of Oral Science
17. Dental Materials
18. Gerontology

d. Websites

1. <http://www.oxfordjournals.org/genomics>
2. <http://www.ncbi.nlm.nih.gov/pubmed>
3. <http://mediconet.blogspot.in/2009/07/download-free-medical-books-media-and.html>
4. http://www.zapmeta.co.in/ws?q=3d%20atlas%20of%20human%20anatomy&asid=z_m_in_010_019&id=50650,38980/00,491&mt=b&nw=g&de=c&ap=1s3&&anr=1
5. https://embryology.med.unsw.edu.au/embryology/index.php/Main_Page
6. http://www.indiana.edu/~anat550/embryo_main/
7. <http://www.visembryo.com/>
8. <http://www.eu.elsevierhealth.com/histology-and-cell-biology/spe-40040/>
9. <http://www.ebsco.com/>
10. <http://journals.bmj.com/>
11. <http://www.mdconsult.com/php/472045076-2/home.html>
12. <http://www.oxfordjournals.org/en/>
13. <http://procedures.lww.com/lnp/turnaway.do>

e. Other Electronic Resources

1. HELINET
2. EBSCO

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Course Title	Clinical Phase Intermediate
Course Code	PRC502A
Course Type	Program Specialization Teaching Course
Department	Prosthodontics and Crown & Bridge
Faculty	Dental Sciences

1. Course Summary

This course equips the student to rehabilitate patients needing unconventional dentures, intraoral maxillofacial prostheses and cast partial dentures including laboratory steps. It also enables the student to analyze organic occlusion and apply it for treatment of TMD, smile design, simple and complex single/multiple unit fixed prosthodontics including single implants in cadavers. The student will propose alternative means of rehabilitating patients with fixed prosthesis.

They will also explore the application of different testing modalities to study stress profiles in removable partial dentures. The students will perform fixed prosthodontic treatment including management of grossly destructed/ periodontally compromised teeth and aesthetically compromised dentition. The students will diagnose and formulate multidisciplinary treatment for TMD.

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	Prosthodontics and Crown & Bridge
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. Discuss differential diagnosis and treatment planning for partially edentulous conditions
- CO-2. Plan a multidisciplinary approach to receive removable prosthesis
- CO-3. Demonstrate the clinical and laboratory steps for fabrication of cast partial and unconventional dentures and restore intraoral maxillofacial defects with appropriate prosthesis
- CO-4. Perform clinical and laboratory steps for fixed prosthodontics including surgical placement of single implant in cadavers/models
- CO-5. Diagnose temporomandibular joint disorders for multidisciplinary management
- CO-6. Explore alternative methods of rehabilitating patients with esthetic and functional needs

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4. Course Contents

Theory

Unit 1: Interpreting diagnostic findings and treatment planning. Pre prosthetic surgery , improving the patients denture bearing areas and relations, non-surgical methods - rest for the denture supporting tissues, correction of the old prosthesis, good nutrition, conditioning of the patients musculature and surgical methods - correction of conditions that preclude optimal prosthetic function , hyperplastic ridge, epulis fissuratum and papillomatosis, frenular attachments and pendulous maxillary tuberosity's and ridge augmentation.

Unit 2: Unconventional dentures:

Immediate Denture - Advantages, disadvantages , indications, contra indication, diagnosis treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals / adjunctive care, oral prophylaxis and other treatment needs. First extraction / surgical visit, preliminary impressions and diagnostic casts, management of loose teeth, custom trays, final impressions and final casts two tray or sectional custom impression tray, location of posterior limit and jaw relation records, setting the denture teeth / verifying jaw relations and the patient try in, laboratory phase, setting of anterior teeth, wax contouring, flasking and boil out, processing and finishing, surgical templates, surgery and immediate denture insertion, post-operative care and patient instructions, subsequent service for the patient on the immediate denture, over denture tooth attachments, implants or implant attachments.

Over dentures (tooth supported complete dentures) - indications and treatment planning, advantages and disadvantages, selection of abutment teeth, loss of abutment teeth, tooth supported complete dentures. Non-coping abutments, abutment with copings, abutments with attachments, submerged vital roots, preparations of the retained teeth.

Single Dentures: Single Mandibular denture to oppose natural maxillary teeth, single complete maxillary denture to oppose natural Mandibular teeth to oppose a partially edentulous mandibular arch with fixed prosthesis, partially edentulous mandibular arch with removable partial dentures. Opposing existing complete dentures, preservation of the residual alveolar ridge, necessity for retaining maxillary teeth and mental trauma. Balancing of denture- classification of face-bow, uses and limitations of face-bow, face- bow. Determining the horizontal jaw relation - functional ,graphics, tactile or interocclusal check record method, orientation / sagittal relation records, arbitrary / hinge axis and face bow record, significance and requirement, principles and biological considerations and securing on articulators transfer, zeroing of semi adjustable articulator, extra oral tracings, making of centric and protrusive records, and programming the articulator. Anterior try in, adjusting the anterior guidance, verifying the balancing and working side contacts, try-in.

