



**Programme Structure and Course Details
of
Master of Dental Surgery
in
Orthodontics and Dentofacial Orthopedics
Batch 2025 onwards**

**Faculty of Dental Sciences
Department of Orthodontics and Dentofacial
Orthopedics**


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

1

Ramya R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

NA
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



Programme Specifications: MDS in Orthodontics and Dentofacial Orthopedics

Faculty	Dental Sciences
Department	Orthodontics and Dentofacial Orthopedics
Programme Code	069
Programme Name	MDS in Orthodontics and Dentofacial Orthopedics
Dean of the Faculty	Dr. Silju Mathew
Head of the Department	Dr. Silju Mathew

1. **Title of the Award:** MDS in Orthodontics and Dentofacial Orthopedics
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**

Social and psychological aspect of physical attractiveness hampered by malocclusion and jaw discrepancies is known fact and psychological well-being is an intangible benefit to the society as a whole. The role of orthodontic treatment is analogous to that of several other medical specialties such as plastic surgery and orthopedics, in which patients problem often does not result from disease but from distortion of development. Therefore orthodontic treatment for these people is essential, and it is shown that such treatment improves the quality of life. Also oral diseases especially dental caries, periodontal diseases arising from irregular teeth, speech defects and risk of trauma because of some type of malocclusion, temporomandibular joint problems arising from deep bite and occlusal prematurities and combined multidisciplinary approach for congenital defects like cleft lip and palate often necessitates orthodontic treatment. Intervention of adverse oral habits and as an adjunct for prosthetic rehabilitation, are the added scope of orthodontics. In the Indian scenario, as malocclusion is being a predominant factor, but at the same time due to lack of patients education, it is the most

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith K
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bengaluru - 560 054

Ash
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



neglected aspect. Hence the orthodontist should aim at identifying the problem, educating the patient and plan a necessary treatment in order to achieve structural balance, functional stability and esthetic harmony.

Orthodontics includes study of growth and development of jaws and face particularly and body generally as influencing the position of teeth; study of action and reaction of internal and external influences on the development; prevention and correction of arrested and perverted development. It is that area of Dentistry concerned with supervision, guidance and correction of growing and mature dento-facial structures including those conditions require movement of teeth or correction of malrelation and malformation of related structures.

Considering that the patients with dentofacial deformities constitute a major portion of population and with the demand for treatment for both children and adults, presently we have a shortage of orthodontists in the country, it is imperative to train more orthodontists to address the orthodontic health care needs of the community.

15. Programme Mission

Master's degree programme in Orthodontics and Dento-facial Orthopedics is designed to impart training in clinical diagnosis and management of common orthodontic problems such as dental malocclusion, skeletal jaw discrepancies, malformation & malfunctioning of oro-facial structures. Postgraduates are expected to possess advanced theoretical and applied topics in applied basic sciences and in all facets of Orthodontics and Dento-facial Orthopedics; 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 exhibit high skill levels in all treatment modalities, to exercise empathy and a caring attitude and maintain high ethical standards. Objective is to train the candidates so as to ensure higher competence in both general and special area of interest and prepare them for career in teaching, research and specialty practice. Professional honesty and integrity are also to be fostered.

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

AK
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054
AK
Dean

- GA-6. **The Dental Expert and Society:** Ability to understand the effect of oral health solutions on legal, cultural, social, and public health and safety aspects
- GA-7. **Environment and Sustainability:** Ability to develop sustainable solutions and understand their effect on society and environment
- GA-8. **Ethics:** Ability to apply ethical principles to dental practices and professional responsibilities
- GA-9. **Individual and Teamwork:** Ability to work as a member of a team, to plan and to integrate knowledge of various dental and allied disciplines and to lead teams in multidisciplinary settings
- GA-10. **Communication:** Ability to make effective oral presentations and communicate technical ideas to a broad audience using written and oral means
- GA-11. **Project Management and Finance:** Ability to lead and manage multidisciplinary teams by applying financial principles for practice management.
- GA-12. **Life-long learning:** Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning

17. Programme Outcomes (POs)

MDS in Orthodontics and Dentofacial Orthopedics graduates will be able to:

- PO1. Impart knowledge on supervision, guidance and correction of growing and mature dento-facial structures
- PO2. Diagnose the common orthodontic problems such as dental malocclusion, skeletal jaw discrepancies, malformation & malfunctioning of oro-facial structures, understand the etiology and pathophysiology and describe the clinical signs and symptoms
- PO3. Critically analyze the various treatment options and deliver it with most efficient manner based on evidence based dentistry
- PO4. Achieve competency to fabricate/design and manage the most appropriate intra or extra oral, removable or fixed orthodontic, myo-functional and orthopedic appliance for a given orthodontic problem
- PO5. Manage potential problems of mechanotherapy, post treatment relapse and effectively initiate corrective procedures
- PO6. Provide a general perspective and opportunities for a career in Orthodontics and Dento-facial Orthopedics

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 Orthodontics and Dentofacial Orthopedics

19. Program Educational Objectives (PEOs)

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramyaiah R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

[Signature]
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



The objectives of the MDS in Orthodontics and Dentofacial Orthopedics 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 orthodontic problems pertaining to oral and maxillofacial region
- PEO-2.** Impart analytic and cognitive skills required to develop innovative solutions for R&D, Industry, and societal requirements as related to Orthodontics and Dentofacial Orthopedics
- 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 Orthodontics and Dentofacial Orthopedics programme, the graduates will be able to:

- PSO-1.** Analyze complex malocclusions and plan the appropriate treatment
- PSO-2.** Discuss advances in orthodontic tooth movement such as acceleratory orthodontics
- PSO-3.** Design and fabricate newer complex orthodontic appliances such as loops, fixed functional appliances etc.
- PSO-4.** Develop a social program to improve awareness among urban and rural populations regarding malocclusions

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	ODC501B	Preclinical and Clinical Phase Basics	5	0	29	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		Part I - Programme End Examination	-	-	-	-	100
Total			6	1	34	56	620

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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	ODC502A	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	ODC503B	Clinical Phase Advanced	3	0	33	24	400
2	MR504A	Dissertation	-	2	2	6	200
3	MR506A	Journal Publication	-	1	-	1	20
4		Part II - Programme End Examination	-	-	-	20	600
Total			3	3	35	51	1220
Total number of contact hours per week			36				

22. Course Delivery

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

23. Teaching and Learning Methods

- Team Teaching/ Integrated Teaching
- Face to Face Lectures using Audio-Visuals
- Seminars/journal clubs/e-lectures
- Case Based Discussions
- Group Discussions, Debates, Presentations
- Demonstrations on videos, computers and models
- Clinical based learning
- Hospital based learning
- Laboratory work
- Dissertation/ Group Project work
- School visits/Outreach center visits