Unit 3: Cast Partial Denture: Principles of removable partial Denture design - bio mechanic considerations, and the factors influencing mouth preparations. Occlusal relationship of remaining teeth, orientation of occlusal plane, available space for restoration, arch integrity, tooth morphology, response of oral structure to previous stress, periodontal conditions, abutment support, tooth supported and tooth and tissue supported, need for indirect retention, clasp design, need for rebasing, secondary impression, need for abutment tooth modification, type of major connector, type of teeth selection, patients past 'experience, method of replacing single teeth or missing anterior teeth

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Difference between tooth supported and tissue supported partial dentures, essential of partial denture design, components of partial denture design, tooth support, ridge support, stabilizing components, guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base, use of a component partial to gain support. Education of patient, diagnosis and treatment planning, design, treatment sequencing and mouth preparation. Surveying - description of dental surveyor, purposes of surveyor procedure of survey. Aims and objectives in surveying of diagnostic cast and master cast, final path of placement, factors that determine path of placement and removal, Recording relation of cast to surveyor, measuring retention, blocking of master cast - paralleled blockout, shaped blockout, arbitrary blockout and relief. Diagnosis and treatment planning - Infection control and cross infection barriers, clinical and laboratory and hospital and lab waste management, objectives of prosthodontic treatment,

Records, systemic evaluation, Oral examination, preparation of diagnostic cast, interpretation of examination data, radiographic interpretation, periodontal considerations, caries activity, prospective surgical preparation, endodontic treatment, analysis of occlusal factors, fixed restorations, orthodontic treatment, need for determining the design of components, impression procedures and occlusion, need for reshaping remaining teeth, reduction of unfavorable tooth contours, differential diagnosis: fixed or removable partial dentures, choice between complete denture and removable partial dentures, choice of materials. Preparation of Mouth for removable partial dentures - Oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation - objectives of periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery. Preparation of Abutment teeth - Classification of abutment teeth, sequence of abutment preparations on sound enamel or existing restorations, conservative restoration using crowns, splinting abutment teeth, utilization, temporary crowns to be used as abutment.

Impression Materials and Procedures for Removable Partial Dentures - rigid materials, thermoplastic materials, elastic materials, impressions of the partially edentulous arch, tooth supported, tooth tissue supported, individual impression trays.

Support for the Distal Extension Denture Base - Distal extension removable partial denture, factors influencing the support of distal extension base, methods for obtaining functional support for the distal extension base.

Laboratory Procedures - Duplicating a stone case, waxing the partial denture frame work, anatomic replica patterns, spruing, investing, burnout, casting and finishing of the partial denture framework, making record bases, occlusion rims, making a stone occlusal template from a functional occlusal record, arranging posterior teeth to an opposing cast or template, types of anterior teeth, waxing and investing the partial denture before processing acrylic resin bases, processing the denture, remounting and occlusal correction to an occlusal template, polishing the denture. Initial placement, adjustment and servicing of the removable partial denture - adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow - up services. Relining and Rebasing the removable partial denture - Relining tooth supported dentures bases, relining distal extension denture bases, methods of reestablishing occlusion on a relined partial denture. Repairs and additions to removable partial dentures - Broken clasp arms, fractured occlusal rests, distortion or breakage of other components - major and minor connectors, loss of a tooth or teeth not involved in the support or retention of the restoration, loss of an abutment tooth necessitating its replacement and making a new direct retainer. Other types of repairs, Repair by soldering.

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Programme Structure and Course Details of MDS in Prosthodontics and Crown & Bridge 2025

Removable partial denture considerations in maxillofacial prosthetics - Maxillofacial prosthetics, intra oral prosthesis, design considerations, maxillary prosthesis. Obturators, speech aids, palatal lifts, palatal augmentations, mandibular prosthesis, treatment planning, framework design, class I resection, Class II resection, mandibular flange prosthesis, jaw relation record. Management of failed restorations, work authorization.

Unit 4: Obturators: Scope, terminology, definitions, cross infection control and hospital waste management, work authorization. Behavioral and psychological issues in head and neck cancer, psychodynamic interactions between clinician and patient. Cancer Chemotherapy: Oral Manifestations, complications, and management. Acquired defect of the mandible, acquired defects of hard palate, soft palate, clinical management of edentulous and partially edentulous maxillectomy patients, facial defects, and restoration of speech, velopharyngeal function, cleft lip and palate.

Unit 5: Applied Health Informatics- Applications of digital technology in removable Prosthodontics.

Unit 6: Fixed Prosthodontics: Scope definitions and terminology, classification and principles, design, mechanical and biological considerations of components - Retainers, connectors, pontics, work authorization.

Diagnosis and treatment planning - patients history and interview, patients desires and expectations and needs, systemic and emotional health, clinical examinations -head and neck, oral - teeth, occlusal and periodontal.

Preparation of diagnostic cast, radiographic interpretation, esthetics, endodontics considerations, abutment selection - bone support, root proximities and inclinations, selections of abutments, for cantilever, pier abutments, splinting, available tooth structures and crown morphology, TMJ and muscles mastication and comprehensive planning and prognosis.

Management of carious teeth - caries in aged, caries control, removing infected carious materials, protection of pulp, reconstruction measure for compromising teeth - retentive pins, horizontal slots, retention grooves, prevention of caries, diet, prevention of root caries and vaccine for caries. Periodontal considerations - attachment units, ligaments, gingivitis, periodontics.

Microbiological aspect of periodontal diseases, marginal lesion, occlusal trauma, periodontal pockets attached gingiva, interdental papilla, gingival embrasures, radiographic interpretations of periodontium, intraoral plastics, splinting for fixed prosthodontics with periodontally compromised dentitions, placement of margin restorations.

Isolation and fluid control - Rubber dam applications, tissue dilation, soft tissue management for cast restoration, impression materials and techniques, provisional restoration, interocclusal records, laboratory support for fixed prosthodontics' occlusion, occlusal equilibration, articulators, recording and transferring of occlusal relations, cementing of restoration.

Resins, gold and gold alloys, glass ionomer, restorations. Restorations of endodontically treated teeth, stomatognathic dysfunction and managements. Management of failed restorations.

Osseo integrated supported fixed Prosthodontics - Osseo integrated supported and tooth supported fixed Prosthodontics.

Unit 7: Aesthetics: Scope, definitions - Morpho psychology and esthetics, structural esthetic, facial components, dental components, gingival components physical components. Esthetics and its

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relationship to function - Crown morphology, physiology of occlusion, mastication, occlusal loading and clinical aspect in bio esthetic aspects, Physical and physiologic characteristic and muscular activities of facial muscle, perioral anatomy and muscle retaining exercises Smile - classification and smile components, smile design, esthetic restoration of smile, Esthetic management of the dentogingival unit, intraoral plastic for management of gingival contours, and ridge contours, Periodontal esthetics, Restorations - Tooth colored restorative materials, the clinical and laboratory aspects, marginal fit anatomy, inclinations, form, size, shape, color, embrasures, contact point.

Unit 8: Temporomandibular Joint: Temporomandibular joint and its function, orofacial pain, and pain from the temporomandibular joint region, temporomandibular joint dysfunction, temporomandibular joint sounds, and temporomandibular joint disorders.

Temporomandibular joint dysfunction - Scope, definitions, and terminology. Anatomy, related, trauma, disc displacement, Osteoarthritis/Osteoarthritis, Hyper mobility and dislocation, infectious arthritis, inflammatory diseases, Eagle's syndrome (Styloid - stylohyoid syndrome), Synovial chondromatosis, Osteochondrosis disease, Osteonecrosis, Nerve entrapment process, Growth changes, Tumors, Radiographic imaging. TMJ movements and myofascial pain dysfunction syndrome. Etiology, diagnosis and cranio mandibular pain, differential diagnosis and management, orofacial pain - pain from teeth, pulp, dentin, muscle pain, TMJ pain -psycho logic, physiologic - endogenous control, acupuncture analgesia, placebo effects on analgesia, trigeminal neuralgia, temporal arteritis.

Unit 9: Occlusal Splint Therapy: construction and fitting of occlusal splints, management of occlusal splints, therapeutic effects of occlusal splints, occlusal splints and general muscles performance, TMJ joint uploading and anterior repositioning appliances, use and care of occlusal splints. Occlusal adjustment procedures - Reversible - occlusal stabilization splints and physical therapies, jaw exercises, jaw manipulation and other physiotherapy or irreversible therapy - occlusal repositioning appliances, orthodontic treatment, Orthognathic surgery, fixed and removable prosthodontic treatment and occlusal adjustment, removable prosthodontic treatment and occlusal adjustment, Indication for occlusal adjustment, special nature of orofacial pain, Indication for occlusal adjustment, special nature of orofacial pain, Psychopathological considerations, occlusal adjustment philosophies, mandibular position, excursive guidance,, occlusal contact scheme, goals of occlusal adjustment, significance of a slide in centric, Preclinical procedures, clinical procedures for occlusal adjustment.

Unit 10: Preclinical Implant: Introduction and historical review, biological, clinical and surgical aspects of oral implants. Diagnosis and treatment planning, radiological interpretation for selection of fixtures, splints for guidance for surgical placement of fixtures, incision and techniques of flap reflection and suturing

Unit 11: Recent advancements in prosthodontics: Advances in material sciences, techniques and fabrication.

Preclinical work

Laboratory steps in fabrication of maxillofacial prosthesis

Clinical Work

Comprehensive management of both partial and complete edentulism using removable, cast partial and unconventional appliances – 25 cases

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Programme Structure and Course Details of MDS in Prosthodontics and Crown & Bridge 2025

Comprehensive management of both partial and complete edentulism using removable, cast partial and unconventional prosthesis – 15 cases

Comprehensive management of partial edentulism using fixed prosthesis - 12 cases

Comprehensive management of patients with joint disorders – 03 cases

Comprehensive esthetic management of patients – 05 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	3				1	3	2		
CO-2	3	3				1	2	3	2	1
CO-3		1	2	3	1	1		2	3	2
CO-4		1	3	3	1			3	3	
CO-5	2	2	1			1	3	2	1	2
CO-6	1	1	3	2	1	2		3	2	2