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054



- 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

b. Component 2 (Programme End Exam PEE)

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

Theory component

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

[Signature]
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Part-I

Paper-I: Applied Basic Sciences: Applied anatomy, Physiology, Dental Materials, Genetics, Pathology, Physical Anthropology, Applied Research methodology, Bio-Statistics and Applied Pharmacology

Part-II

Paper-I: Orthodontic history, Concepts of occlusion and esthetics, Child and Adult Psychology, Etiology and classification of malocclusion, Dentofacial Anomalies, Diagnostic procedures and treatment planning in Orthodontics, Practice management in

Paper II: Clinical Orthodontics

Paper III: Descriptive and analysis type question

Clinical Component

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

- i. Case discussion and management of growth modulation modality – 50 mark
- ii. Comprehensive Case discussion of 5 finished orthodontic cases – 75 marks
- iii. Comprehensive case discussion and treatment planning for orthodontic management – 25 marks
- iv. Bonding/wire bending/facebow bending exercise – 50 marks

Pedagogy and Viva Voce Component

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

Research, Faculty Common, Elective Modules:

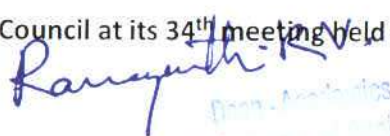
These modules will be assessed as per the assessment norms as specified in the module specification. The assessment for these modules is through tests, presentations or any other method as specified in the module specification.

25. Student Support for Learning

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


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025 8


Dean, Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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	2			2	2	2		
1	Basic and Advanced Life Support*		1								
1	Personality Development and Soft Skills*						3				2
1	Law for Dental Professionals*			2							
1	Research Methodology			3				2	2		
2	Clinical Phase Intermediate	3	3	3	3	3	3	3	3	3	3
2	Short term project/Group project			3				2	2	2	
2	Library Dissertation			3				2	2		
2	Conference presentation			3				2	2	2	
2	Teacher Training Module						2				
2	Training in any other institution in India or Abroad	2	2	2	2	2	2	2	2	2	2
3	Clinical Phase Advanced	3	3	3	3	3	3	3	3	3	3
3	Dissertation			3				2	2	2	1
3	Journal Publication			3				2	2	2	1
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											

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.

Course Specifications

Course Title	Pre-Clinical and Clinical Phase Basics
Course Code	ODC501B
Course Type	Program Specialization Teaching Course
Department	Orthodontics and Dentofacial Orthopedics
Faculty	Dental Sciences

1. Course Summary

This course introduces the student to the field of Orthodontics and renders them with the understanding of growth and development and its application in clinical practice, recognize and identify types of malocclusion, interpret model and cephalometric analysis. It also helps the students in understanding the principles of preventive and interceptive orthodontics, functional jaw orthopedics and biomechanics of orthodontic appliances.

The students will be trained to perform preclinical exercises including fabrication of removable as well as simple fixed appliances on simulated models of ideal clinical situations while applying the principles of orthodontic mechanotherapy. The students are also trained in formulating an orthodontic treatment plan based on clinical evaluation, study model and radiographic analysis to arrive at a diagnosis so as to enable them to execute orthodontic treatment procedures.

2. Course Size and Credits:

Number of Credits	48
Credit Structure (Lecture: Tutorial: Practical)	20:2:26
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Orthodontics and Dentofacial Orthopedics
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.** Describe anthropology, embryology, physiology, biology of dentofacial growth and development along with general, local and genetic factors responsible for malocclusion, skeletal discrepancies and other pathologies.
- CO-2.** Discuss preventive and interceptive orthodontic procedures including growth modulation and fabrication of removable appliances for functional jaw orthopedics
- CO-3.** Appraise recent advances in Orthodontic materials
- CO-4.** Execute Orthodontic clinical examination using model analysis, cephalometric analysis and recent diagnostic aids for diagnosis and treatment planning along with pharmacologic management.
- CO-5.** Discuss the role of biostatistics, applied research methodology, basic biomechanics and its applications in orthodontic clinical practice.
- CO-6.** Plan appropriate fixed orthodontic appliance therapy with empathy

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.
Dean, Dental Sciences
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

4. Course Contents

Theory

Unit 1: Applied Anatomy: Pre-natal growth of head, Post-natal growth of head, Bone growth, Assessment of growth and development, Muscles of mastication, Development of dentition and occlusion, Assessment of skeletal age.

Unit 2: Applied Physiology and Bio-Chemistry: Endocrinology and its disorders, Calcium and its metabolism, Nutrition-metabolism and their disorders, Muscle physiology, Craniofacial Biology, Bleeding disorders in orthodontics.

Unit 3: Dental materials: Gypsum products, Impression materials, Acrylics, Composites, Banding cements, Alloys and Metallurgy, Orthodontic materials. Survey of all contemporary literature and recent advances in above - mentioned materials.

Unit 4: Genetics: Principles of oro-facial genetics, Chromosomal abnormalities, Genetics in malocclusion, Studies related to malocclusion, recent advances in genetics related to malocclusion, Genetic counseling.

Unit 5: Physical Anthropology: Evolutionary development of dentition and jaws.

Unit 6: Applied Pharmacology and Nutrition.

Unit 7: Dentofacial Anomalies: Anatomical, physiological and pathological characteristics of major groups of developmental defects of the oro-facial structures.

Unit 8: Orthodontic Clinical Evaluation: Case history, Study Model analysis, relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Unit 9: Etiology and Classification of malocclusion: A comprehensive review of the local and systemic factors in the causation of malocclusion and various classifications of malocclusion.

Unit 10: Basic principles of Removable appliances mechanotherapy: Design, construction, fabrication, management, review of current literature on treatment methods and results.

Unit 11. Radiological Imaging Techniques: Principles and practice of imaging and the relevant imaging technology. Recognize the importance and appropriate use of imaging for the benefit of the patient, exhibit an awareness of the legal basis of protecting the patient and staff.

Unit 12. Myofunctional Orthodontics: Basic principles, contemporary appliances - their design and manipulation, case selection and evaluation of the treatment results, review of the current literature.

Unit 13: Child and Adult Psychology: Stages of child development, theories of psychological

Registrar

M.S. Ramaiah University of Applied Sciences

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Ph: 080-2655004



development, and management of child in orthodontic treatment, management of handicapped child, motivation and psychological problems related to malocclusion / orthodontics, adolescent psychology, behavioral psychology and communication.

Unit 14: Diagnostic procedures and treatment planning in orthodontics: Emphasis on the process of data gathering, synthesis and translating it into a problem list, treatment plan, problem cases - analysis of cases and its management, clinical assessment

Unit 15: Cephalometrics Tracing, image processing, model Analysis, analysis of errors and applications, advanced Cephalometrics techniques, comprehensive review of literature, video imaging principles and its application, CBCT, 3D imaging and use of Simulating Orthodontic software

Unit 16: History and evolution of fixed orthodontic appliance

Unit 17: Dentofacial Orthopedics: Principles, biomechanics, appliance design and manipulation and review of contemporary literature.

Unit 18: Mechanotherapy of straight wire appliance and light wire technique

Unit 19: Biomechanics: The interaction of orthodontic materials with Orthodontic tooth movements

Unit 20: Treatment planning: Identification of patient concerns, identification of treatment aims and identification of the type of treatment necessary to achieve those aims.

Unit 21: Fixed Orthodontic appliances: design and use of fixed appliances, anchorage planning and control, complications in fixed orthodontic appliance therapy.

Unit 22: Orthodontic Record: The importance of record maintenance in Orthodontic set up.

Preclinical Work

1. Basic wire bending exercises
2. Wire bending of components of removable orthodontic appliance
3. Fabrication of removable/semifixed /functional appliances
 - i. Hawley's retention appliance with anterior bite plane
 - ii. Upper Hawley's appliance with posterior bite plane
 - iii. Upper Expansion appliance with Coffin Spring
 - iv. Upper Expansion appliance with Expansion Screw
 - v. Habit breaking appliance with Tongue crib
 - vi. Oral Screen and Double oral screen
 - vii. Lip Bumper
 - viii. Catalans appliance
 - ix. Lingual Arch appliance
 - x. TPA
 - xi. Quad Helix

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



- xii. Bihelix
- xiii. Pendulum appliance
- 4. Soldering exercises
- 5. Tracing of cephalograms and performing various analysis
 - i. Tracing of Class I case
 - ii. Tracing of Class II case
 - iii. Tracing of Class III case
 - iv. Following Analysis:
 - 1. Steiner's Analysis
 - 2. Down's Analysis
 - 3. Rickett's Analysis
 - 4. Burstone's Analysis for Orthodontic Surgery
 - 5. Rakosi Jaraback's Analysis
 - 6. McNamara's Analysis
 - 7. Bjork Analysis
 - 8. Holdaway's soft tissue analysis
 - 9. Grummon's Analysis
- 6. Fabrication of Myofunctional appliances
 - i. Activator
 - ii. Bionator
 - iii. Frankel-FR-2 appliance
 - iv. Twin Block appliance

Basic wire bending exercises for fixed appliances

- i. Begg's Technique
 - Initial wire bendings followed by
 - Stage 1 mechanics
 - Stage 2 mechanics
 - Stage 3 mechanics
- ii. MBT mechanics:
 - Levelling and aligning in Pre-adjusted edgewise technique.
 - Canine retraction in Pre-adjusted edgewise technique.
 - Anterior retraction in Pre-adjusted edgewise technique.
 - Finishing and detailing in Pre-adjusted edgewise technique.
 - Placement of 1st/2nd/3rd order bends for individual tooth
 - Form a Utility arch
 - Formation Bull Loop, Tear drop loop, Keyhole loop, Box loop, Y loop, L loop, Double delta loop, Vertical Loop.

Clinical Work

- 1. Comprehensive orthodontic management using simple removable appliances like retention appliances, crossbite, scissor bite, deep bite correction – 3 cases
- 2. Comprehensive orthodontic management using simple fixed appliances – 12 cases
- 3. Comprehensive orthodontic management of cases requiring expansion of the arches- 2 cases
- 4. Comprehensive orthodontic management using Removable functional and orthopedic appliances – 3 cases


Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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		
CO-2	3	3		3			3	1		1
CO-3						3		1	1	
CO-4		3	3				3			
CO-5					3			1		2
CO-6			3	3	3		3	1	1	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	
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	20
5. Case Study Presentation	30
Demonstrations	
1. Demonstration using Videos	10
2. Demonstration using Physical Models/Systems	30
3. Demonstration on a Computer	50
Clinical Work	
1. Pre-Clinical area	700
2. Clinical Area	690
3. Hospital Setup	
4. Dental camp	
5. Outreach centres	
6. Industry/Field Visit	
Term Tests, Laboratory Examination/Written Examination, Presentations	80
Total Duration in Hours	1800

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Programme Specifications document pertaining to the MDS in Orthodontics and Dentofacial

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Rangarath R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Orthopedics Programme. The procedure to determine the final course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or PEE) or subcomponent of CE (SC1, SC2, SC3 or SC4), COs are assessed as illustrated in the following Table.

Focus of COs on each Component or Subcomponent of Evaluation				
Component 1: CE				
Subcomponent ►	Theory		Practical/Clinical	
Subcomponent Type ►	SC1 - Written assessment	SC2 - Assignment	SC3 - Clinical Assessment and Viva Voce I	SC4 - Clinical Assessment and Viva Voce II
Maximum Marks ►	100	100	100	100
CO-1.	x			x
CO-2.	x	x	x	x
CO-3.	x			x
CO-4.	x	x		x
CO-5.	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:

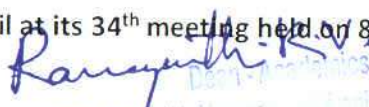
S. No	Curriculum and Capabilities Skills	How imparted during the Course
1.	Knowledge	Classroom lectures, seminars, journal clubs
2.	Understanding	Classroom lectures, Self-study, seminars, journal clubs
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment, seminars, journal clubs
5.	Problem Solving Skills	Assignment, Examination, Clinical work
6.	Practical Skills	Assignment, Clinical work
7.	Group Work	Assignment, Clinical posting
8.	Self-Learning	Self-study
9.	Written communication Skills	Assignment, Examination
10.	Verbal communication Skills	Clinical work
11.	Presentation Skills	Clinical posting, Seminars, Journal clubs and IDM
12.	Behavioral Skills	Clinical posting
13.	Information Management	Assignment
14.	Personal Management	Clinical posting