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	05	
4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	10	
5. Case Study Presentation	40	
Demonstrations		1480
1. Demonstration using Videos	02	
2. Demonstration using Physical Models/Systems	10	
3. Demonstration on a Computer	08	
Clinical / Practical Work		
1. Pre-Clinical area	30	
2. Clinical Area	1150	
3. Hospital Setup	60	
4. Field work/dental camp	100	

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5. Outreach centres	100	
6. Industry/Field Visit	20	
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 Prosthodontics and Crown & Bridge 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	x
CO-3			x	x
CO-4			x	x
CO-5	x	x	x	x
CO-6	x	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 CO 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
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment
5.	Problem Solving Skills	Assignment, Examination

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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. Course Resources

a. Essential Reading

Course notes

1. Zarb-Bolender (2014) Boucher's prosthodontics treatment for edentulous patients, Elsevier, New Delhi, 13th edition.
2. Charles M Heartwell, Jr, Arthur O. Rahn (1993) Textbook of complete dentures, Lea & Febiger, London, 5th edition.
3. Sheldon Winkler (1996) Essentials of complete denture prosthodontics, A.I.T.B.S, New Delhi, 2nd edition.
4. Morrow. Rudd. Rhoads (1980) Dental laboratory procedures, complete dentures, Mosby, 1st edition.
5. Alan.B. & David Brown (2010) McCracken's Removable Partial Prosthodontics, Mosby, 12th edition.
6. John Beumer, Thomas A. Curtis, Mark T. Marunick (2011) Maxillofacial Rehabilitation: Prosthodontics and Surgical Considerations. Quintessence 3rd edition
7. Rosenstiel Stephen F (2006) Contemporary fixed prosthodontics. Mosby, 4th edition.
8. Herbert T. Shillingburg; Sumiya Hobo (2011) Fundamentals of fixed prosthodontics, Quintessence books 3rd edition.
9. Rhodes. Rudd. Morrow (1986) Dental laboratory procedures: In Fixed partial Dentures. Mosby 2nd edition.
10. Carl. E. Misch (2007) Contemporary implant dentistry. Mosby publishers 3rd edition.
11. Stuart. J. Froum (2010) Dental implant complications: etiology, prevention & treatment. Wiley 1st edition
12. George Freedman (2011) Contemporary Esthetic Dentistry, Elsevier, 1st edition.
13. Kenneth W. Aschheim (2014) Esthetic Dentistry: A Clinical Approach to Techniques and Materials, Quintessence, 3rd edition.
14. Peter E. Dawson (2006) Functional Occlusion from TMJ to Smile Design. Mosby.
15. Peter E. Dawson (1989) Evaluation, Diagnosis, and Treatment of Occlusal Problems. Mosby, 2nd Edition
16. Jeffrey P. Okeson (2008) Management of Temporomandibular Disorders and Occlusion, Mosby 4th edition.

b. Recommended Reading

1. Rodney, David, Charles (2008) Kenneth L. Stewart Clinical removable partial prosthodontics. Quintessence 4th edition
2. Morrow. Rudd. Rhoads (1986) Dental laboratory procedures, removable partial dentures

Mosby 2nd edition

3. Thomas D. Taylor (2000) Clinical Maxillofacial Prosthetics. Quintessence.
4. M. Fradeani, G. Barducci (2008) Esthetic rehabilitation In Fixed Prosthodontics, Quintessence volume 2.
5. Ronald E. Goldstein (2010) Esthetics In Dentistry, Quintessence 3rd edition. Eiji Hobo Sumiya (1987) Osseointegration and Occlusal Rehabilitation. Quintessence 1st edition
6. Santos Jose Dos (2007) Occlusion: Principles and treatment. Quintessence 1st Edition

c. Journals

1. The journal of Indian Prosthodontic society
2. Journal of Prosthetic dentistry
3. Journal of Prosthodontics
4. International Journal of Prosthodontics
5. Dental materials
6. Journal of dental research
7. Quintessence International
8. British dental journal
9. Gerontology
10. Implant Dentistry
11. Clinical Implant Dentistry and Related Research
12. International Journal of Oral and Maxillofacial Implants
13. Clinical Oral Implant Research
14. Journal of dental implants
15. International journal of oral Implantology & clinical research
16. International Journal of Clinical Implant Research

d. Websites

1. <http://www.ncbi.nlm.nih.gov/pubmed>
2. <http://www.sciencedirect.com/>
3. <http://onlinelibrary.wiley.com/>
4. <http://www.ebsco.com/>
5. <http://journals.bmj.com/>
6. <http://www.mdconsult.com/php/472045076-2/home.html>
7. <http://www.oxfordjournals.org/en/>
8. <http://procedures.lww.com/lnp/turnaway.do>

e. Other Electronic Resources

1. HELINET
2. EBSCO


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Course Title	Clinical Phase Advanced
Course Code	PRC503A
Course Type	Program Specialization Teaching Course
Department	Prosthodontics and Crown & Bridge
Faculty	Dental Sciences

1. Course Summary

This course equips the student to treat patients with compromised dentition applying principles of full mouth rehabilitation. The students provide comprehensive prosthodontic care to patients requiring implant supported single tooth replacement, full mouth rehabilitation including Implantology, extra-oral maxillofacial prostheses and interdisciplinary prosthodontics while also evaluating emerging trends in prosthodontics. They also learn to effectively communicate with laboratory personnel and innovate a diagnostic aid/treatment method to simplify prosthodontic therapy.