Registrar

M.S. Ramaiah University of Applied Sciences

Bangalore - 560 054


M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

15.	Leadership Skills	Clinical posting, group discussion
-----	-------------------	------------------------------------

9. Course Resources

a. Essential Reading

1. Chaurasia B.D (1995) Human anatomy: Head-neck Brain. 6th ed.Vol 3. CBS publishers
2. Sperber GH (1973) - Craniofacial embryology. Wright
3. Barrett KE (2012) - Ganong's review of medical physiology. 24th ed; McGraw Hill Education
4. Anusavice KJ(2012) - Philip's science of dental materials. 12th ed. Saunders
5. Brantley WA, Eliades T(2001) - Orthodontic materials: Scientific and clinical aspects. 1sted.Thieme
6. Kharbanda OP (2011) - Orthodontics: Diagnosis and management of malocclusion and dento-facial deformities. 2nd ed. Imprint
7. Nanda R, Kapila S (2009) - Current therapy in orthodontics 1st ed. Mosby
8. Singh I.B (1996) - Human embryology. 6th ed. Macmillan
9. Houston W.J., Isaacson K.G (1977) - Orthodontic treatment with removable appliances. Wright, Bristol
10. Adams C.P., Kerr W.J (1990) - The design, construction and use of removable orthodontic appliances. 6thed; Oxford: Butterworth-Heinemann Ltd
11. Salzmann JA (1950) - Orthodontics: Practice and technique. Lippincot
12. Tripathi K.D (2013) - Essentials of medical pharmacology. 7th ed. Jaypee brothers
13. Rakosi T, Jones I, Graber T (1993) - Orthodontic diagnosis (color atlas of medicine). 1st ed. Thieme
14. Greenberg M, Glick M, Ship JA (2008) - Burket's oral medicine. 11th ed. Pmphusa
15. Graber LW, Vanarsdall RL (2011) - Orthodontics: Current principles and techniques. 5th ed. Mosby
16. Pinkham J (1993) - Pediatric dentistry: infancy through adolescence. 3rd edition. WB Saunders
17. Thomas Rakosi (1993) - Orthodontic diagnosis 1st edition Thieme medical publishers
18. Proffit W (2013) - Contemporary orthodontics. 5th ed. St.Louis Mosby
19. Grabber TM, Rakosi T, Petrovic AG (1997) - Dentofacial orthopedics with functional appliances. 2nd edition Mosby
20. Clark WJ (1995) - Twin block functional therapy- applications in dentofacial orthopedics.2nd edition Mosby Wolfe Recommended reading
21. Graber LW, Vanarsdall RL, Vig WL (2012) - Orthodontics- current principles and techniques. 5th ed Elsevier
22. Berg J, Slayton R (2009) - Early childhood oral health 1st edition Wiley Blackwill
23. Tandon S (2008) - Textbook of Pedodontics 2nd edition. Paras medical publisher
24. Dean JA, Avery DR, McDonald (2010) - McDonald's dentistry for child and adolescent. 9th edition Mosby
25. Nanda R (1997) - Biomechanics in clinical orthodontics 1st edition. WB Saunders
26. Alexander Jacobson (2006) - Radiographic Cephalometry: From Basics to 3-d Imaging. Quintessence Pub Co; 2nd edition
27. Straight Wire. The Concept and Appliance. By Lawrence F. Andrews - 1989
28. Begg Orthodontic Theory and Technique. P. R. Begg, Peter C. Kesling Saunders, 1977

b. Recommended Reading

1. Moyers RE (1988) - Handbook of orthodontics. 4th ed. Year Book Medical Publishers
2. Hall JE (2010) - Textbook of medical physiology. 12th ed. Saunders
3. Enlow DH (1996) - Essentials of facial growth. Saunders
4. Russell PJ (2009) - I genetics: A molecular approach. 3rd ed. Benjamin Cumming
5. Katzung B., Masters S (2012) - Basic and clinical pharmacology. 12th ed. McGraw- Hill Medical


Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

6. Pickett FA (2008) - Basic principles of pharmacology with dental hygiene applications. 1st ed. LWW
7. Graber TM (1961) - Orthodontic principles and practice. WB Saunders
8. Proffit WR, Sarver DM, White RP (2010) - Contemporary treatment of dento-facial deformity. 1st ed. Elsevier India Pvt
9. Grabber TM, Neumann B (1984) - Removable orthodontic appliances 2nd edition. WB Saunders
10. Marcotte MR (1990) - biomechanics in orthodontics 1st edition. BC Decker
11. Bimstein E, Needleman HL (2001) - Periodontal and gingival health and diseases- children, adolescents and young adults.
12. E. Athanasiou (1995) - Orthodontic Cephalometry. Mosby; 1st edition

c. Journals

1. Angle Orthodontist
2. Seminars in Orthodontics
3. British Journal of Orthodontics
4. Gene Therapy
5. Molecular Human Reproduction
6. Journal of Clinical Orthodontics
7. Journal of Dentofacial Anomalies and Orthodontics
8. Cleft Palate Craniofacial Journal

d. Websites

1. [http:// www.oxfordjournals.org/genomics](http://www.oxfordjournals.org/genomics)
2. <http:// www.ncbi.nlm.nih.gov/pubmed>
3. <http://mediMONet.blogspot.in>
4. [http://www.zapmeta.MO.inhttps://embryology.med.unsw.edu.au/embryology/index.p
hp/Main_Page](http://www.zapmeta.MO.inhttps://embryology.med.unsw.edu.au/embryology/index.php/Main_Page)
5. <http://www.indiana.edu>
6. <http://www.visembryo.MOm/>
7. <http://www.eu.Elsevier Health Scienceshealth.MOm/histology-and-cell-biology>

e. Other Electronic Resources

1. <https://ocw.mit.edu/index.htm>


Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Course Title	Clinical Phase Intermediate
Course Code	ODC502A
Course Type	Program Specialization Teaching Course
Department	Orthodontics and Dentofacial Orthopedics
Faculty	Dental Sciences

1. Course Summary

This course aims to train the student in the management of orthodontic patients requiring advanced treatment modalities. The students are trained to develop a multidisciplinary approach for the orthodontic treatment of medically compromised patients and management of orthodontic patients with special needs. The students are trained to execute multidisciplinary care of cleft lip & palate and craniofacial deformities and to perform complex orthodontic procedures like surgical, lingual, and fixed functional orthodontics. Students are trained to treat complex malocclusions, Temporo-Mandibular Dysfunction, impacted teeth, infra-occluded teeth and teeth with abnormal frenal attachment using appropriate minor oral surgical and orthodontic procedures including newer appliances.