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	Prosthodontics and Crown & Bridge
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. Discuss the principles of full mouth rehabilitation and formulate comprehensive treatment plan for interdisciplinary prosthodontic treatment
- CO-2. Plan treatment with implant supported prosthesis
- CO-3. Perform full mouth rehabilitation using appropriate prosthodontic modality
- CO-4. Restore extraoral maxillofacial defects with appropriate prosthesis
- CO-5. Employ prosthodontic practice management principles including comprehensive written communication to laboratory personnel
- CO-6. Evaluate emerging trends in prosthodontics and innovate diagnostic aid/treatment method to simplify prosthodontic therapy


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4. Course Contents

Theory

Unit 1: Occlusion: Evaluation, Diagnosis and Treatment of Occlusal Problems. Scope, definition, terminology, optimum oral health, anatomic harmony, functional harmony, occlusal stability, causes of deterioration of dental and oral health, Anatomical, physiological, neuro - muscular, psychological, considerations of teeth, muscles of mastication, temporomandibular joint, intra oral and extra oral and facial musculatures, the functions of Craniomandibular system. The concept of occlusion, mechanism of articulation, and masticatory function. Occlusal therapy, the stomatognathic system, centric relation, vertical dimension, the neutral one, the occlusal plane, differential diagnosis of temporomandibular disorders, understanding and diagnosing intra articular problems, relating treatment to diagnosis of internal derangements of TMJ, occlusal splints, selecting instruments for occlusal diagnosis and treatment, mounting casts, Pankey-Mann-Schuyler philosophy of complete occlusal rehabilitation, long centric, anterior guidance, restoring lower anterior teeth, restoring upper anterior teeth, determining the type of posterior occlusal contours, methods for determining the plane of occlusion, restoring lower posterior teeth, restoring upper posterior teeth, functionally generated path techniques for recording border movements intra orally, occlusal equilibration, bruxism, procedural steps in restoring occlusions, requirements for occlusal stability, solving occlusal problems through programmed treatment planning, splinting, solving - occlusal wear problems, deep overbite problems, anterior overjet problems, anterior open bite problems. Treating - end to end occlusion, splayed anterior teeth, cross bite patient, Crowded, irregular, or interlocking anterior bite, using cephalometric for occlusal analysis, solving severe arch mal relationship problems, transcranial radiography, postoperative care of occlusal therapy.

Advance implantology - Guided bone and Tissue generation consideration for implants fixture. Implants supported prosthesis for complete edentulism and partial edentulism, occlusion for implants support prosthesis, peri-implant tissue and management. Maintenance and after care, management of failed restoration. Work authorization for implant supported prosthesis - definitive instructions, legal aspects, delineation of responsibility.

Unit 2: Extraoral Maxillofacial Prosthesis: Etiology, treatment and rehabilitation Acquired defect of the mandible, acquired defects of hard palate, soft palate, clinical management of edentulous and partially edentulous maxillectomy patients, facial defects, restoration of speech, Velopharyngeal function, cleft lip and palate, cranial implants, maxillofacial trauma, lip and cheek support prosthesis, laryngectomy aids, obstructive sleep apnea, Tongue prosthesis, Esophageal prosthesis, vaginal radiation carrier, Burn stents, Nasal stents, Auditory inserts, trismus appliances, mouth controlled devices for assisting the handicapped, custom prosthesis for lagophthalmos of the eye. Osseo integrated supported facial and maxillofacial prosthesis. Resin bonding for maxillofacial prosthesis, Implant rehabilitation of the mandible compromise by radiotherapy, Craniofacial Osseo integration, Prosthodontic treatment and material and laboratory procedures for maxillofacial prosthesis.

Unit 3:-Implant: Implant supported Prosthesis for partially edentulous patients - Science of Osseointegration, clinical protocol for treatment with implant supported over dentures, managing problems and complications, implant Prosthodontics for edentulous patients: current and future directions.

Implant supported prosthesis for partially edentulous patients - Clinical and laboratory protocol: Implant supported prosthesis, managing problems and implications. Splints for guidance for surgical placement of fixtures, placement of single implant occlusion in single implants, peri-implant tissue and management and maintenance and after care. Work authorization for implant prosthesis - definitive instructions, legal aspects, delineation of responsibility.

Unit 4: Laboratory communication and work authorization: Work authorization and written directions for laboratory procedures for the fabrication of dental prosthesis should include; name and address of the dental laboratory and the dentist who initiates the work authorization, identification of patient, completion date of the request, specific instructions/design, signature of the dentist and license number of the dentist.

Unit 5: Advanced Health Informatics- Applications of computer software in clinics for patient and office management.

Unit 6: Recent advancements in prosthodontics: Advances in material sciences, techniques and fabrication.

Unit 7: Practice management- Setting up Prosthodontic and Implantology dental clinic.

Unit 8: Emerging trends in Prosthodontics and Implantology

Unit 9: Basic Health Informatics- Applications of computer and Microsoft office in clinics, use of newer technologies for diagnosis, treatment planning and fabrication of prosthesis, and delivering dental health education for different age groups.

Unit 10: Recent advancements in prosthodontics - Advances in material sciences, techniques, and fabrication.

Clinical Work

1. Comprehensive management of both partial and complete edentulism using removable, cast partial and unconventional appliances – 05 cases
1. 2.Comprehensive management of partial edentulism using fixed prosthesis and joint disorders – 05 cases
2. 3.Comprehensive management of both partial and complete edentulism using implant and fixed prosthesis – 15 cases
4. Comprehensive management of patient with esthetics – 5 cases
5. Comprehensive management of partial edentulism using fixed prosthesis and joint disorders – 05 cases
6. Comprehensive management of both partial and complete edentulism using implant and fixed prosthesis – 05 cases
7. Comprehensive management of patient with esthetics – 2 cases
8. Comprehensive management of patient with full mouth rehabilitation and advanced implantology – 2 cases
9. Comprehensive management of patient with extra-oral maxillofacial prosthesis – 1 case

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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	2	2			1	2	2		
CO-2	1	3	1	2		1	2	2		
CO-3		2	2	3	1	1	1	3	3	2
CO-4				2	2	1		1	3	2
CO-5					3	2			2	1
CO-6			1		2	3		2		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		
1. Face to Face Lectures	03	150
2. Seminars, Journal clubs, IDM	90	
3. Guest Lectures	03	
4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	29	
5. Case Study Presentation	25	
Demonstrations		1490
1. Demonstration using Videos	02	
2. Demonstration using Physical Models/Systems	04	
3. Demonstration on a Computer	04	
Clinical Work		
1. Pre-Clinical area	--	
2. Clinical Area	1260	
3. Hospital Setup	50	
4. Dental camp	50	
5. Outreach centres	100	
6. Industry/Field Visit	20	
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 Prosthodontics and Crown & Bridge Programme. The procedure to determine the final Course marks is also presented in the

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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	x	x
CO-3			x	x
CO-4		x	x	x
CO-5	x		x	x
CO-6	x	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	Seminars, Journal Clubs
2.	Understanding	Seminars, Journal Clubs
3.	Critical Skills	Class room lectures, Seminars, Journal clubs
4.	Analytical Skills	Classroom lectures and tutorials
5.	Problem Solving Skills	Clinical postings
6.	Practical Skills	Clinical Postings
7.	Group Work	Assignment, Clinical Posting
8.	Self-Learning	Assignment, Clinical posting, tutorials

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9.	Written communication Skills	Assignment
10.	Verbal communication Skills	Clinical Posting
11.	Presentation Skills	Clinical posting, seminars, journal clubs and IDM
12.	Behavioral Skills	Clinical posting
13.	Information Management	Assignment, tutorial, seminars, journal clubs
14.	Personal Management	Clinical posting
15.	Leadership Skills	Group discussion

9. Course Resources

a. Essential Reading

1. Course notes
2. Rosenstiel Stephen F (2006) Contemporary fixed prosthodontics. Mosby, 4th edition.
3. Herbert T. Shillingburg; Sumiya Hobo (2011) Fundamentals of fixed prosthodontics, Quintessence books 3rd edition.
4. Rhodes. Rudd. Murrow (1986) Dental laboratory procedures: In Fixed partial Dentures. Mosby 2nd edition.
5. Carl. E. Misch (2007) Contemporary implant dentistry. Mosby publishers 3rd edition.
6. Stuart. J. Froum (2010) Dental implant complications: etiology, prevention & treatment. Wiley 1st edition
7. George Freedman (2011) Contemporary Esthetic Dentistry, Elseiver, 1st edition.
8. Kenneth W. Aschheim (2014) Esthetic Dentistry: A Clinical Approach to Techniques and Materials, Quintessence, 3rd edition.
9. Peter E. Dawson (2006) Functional Occlusion from TMJ to Smile Design. Mosby.
10. Peter E. Dawson (1989) Evaluation, Diagnosis, and Treatment of Occlusal Problems Mosby, 2nd Edition.
11. Jeffrey P. Okeson (2008) Management of Temporomandibular Disorders and Occlusion, Mosby 4th edition
12. Per-Ingvar Branemark (2006): The osseointegration book, Quintessence

b. Recommended Reading

1. Marcelo Ferraz Deolivera; Branemark Per-Ingvar (1997) Craniofacial Prosthesis: Anaplastology and Osseointegration, Quintessence 1st edition.
2. William R. Laney (1979) Maxillofacial Prosthetics, Psg Pub. Co.
3. M. Fradeani, G. Barducci (2008) Esthetic rehabilitation In Fixed Prosthodontics, Quintessence volume 2.
4. Ronald E. Goldstein (2010) Esthetics in Dentistry, Quintessence 3rd edition.
5. Eiji Hobo Sumiya (1987) Osseointegration and Occlusal Rehabilitation. Quintessence 1st edition
6. Santos Jose Dos (2007) Occlusion: Principles and treatment. Quintessence 1st