2. Course Size and Credits:

Number of Credits	48
Credit Structure (Lecture: Tutorial: Practical)	20:2:26
Total Hours of Interaction	1800
Number of Weeks in a Year	50
Department Responsible	Orthodontics and Dentofacial Orthopedics
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 biological and advanced biomechanical aspects of orthodontic tooth movement and its implications on the periodontium
- CO-2. Assess the recent concepts in Occlusion and Gnathology and plan appropriate treatment for patients with Temporo- Mandibular Dysfunction and aberrant respiratory patterns including sleep apnea.
- CO-3. Perform comprehensive variants of fixed orthodontic appliances incorporating recent advances.
- CO-4. Formulate an interdisciplinary protocol for patients with complex malocclusions and special health care needs.
- CO-5. Estimate and plan treatment to minimize iatrogenic effects of orthodontics
- CO-6. Analyze the treatment options and limitations of adult orthodontics

4. Course Contents

Theory

Unit 1: Cleft lip and palate rehabilitation: Diagnosis and treatment planning, mechanotherapy, special growth problems of cleft cases, speech physiology, pathology and elements of therapy applied to orthodontics, team rehabilitative procedures.

Unit 2: Biology and advanced biomechanics of tooth movement: Principles of tooth movement-

review, Clinical application of biomechanics, review of contemporary literature, applied histophysiology of bone, periodontal ligament, molecular and ultra-cellular consideration in tooth movement.

Unit 3: Orthognathic Surgery: Orthodontist's role in conjoint diagnosis and treatment planning, pre and post-surgical Orthodontics, participation in actual clinical cases, progress evaluation and post retention study and review of current literature.

Unit 4: Ortho / Perio / Prostho inter relationship: Principles of interdisciplinary patient treatment, Common problems, and their management.

Unit 5: Dental Health Education and Communication: Principles and practice of patient education in orthodontics, demonstrate sensitivity and awareness in both verbal and nonverbal communication with patients and their parents/guardians, demonstrate an open, patient and non-judgmental approach to answering questions.

Unit 6: Overview of Multidisciplinary Management of Facial Disharmony: The recognition of facial disharmony, Diagnostic procedures used to identify the site of facial disharmony, the stages in the correction of facial disharmony, the stages in the management of cleft lip and/or palate patients.

Unit 7: Lingual Orthodontic appliances: The scope and limitations of lingual orthodontic appliances, anchorage planning and control, complications handling in lingual orthodontic appliance therapy.

Unit 8: Aligner therapy: Introduction to Aligner therapy, Working principles: Attachments, Aligner features and material science, Clinical aspects.

Unit 9: Temporomandibular dysfunction and orthodontics: The importance of TMD to orthodontists, Anatomy and physiology of the TMJ, Diagnosing and monitoring the presence of TMD and its progress if present, The etiology of TMD, The management of TMD.

Unit 10 :Recent advances like: Use of implants, Lasers, Clear aligners, Distraction Osteogenesis, Self-ligating appliances, lingual orthodontics, customized appliances and any new techniques

Unit 11: Iatrogenic effects of orthodontic treatment: Root resorption, effects on the enamel, effects on the periodontium, effects on the pulp, and effects on dento-facial appearance, adverse effects on the soft tissues including headgear injuries and allergic reactions, influences on the temporomandibular joints.

Unit 12: Epidemiology in Orthodontics: Indices in Orthodontics, evaluation of Orthodontic treatment needs and treatment effects, influences based on Gender, Peer pressure, Ethnic group, Social class, confidence in treatment, self- esteem and aesthetics.

Unit 13: Adult Orthodontics and complex cases: Periodontal considerations, temporomandibular joint considerations, Comprehensive vs compromise treatments, Appliance therapy – special considerations.

Unit 14: Orthodontics and Minor Oral Surgery: Exposure and management of impacted teeth, management of infra-occluded teeth, management of high frenal attachments.

Unit 15: Orthodontics and Restorative Dentistry: Repositioning periodontally stabilized teeth, occlusal rehabilitation including implantology, restoration of the dentition including previously extracted teeth or minor hypodontia.

Unit 16 : Airway, craniofacial development, and malocclusion: The importance of respiratory patterns in orthodontics and the desirability of nasal breathing, the relationship between airway patency, craniofacial development, and malocclusion.

Clinical work

1. Comprehensive orthodontic management using complex fixed appliances – 10 cases.
2. Comprehensive orthodontic management using surgical orthodontics – 2 cases.
3. Comprehensive orthodontic management of medically compromised patients – 1 case.
4. Comprehensive orthodontic management using Lingual appliances/Aligner. – 1 case.
5. Comprehensive orthodontic management using fixed functional appliances – 1 case
6. Comprehensive orthodontic management of cases requiring multidisciplinary approach like clefts, Ortho-Perio, Ortho-Endo, Ortho-Prosthodontics – 4 cases
7. Recall of patients on comprehensive orthodontic management from 1st year – 22 cases

***Completion of special cases is subject to cases reporting to the OPD. However the required number of cases should be completed by the end of 5th module.**

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				2	
CO-2	3	3		2	2			2	2	2
CO-3			3	3	3				3	
CO-4		2	2	2	2					3
CO-5			2		3				2	
CO-6			2	2	1				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	20	
5.Case Study Presentation	30	
Demonstrations		1480
1. Demonstration using Videos	10	
2. Demonstration using Physical Models/Systems	30	
3. Demonstration on a Computer	30	
Clinical Work		
1. Pre-Clinical area	300	
2. Clinical Area	1060	
3. Hospital Setup		
4. Dental camp		
5. Outreach centres	50	
6. Industry/Field Visit		
Term Tests, Laboratory Examination/Written		

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya K.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

20

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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 Orthodontics and Dentofacial Orthopedics 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-7.	x	X		x
CO-8.	x			x
CO-9.	x	x	x	x
CO-10.	x		x	x
CO-11.	x			x
CO-12.				
CO-13.	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
2.	Understanding	Classroom lectures, Self-study, seminars, journal clubs
3.	Critical Skills	Assignment
4.	Analytical Skills	Assignment, seminars, journal clubs
5.	Problem Solving Skills	Assignment, Examination, Clinical work
6.	Practical Skills	Assignment, Clinical work
7.	Group Work	Assignment, Clinical posting

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

8.	Self-Learning	Self-study
9.	Written communication Skills	Assignment, Examination
10.	Verbal communication Skills	Clinical work
11.	Presentation Skills	Clinical posting, Seminars, Journal clubs and IDM
12.	Behavioral Skills	Clinical posting
13.	Information Management	Assignment
14.	Personal Management	Clinical posting
15.	Leadership Skills	Clinical posting, group discussion