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c. Journals

1. The journal of Indian Prosthodontic society
2. Journal of Prosthetic dentistry
3. Journal of Prosthodontics
4. International Journal of Prosthodontics
5. Journal of Oral Implantology
6. Implant Dentistry
7. Dental Materials
8. Clinical Implant Dentistry and Related Research
9. International Journal of Oral and Maxillofacial Implants
10. Clinical Oral Implant Research
11. Gerontology
12. Journal of Dental Implants
13. International Journal of Oral Implantology & Clinical Research
14. International Journal of Clinical Implant Research

d. Websites

1. <http://www.ncbi.nlm.nih.gov/pubmed>
2. <http://www.sciencedirect.com/>
3. <http://onlinelibrary.wiley.com/>
4. <http://www.ebsco.com/>
5. <http://journals.bmj.com/>
6. <http://www.mdconsult.com/php/472045076-2/home.html>
7. <http://www.oxfordjournals.org/en/>

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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

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

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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 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-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 Clinical 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. Quintessence Publishing Company.
7. Gábor Matyasi. 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.

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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 rescuer, 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.

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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			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.

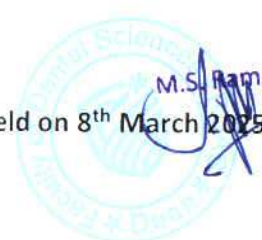
Focus of MOs on each Component or Subcomponent of Evaluation			
Subcomponent	Component 1: CE		
	Theory		
Subcomponent Type	SC1 - Assessment	SC2 - Assignment	
Maximum Marks	10	10	
MO-1	x	x	
MO-2	x	x	
MO-3	x	x	
MO-4	x	x	
MO-5	x	x	
MO-6	x	x	

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

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
MO-4	3	3			3		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
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
9.	Written Communication Skills	Assignment, Examination
10.	Verbal Communication Skills	--
11.	Presentation Skills	--
12.	Behavioral Skills	--

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Programme Structure and Course Details of MDS in Prosthodontics and Crown & Bridge 2025

13.	Information Management	Assignment
14.	Personal Management	--
15.	Leadership Skills	--

9. Module Resources

Essential Reading

Modules notes and ppt



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Programme Structure and Course Details of MDS in Prosthodontics and Crown & Bridge 2025

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		

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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	00
Practical Work		
Pre-Clinical laboratories	00	
Clinical Area – FDS	00	
Workplace based assessment methods	00	
Hospital Setup – MSRHH	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

f. 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:

- CO-7. Describe the value, scope, relevance and mandatory steps of research as well as principles of effective research
- CO-8. Apply the procedures outlined for systematic literature review
- CO-9. Develop and present well-structured research proposal and research paper invoking clearly outlined principles
- CO-10. 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.

Unit 2 : Out Of the Box Thinking and Systematic approach in Research – Transformation to

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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

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 Regulation 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			
Subcomponent ►	Component 1: CE		
	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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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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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 Prosthodontics and Crown & Bridge 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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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

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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: Fundamentals of Digital Dentistry

Course Title	Fundamentals of Digital Dentistry
Course Code	PRA501A
Course Type	Audit Course
Department	Prosthodontics and Crown & Bridge
Faculty	Faculty of Dental Sciences

I. Course Summary

1. Aim and Summary

The aim of the course is to promote digital dentistry and integrate digital technologies with prosthodontics. This course provides the student with the skill to discuss, plan, and execute scanning procedures for various clinical scenarios using appropriate techniques. Additionally, the course trains students to design various prostheses with up-to-date software, ensuring they stay current with the latest advancements. It also emphasizes the importance of effective communication with laboratory personnel, which is crucial for the accurate fabrication of prostheses. This course will be the initial step towards building a foundation in digital dentistry.

2. Course Size and Credits:

Number of Credits	NA
Credit Structure (Lecture: Tutorial: Practical)	NA
Total Hours of Interaction	45
Number of Weeks in a Term	20
Department Responsible	Prosthodontics and Crown & Bridge
Total Course Marks	50
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes

After undergoing this course students will be able to:

CO-1: Describe the working mechanism of various commercially available intra-oral scanners

CO-2: Demonstrate intraoral scanning on typodont models and patients

CO-3: Design the prosthesis using digital software

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4. Course Contents

Course Content
a. Introduction to Digital Dentistry b. Introduction of various commercially available intra-oral scanners c. Understanding the advantages and disadvantages of intra-oral scanners d. Components and basic working mechanism of intra-oral scanners e. Know-how of hardware and software used f. Operational handling of scanners g. Disinfection of the scanners
a. Single anterior and posterior typodont teeth b. Short and long-span bridges on typodont teeth c. Patients who need restorations
a. Single anterior and posterior crowns b. Short and long span bridges c. Smile designing d. Implant planning e. Communicate to laboratory personnel for fabrication

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	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	0	0	2	2	0	0	2	0	0	0	0	2	0	0	2	0
CO-2	0	0	2	2	0	0	3	0	0	0	0	2	0	0	3	0
CO-3	0	0	2	2	0	0	3	0	0	0	0	2	0	0	3	0
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution																

6. Course Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Face to Face Lectures		03
Demonstrations (Mark X wherever applicable)		15
1. Demonstration using Videos	X	
2. Demonstration using Physical Models/Systems	X	
3. Demonstration on a Computer		
Numeracy		00
1. Solving Numerical Problems		
Practical Work		20
1. Course Laboratory		

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2. Computer Laboratory		
3. Engineering Workshop/Course Workshop/Kitchen		
4. Clinical Laboratory	X	
5. Hospital	X	
6. Model Studio		
Others		2
1. Case Study Presentation		
2. Guest Lecture		
3. Industry/Field Visit		
4. Brain Storming Sessions		
5. Group Discussions		
6. Discussing Possible Innovations	X	
Term Tests, Laboratory Examination/Written Examination, Presentations		05
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 Bachelor 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
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.

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8. Achieving Learning Outcomes

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

S.No	Curriculum and Capabilities	How imparted during the course
1.	Knowledge	Class room lectures, Assignments
2.	Understanding	Class room lectures, Assignments
3.	Critical Skills	Class room lectures, Assignments
4.	Analytical Skills	Class room lectures, Assignments
5.	Problem Solving Skills	Class room lectures, Assignments
6.	Practical Skills	Laboratory
7.	Group Work	Assignments, industry visit
8.	Self-Learning	Subject Work
9.	Written Communication Skills	Examination, Assignments
10.	Verbal Communication Skills	Examination, Assignments
11.	Presentation Skills	Examination, Assignments
12.	Behavioral Skills	Interaction with peers, instructors and tutors
13.	Information Management	Assignments
14.	Personal Management	Interaction and requirements of discipline
15.	Leadership Skills	Effective management of learning, time management, achieving the learning outcomes

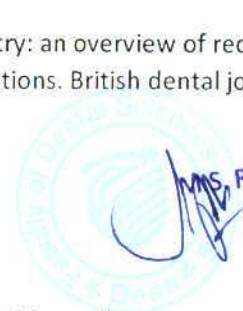
9. Course Resources

a. Essential Reading

1. Class Notes
2. Fasbinder DJ. Digital dentistry: innovation for restorative treatment. Compendium of Continuing Education in Dentistry (15488578). 2010 Oct 2.
3. Zandparsa R. Digital imaging and fabrication. Dental Clinics. 2014 Jan 1;58(1):135-58.
4. Angelone F, Ponsiglione AM, Ricciardi C, Cesarelli G, Sansone M, Amato F. Diagnostic applications of intraoral scanners: A systematic review. Journal of Imaging. 2023 Jul 3;9(7):134.
5. Beuer F, Schweiger J, Edelhoff D. Digital dentistry: an overview of recent developments for CAD/CAM generated restorations. British dental journal. 2008 May 10;204(9):505-11.

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6. Brown GB, Currier GF, Kadioglu O, Kierl JP. Accuracy of 3-dimensional printed dental models reconstructed from digital intraoral impressions. American Journal of Orthodontics and Dentofacial Orthopedics. 2018 Nov 1;154(5):733-9.

b. Recommended Reading

1. Fundamentals of CAD/CAM Dentistry- Jonathan L. Ferencz, DDS
Published by the American College of Prosthodontists
2. Cortes AR, editor. Digital dentistry: a step-by-step guide and case atlas. John Wiley & Sons; 2022 Aug 1.
3. Masri R, Driscoll CF, editors. Clinical applications of digital dental technology. New York, NY: John Wiley & Sons; 2015 Apr 27.

c. Magazines and Journals

- 1) Journal of Prosthodontic Research
- 2) Journal of Prosthodontic Dentistry
- 3) Journal of Dentistry
- 4) Journal of digital dentistry

d. Websites

1. 3Shape- <https://www.3shape.com/en/scanners/trios>
2. Dentsply Sirona- <https://www.dentsplysirona.com/en-us/discover/discover-by-category/intraoral-scanners.html>
3. iTero- <https://itero.com/en-APAC/our-solutions/itero-lumina>
4. Medit- <https://www.medit.com/medit-i900-intraoral-scanner/>

e. Other Electronic Resources

1. Primescan- <https://www.youtube.com/watch?v=DKInFSLV6IQ>
2. 3Shape Trios 3- <https://www.youtube.com/watch?v=X5CvIUZ5DpQ>
3. Medit i700- <https://www.youtube.com/watch?v=EzZs-8qAN8g>
4. Medit Academy- <https://www.youtube.com/watch?v=Vj5Elc1jSyo>
5. iTero Lumina- https://www.youtube.com/watch?v=P8K_n4nKu2g

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Annexure I - MDS in Prosthodontics and Crown & Bridge
Curriculum Framework and Assessment

S. No.	Course Code	Course Title	Credits	Assessment Marks
I	Programme Specialization Teaching Course			
1	PRC501A	Preclinical and Clinical Phase Basics	48	400
2	PRC502A	Clinical Phase Intermediate	48	400
3	PRC503A	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
	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
V	Audit Course			
1	PRA501A	Fundamentals of Digital Dentistry	-	-
VI	Programme End Examination			
1	a. Part I Programme End Examination b. Part II Programme End Examination		20	700
	Total		180	2500

P.M.
Dean - Academics
M.S. Ramaiah University of Applied Sciences

[Signature]
Registrar
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Approved by the Academic Council at its 34th meeting held on 8th March 2025

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Deen - Academics
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[Signature]
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