9. Course Resources

a. Essential Reading

1. Berkowitz S (2006) - Cleft lip and palate. Springer
2. Graber TM & Vanarsdall RL (2005) - Orthodontics: Current Principles and techniques. 4th ed. St louis; Mosby
3. Krishnan Vinod, Davidovitch Zeév (2009) - Biological mechanism of Tooth movement. John Wiley & Sons
4. Profitt W (2013) - Contemporary orthodontics. Fifth edition. St Louis; Mosby
5. Reyneke, Johan P (2003) - Essential of Orthognathic Surgery. Quintessence Publishing Company
6. Sarver David (1998) - Esthetic Orthodontics & Orthognathic surgery. Mosby
7. Bell WH, White WR & Proffit RP (1980) - Surgical Correction of Dentofacial deformities. Vol II. WB Saunders Co
8. Scuzzo G, Takemoto K (2002) - Invisible Orthodontics. Current concepts and solutions in Lingual Orthodontics. Quintessence Publication. 1st Edition.
9. Daly B, Watt R, Batchelor P & Treasure E (2002) - Essential Dental Public Health. Oxford University Press
10. Dixon A, Hoyte D & Ronning O (1997) - Fundamentals of Craniofacial Growth. CRC Press
11. Stanley F Malamed (2007) - Medical Emergencies in the Dental Office. 6th Edition, Mosby an imprint of Elsevier
12. Lee (2007) - Application of orthodontic mini implants, quintessence publishing books
13. O.P.Kharbanda (2013) - Orthodontic diagnosis and management of malocclusion & Dentofacial deformity, 2nd edition, Elsevier
14. Grabber, Vanarsdal, Vig (2012) - orthodontic- current principles techniques, 5th edition, Elsevier
15. Adrian Becker (2012) - Orthodontic treatment of impacted teeth, Wiley-Blackwell, March
16. Samuel Berkowitz (2013) - cleft lip and palate, diagnosis and management, 2nd edition, springer
17. Thomas Rakosi, Thomas M Graber (1993) - Orthodontic Diagnosis, color atlas of dental medicine. 1st Edition, George Thieme Verlag Publisher
18. Dawson, Peter E (2007) - Functional occlusion: From TMJ to smile design. Mosby
19. J E Park (1991) - textbook of preventive & social medicine, 22nd edition, Banarsidas Bhanot

b. Recommended Reading

1. Taylor T (2000) - Clinical maxillofacial prosthetics. Quintessence publishing

2. Beumer J, Curtis T, Marunick M (1996) - Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations. Euroamerica
3. Shafer, Hine & Levy (2012) - Textbook of Oral Pathology. Seventh Edition. Elsevier
4. Peterson (2011) - Principles of Oral and Maxillofacial Surgery. 3rd edition. PMPH, USA
5. Lindhe J (2008) - Clinical Periodontology & Implant dentistry, 5th edition. Wiley-Blackwell
6. McKenzie J, Pinger R & Kotecki J (2005) - An introduction of Community Health. 5th edition. Jones & Barlett publishers
7. Sperber (2001) - Craniofacial development. Geoffrey H Sperber
8. Romano R (2011) - Lingual and Esthetic orthodontics. Quintessence publishing Co Ltd
9. Clear Aligner Technique by Sandra Tai
10. Controversies in Clear Aligner Therapy: Contemporary Perspectives, Limitations, and Solutions Anderson T, Darren Huang
11. Principles and Biomechanics of Aligner Treatment by Ravindra Nanda, Tommaso Castrolorio, Francesco Garino, Kenji Ojima
12. Robert A Convisar (2010) - principles and practices of laser dentistry. Mosb
13. William R Profit (2013) - contemporary orthodontics, 5th edition, Elsevier
14. Ashok karad (2010) - clinical orthodontics, current concepts and, goals and mechanics, Elsevier
15. Sarnet & Laskin (1992) – The TMJ – a biological basis for clinical practice, Saunders
16. Jill Mason (2010) - concepts in dental public health, 1st edition, Lippincott Williams & Wilkins

c. Journals

1. Cleft Palate -Craniofacial Journal.
2. American Journal of Orthodontics and Dentofacial Orthopedics
3. Angle Orthodontist.
4. Seminar in Orthodontics.
5. Orthodontics and Craniofacial Research
6. Community Dentistry & Oral Epidemiology.
7. Journal of Clinical Orthodontics
8. Journal of Indian Orthodontic Society
9. Journal of Orthodontics
10. British journal of Orthodontics
11. Journal of Oral-Maxillofacial Surgery
12. European Journal of Orthodontics
13. Australian Journal of Orthodontics.

d. Websites

1. [http:// www.oxfordjournals.org/genomics](http://www.oxfordjournals.org/genomics)
2. <http:// www.ncbi.nlm.nih.gov/pubmed>
3. <http://mediMONet.blogspot.in>
4. http://www.zapmeta.MO.inhttps://embryology.med.unsw.edu.au/embryology/index.php/Main_Page
5. <http://www.indiana.edu>
6. <http://www.visembryo.MOm/>
7. <http://www.eu.Elsevier Health Sciences health.MOM/histology-and-cell-biology>

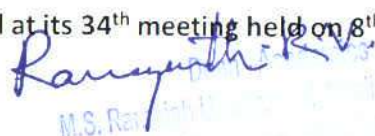
e. Other Electronic Resources

1. EBSCO
2. PUBMED
3. HELINET
4. SCIENCE DIRECT
5. Wiley's online


Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025


M.S. Ramaiah
Bangalore



Course Title	Clinical Phase Advanced
Course Code	ODC503B
Course Type	Program Specialization Teaching Course
Department	Orthodontics and Dentofacial Orthopedics
Faculty	Dental Sciences

1. Course Summary

This course aims to equip the student to deal with Orthodontic relapse. The students are trained to identify the nature and presentation of relapse, its etiology and management including contemporary retention regimens in the light of available knowledge and adjunctive techniques. The student will plan and fabricate retention appliances. This course aims to impart skills required for a specialist practice based on in-depth analysis of learnt clinical techniques, gained knowledge and multidisciplinary treatment plan.

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	Orthodontics and Dentofacial Orthopedics
Total Course Marks	400
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

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

- CO1. Appraise current trends in retention and Identify skeletal and dental malocclusion types and its relation to potential relapse
- CO2. Fabricate appropriate retention appliances following active orthodontic treatment
- CO3. Interpret manual and digital superimposition of growth measurements and treatment changes with time
- CO4. Apply recent advances in growth forecasting in orthodontic treatment planning
- CO5. Analyse the appropriate pace and progress of treatment while incorporating recent advances in the treatment protocols including digital orthodontics and clear aligner therapy.
- CO6. Assess the necessary components in terms of infrastructure, equipment, process and finances involved in setting up an exclusive orthodontic practice.

4. Course Contents

Theory

Unit 1. Long-term effects of orthodontic treatment: Presentation and nature of relapse, etiology

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

[Signature]
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



of relapse, contemporary retention regimens and adjunctive techniques to reduce relapse.

Unit 2. Retention: This module is intended to provide information about and experience in the design and use of retention appliances, the duration of post treatment retention in the light of available knowledge, mechanotherapy - special reference to stability of results with various procedures, post retention analysis and review of contemporary literature.

Unit 3. Growth and treatment analysis: Superimposition techniques for lateral skull radiographs, Growth analysis based on serial lateral skull radiographs, Use of cephalometrics templates, Evaluation of treatment changes: other methods, Estimation of growth status.

Unit 4. Management: Personnel management, financial management and Responsibilities and professionalism of a Specialist practitioner

Unit 5. Safety: State the requirements and legislation of Health and Safety as it applies to protection of staff and patient care

Unit 6. Practice Management in Orthodontics: Economics and dynamics of solo and group practices, materials management, public relations, professional relationship, dental ethics and jurisprudence, office sterilization procedures and community based Orthodontics.

Unit 7. Emerging concepts in Orthodontics and Dento-facial Orthopedics and recent advances in orthodontics like implants, Lasers, Application of FEM, Distraction Osteogenesis, clear aligner therapy and digital Orthodontics.

List of exercises for clinical work

1. Comprehensive orthodontic management of patients undergoing minor surgical procedures like exposure and management of impacted teeth, management of infra-occluded teeth and management of high frenal attachments – 2 cases.
2. Recall of patients on comprehensive orthodontic management – 76 cases.
3. Finishing and detailing of the cases of the comprehensive orthodontic treated cases with retention protocol- 40 cases.
4. Transfer of unfinished cases – 30 cases.
1. Completed cases with retention and comprehensive record preparation -15 cases.

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

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

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

CO-5			2		3	1		1	3	2
CO-6						3				1
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										

6. Course Teaching and Learning Methods

Teaching and Learning Methods		Duration in Hours
Classroom Interaction		150
1. Face to Face Lectures	03	
2. Seminars, Journal clubs, IDM	90	
3. Guest Lecture	03	
4. Brain Storming Sessions / Group Discussions / Discussing Possible Innovations	29	
5. Case Study Presentation	25	
Demonstrations		1490
1. Demonstration using Videos	10	
2. Demonstration using Physical Models/Systems	20	
3. Demonstration on a Computer	20	
Clinical / Practical Work		
1. Pre-Clinical area	50	
2. Clinical Area	1210	
3. Hospital Setup	100	
4. Field work/dental camp	20	
5. Outreach centers	50	
6.Industry/Field Visit	10	
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 Orthodontics and Dentofacial Orthopedics Programme. The procedure to determine the final course marks is also presented in the Programme Specifications document. The evaluation questions are set to measure the attainment of the COs. In either component (CE or PEE) or subcomponent of CE (SC1, SC2, SC3 or SC4), COs are assessed as illustrated in the following Table

Focus of COs on each Component or Subcomponent of Evaluation				
	Component 1: CE			
Subcomponent ►	Theory		Practical/Clinical	
Subcomponent Type ►	SC1 - Written assessment	SC2 - Assignment	SC3 - Clinical Assessment and Viva	SC4 - Clinical Assessment

AL

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

			Voce I	and Viva Voce II
Maximum Marks ►	100	100	100	100
CO-14.	x	x		x
CO-15.	x	x	x	x
CO-16.	x		x	x
CO-17.	x	x	x	x
CO-18.	x		x	x
CO-19.	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 Module
1.	Knowledge	Seminars, Journal clubs
2.	Understanding	Seminars, Journal clubs
3.	Critical Skills	Class room lectures, Seminars, Journal clubs
4.	Analytical Skills	Class room lectures and tutorials
5.	Problem Solving Skills	Clinical posting
6.	Practical Skills	Clinical posting
7.	Group Work	Assignment, Clinical posting
8.	Self-Learning	Assignment, Clinical posting, Tutorials
9.	Written Communication Skills	Assignment,
10.	Verbal Communication Skills	Clinical posting
11.	Presentation skills	Clinical posting, Seminars, Journal clubs and IDM
12.	Behavioural Skills	Clinical posting
13.	Information Management	Assignment, Tutorial, Seminars, Journal clubs
14.	Personal Management	Clinical posting
15.	Leadership Skills	Group discussion

Approved by the Academic Council at its 34th meeting held on 8th March 2025

[Signature]

[Signature]
M.S. Ramaiah University of Applied Sciences

[Signature]
Registrar
M.S. Ramaiah University of Applied Sciences

9. Course Resources

a. Essential Reading

1. Grabber, Vanarsdal, Vig (2012) - orthodontic- current principles techniques, 5th edition, Elsevier
2. William R Profit (2013) - contemporary orthodontics, 5th edition, Elsevier
3. McNamara JA, Brudon WL (2001) - Orthodontics and dentofacial orthopedics 1st edition. Needham press inc
4. Sobenpeter (2013) - Essentials of public health dentistry; 5th EDITION, Arya publishers
5. Alexander Jacobson (2006) - Radiocephalometry from basics to 3- D imaging. 2nd edition; Quintessence publication

b. Recommended Reading

1. Grabber TM, Neumann B (1984) - Removable orthodontic appliances 2nd edition. WB Saunders
2. Nanda R (2005) - Biomechanics and esthetic strategies in clinical orthodontics. 1st edition Elsevier
3. J E Park (1991) - Textbook of preventive & social medicine, 22nd edition, Banarsidas Bhanot
4. Mc Donald & Avery's (2010) Dentistry for child and adolescent. 9th edition Mosby
5. Daly B, Watt R, Batchelor P& Treasure E (2002) - Essential Dental Public Health. Oxford University Press

c. Articles

1. Parker W. Retention –Retainers may be forever: AJO 1989;95;505-513
2. Glenn G.Sinclair P& Alexander R: Non extraction orthodontic therapy; post retention dental & skeletal stability AJO 1987;92:403-411
3. Sadowsky C. & Sakols EI: Long term assessment of orthodontic relapse AJODO 1982;82;456-463
4. De La Cruz A, Sampson P:Long term changes in arch form after orthodontic treatment & retention AJODO 1995May; 107:518-30
5. Howard D. Iba: Management & marketing Working with Children; JCO Dec 2002 vol 36:number 12:Page 681
6. Hamula Warren: Orthodontic Office Design; JCO Jan 2000 Vol XXXIV, number 1 page 15-18
7. Gottlieb Eugene: Ethics is Orthodontic Practice; JCO (March 1999)VOL; XXXIII; number 3 ;page 145-150
8. Randall K Berning :Vision for the Orthodontist; AJO-DO Feb 2003
9. Neil J F:Developing ,Implementing & Sustaining Marketing plans; AJODO Dec 2003; vol 124:issue 6,pages 613-614
10. Gottlieb et al .Manage to Succeed; JCO NOV 2003 vol 37:number 10: pages 521-522
11. Doppel : An investigation of maxillary superimposition techniques using metallic

implants AJO-1994:105;161-168

12. Ilnleth Nielson: Maxillary superimposition- A comparison of 3 methods for cephalometrics evaluation of growth treatment change; Am J orthod 1989; 95:422-431.
13. Anthony Viazis: Cranial base triangle; JCO 1991 25:565-179
14. Adrian Becker, Josef Shapira: Orthodontic Treatment of Disabled Children; Journal of Orthodontics 2001/vol 28;39-44.
15. Proffit WR: Orthodontic care for compromised patients. Semin orthod Dec 2004;vol 10, no.4.
16. Sander AJ, Dodge NN; Managing patients who have seizure disorders dental & medical issues; J Am Dent assoc 1995 ;26:1641-47
17. O Neil JF, Developing implementing and sustaining marketing planes , AJODO November, 2003
18. Burning et al. Vision for orthodontics. AJODO, DEC 2003.
19. Hamular Warren, Orthodontic office design JCO 15-18, march 1999.
20. Peter M Sinclair and Ellen M Gradey, Practice management and marketing, Volume 17 issue 4, Semin Orthod, November 2004.

d. Journals

1. Angle Orthodontics
2. Journal of Clinical Orthodontics
3. Seminars in Orthodontics
4. American Journal of Orthodontics

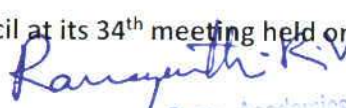
e. Electronic Resources

1. EBSCO
2. PUBMED
3. HELINET
4. SCIENCE DIRECT
5. Wiley's online



Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025



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



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith K.V.
Dean - Academics
M.S. Ramiah University of Applied Sciences
Reg. No. - 500 034



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.

Handwritten signature

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Handwritten signature
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Registrar

M.S. Ramaiah University of Applied Sciences
Bengaluru - 560 054

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.

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	

Registrar

M.S. Ramaiah University of Applied Sciences

Bangalore - 560 054

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Handwritten signature

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Handwritten signature: Rangarath R.V.
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

AK

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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		
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

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	--

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R V
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Al
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

9. Module Resources

Essential Reading

Modules notes and ppt

AK

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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		

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Rangarath R.V.
Dean - Academics

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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 – MSRH	00	
Field work/dental camp	00	
Outreach centres	00	
Advanced Learning Centre	00	
Projects	00	
Innovative methods – DOPS, mini CEX, OSCE/OSPE	00	
Others		4
1. Case Study Presentation	04	
2. Guest Lecture	00	
3. Industry / Field Visit	00	
4. Brain Storming Sessions	00	
5. Group Discussions	05	
6. Discussing Possible Innovations	00	
Term Tests, Laboratory Examination/Written Examination, Presentations		1
Total Duration in Hours		15

7. Module Assessment and Reassessment

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

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.

M.S. Ramaiah University of Applied Sciences



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

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

8. Achieving MOs

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

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

9. Module Resources

a. Essential Reading

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith K.R.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

AL
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

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			
Component 1: CE			
Subcomponent ►	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	

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

VR
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Module reassessment policies are presented in the Academic Regulations document.

8. Achieving MOs

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

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

9. Module Resources

Essential Reading

1. 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



Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025



Dean

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
M.S. Ramiah University of Health Sciences
Bangalore



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

Handwritten signature

7. Module Assessment and Reassessment

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Handwritten signature
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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	--

Registrar

M.S. Ramalah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
M.S. Ramalah University of Applied Sciences
Bangalore - 560 054



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

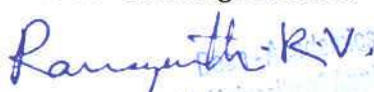
1. Wisker Gina. (2001) The post graduate research handbook, Palgrave
2. Rogg G and Petre M (2004) The unwritten rules of PhD research, open university



Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025



M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

AL

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya R.V.
Dean of Dental Sciences
M.S. Ramaiah University of Applied Sciences



6. Module Teaching and Learning Methods

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

7. Module Assessment and Reassessment

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

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

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Handwritten signature

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Handwritten signature: Ranjith K.V.

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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		
MO-6			2						2	

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

Handwritten signature

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Handwritten signature: Ramya R.V.

M.S. Ramaiah University of Applied Sciences

53



6. Module Teaching and Learning Methods

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

7. Module Assessment and Reassessment

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

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

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

8. Achieving MOs

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

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith K.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

M.S. Ramaiah
Registrar
University of Applied Sciences
Bangalore - 560 054

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

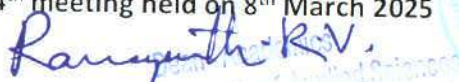
Essential Reading

Relevant books, articles and electronic resources



Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025


M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences

AK
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith K.V.
Dean - Academics
M.S. Ramiah University of Applied Sciences
Bangalore



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean - Research



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranjith R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

M.S. Ramiah
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

AK

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ranghitha R.V.
M.S. Ramaiah University of Applied Sciences



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

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Rangenth R.V.
Dean
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Atk
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

62
Dean

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

Approved by the Academic Council at its 34th meeting held on 18th March 2025

Ramya R.V.
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 074

Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 074

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

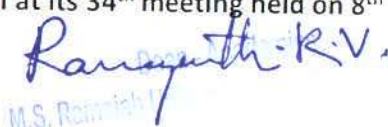
Relevant books, articles and electronic resources,



Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025



Ranganath K.V.
M.S. Ramaiah University of Applied Sciences



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

7. Module Assessment and Reassessment

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya
M.S. Ramaiah University of Applied Sciences
Bangalore



M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

[Signature]

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

[Signature]
M.S. Ramaiah University of Applied Sciences



**Annexure I - MDS in Orthodontics and Dentofacial Orthopedics
Curriculum Framework and Assessment**

S. No.	Course Code	Course Title	Credits	Assessment Marks
I	Programme Specialization Teaching Course			
1	ODC501B	Preclinical and Clinical Phase Basics	48	400
2	ODC502A	Clinical Phase Intermediate	48	400
3	ODC503B	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	Programme End Examination			
1	a. Part I Programme End Examination b. Part II Programme End Examination		20	700
	Total		180	2500

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Approved by the Academic Council at its 34th meeting held on 8th March 2025

Ramya K.V.
M.S. Ramaiah University of Applied Sciences
Bangalore

