MASTER OF DENTAL SURGERY (MDS)-
Periodontology (MDS.PRD)
(As per the Regulations of Dental Council of India)

Our Inspiration

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Hon. Chancellor, Amrita Vishwa Vidyapeetham
PROGRAM OUTCOMES

The program outcomes of MDS Periodontology may be summarized as appended below. At the end of three years of training, a post graduate student in Periodontology is expected to:

- Acquire knowledge about the historical perspective to advancement in the subject proper and related topics
- Know etiology, pathogenesis, diagnosis and management of common periodontal diseases with emphasis on Indian population
- Familiarize with the biochemical, microbiologic and immunologic, genetic aspects of periodontal health and pathology
- Know various preventive periodontal measures
- Learn various treatment modalities of periodontal disease from historical aspect to currently available ones
- Learn the interrelationship between periodontal disease and various systemic conditions
- Acquire knowledge on periodontal hazards due to iatrogenic causes and deleterious habits and prevention of the same.
- Identify rarities in periodontal diseases and environmental /emotional determinates in a given case
- Recognize conditions that may be outside the area of his specialty /competence and refer them to appropriate specialist
- Decide regarding surgical / non surgical management of case
- Update oneself by attending course, conference and seminars relevant to periodontics or by self learning process
- Plan out/ carry out research activity both basic and clinical aspects with an aim to publishing his work in journals
- Reach to public to motivate and educate regarding periodontal disease, its prevention and consequence if not treated
- Plan out epidemiological survey to assess prevalence and incidence of early onset periodontitis and adult periodontitis in Indian population
- Shall develop knowledge, skill in the science and practice of Oral Implantology
- Shall develop teaching skill in the field of Periodontology and oral Implantology

PROGRAM SPECIFIC OUTCOMES
A candidate undergoing training for the MDS program in Periodontology, shall, at the end of the three year training, inculcate the following specific skills:

- Take a proper clinical history, thorough examination of intra orally, extra orally, medical evaluation, advice essential diagnostic procedures and interpret them to come to a reasonable diagnosis
- Effective motivation and education regarding periodontal disease maintenance after the treatment
- Perform both non surgical and education regarding periodontal diseases, maintenance after treatment
- Perform both surgical and non surgical procedures independently
- Provide basic life support services, recognize the need for and advanced life support and does immediate need for that
- Human values, ethical practice and communication abilities:
  - Adopt ethical principles in all aspects of treatment modalities. Professional honesty and integrity are to be fostered. Develop communication skills to make awareness regarding periodontal disease.
  - Apply high moral and ethical standards while carrying out human or animal research. Be humble, accept the limitations in knowledge and skill, and ask for help from colleagues when needed. Respect patient’s rights and privileges, including patients right to seek second opinion.
EVALUATION AND GRADING SYSTEM

SCHEME OF EXAMINATIONS

PART I MDS EXAMINATIONS

The DCI, in its revised curriculum, has introduced a University level Examination at the end of the First year of the MDS course, from 2018-2019. As per this curriculum, “the University shall conduct the Part I MDS Examination in Applied Basic Sciences at the end of the first academic year. This shall consist of One Theory Written Paper of three hours duration, and shall contain ten questions, each carrying ten marks each. The answer sheets shall be valued by one External Examiner and one Internal Examiner from the concerned specialty”.

1. At the end of the 1st academic year (on completion of 12 months after the start of the MDS course), the University shall conduct the Part I MDS Examinations in Applied Basic Sciences, notification for which shall be issued by the Examination Control Division (ECD) of the University two months prior to the date of conduct of these Examinations.

2. As part of the eligibility criteria to appear for the Part I MDS Examinations, each MDS student shall have secured a minimum of 80% attendance in the first year of the MDS course, and shall have completed all the Pre-clinical work/exercises or any such course work, as mandated by the DCI, in its Modified Regulations (2017) or by the Head of the concerned Department /Principal of the Institution. The Principal shall send a list of students eligible to appear for the Part I MDS Examinations, to the ECD, at least 2 weeks prior to the start of the Examinations, so as to enable the University to issue hall tickets to eligible candidates.

3. The Part I MDS Examinations in Applied Basic Sciences shall consist of one (1) Theory Written Paper, of three (3) hours durations, for a total of one hundred (100) marks. The Theory Written paper shall have a total of ten (10) questions, each carrying 10 marks. The single paper carrying a total of 100 marks, can comprise varied types of questions that could help assess the knowledge of the candidates in a better manner.
4. A grand viva voce on the topics covered for the Theory Examinations can be conducted by the External and Internal Examiners appointed by the University for paper Evaluation. This will impart a better value and credibility to the Part I Examination system. The Viva voce can be conducted in the respective Departments of the Dental School, on the same day as notified by the University for evaluation of the Theory answer sheets.

5. The University can appoint as Question paper setters for the Part I MDS examinations, those Examiners from the concerned specialty, who fulfill the same general criteria laid down by the DCI, to qualify as Examiners for the Part II MDS Examinations. The Examiners may take care to set the questions which apply to the Basic Science topics in their concerned specialty, as mandated in the syllabus for the same by the DCI.

6. The candidates need to secure 50% marks separately for theory written and Grand viva to be declared ‘Passed’ for the Part I MDS Exams. Candidates who have failed in the Part I MDS Examination, will have a chance to appear for the supplementary Examinations that shall be conducted by the University six months after the conduct of the Regular Examinations. To become eligible to appear for the Part II MDS Examinations at the end of the third year of the course, the candidate shall have passed the Part I Examinations at least 6 months prior to the Part II Examinations. There shall be NO revaluation of the answer sheets of the Part I MDS Examinations.

7. The syllabus for the Part I MDS Examinations shall be according to that specified by the DCI for each Specialty in its MDS Course Regulations, 2017.

Part II MDS Examinations:

1. Shall be conducted at the end of three years of completion of the MDS course. Notification for these Examinations shall be given by the ECD three months prior to the actual dates of the Examinations.
2. Every MDS student shall submit to the University (ECD) four printed copies of the completed **Dissertation work** duly signed and approved by the Guide/HOD, through the Principal, six months prior to the scheduled date of Examinations. **Acceptance of Dissertation by all the appointed Examiners is a mandatory pre-requisite to enable the candidate to become eligible to appear for the subsequent Part II MDS Examinations.**

3. Hall tickets shall be issued to the candidates for the Part II MDS Examinations, based on: (a) Acceptance of Dissertations by the appointed Examiners, (b) Report of eligibility of candidates from the Principal, after taking into account the completion of the required quantum of work in each specialty and (c) a minimum of 80% total attendance for each candidate.

4. There shall be **three (3) Theory Written Papers, followed by the Practicals and Viva-voce.**

5. Each **Theory Written Paper** (Paper I, II & III) will have the syllabus and contents, as prescribed in the MDS Course Regulations, for each specialty. The nomenclature of each paper for each specialty will also be in accordance with these Regulations. Each paper shall be of three hours durations, and maximum marks of One hundred (100). For Papers I and II, there shall be two essay questions, each carrying twenty five (25) marks, and five (5) short questions, each carrying ten (10) marks. For Paper III, there shall be Three (3) Essay questions of which the candidates need to answer any two (2), carrying 50 marks each. Each paper shall be of 3 hours duration.

Paper 1: Normal periodontal structures, Etiology and pathogenesis of periodontal diseases, epidemiology as related to Periodontics
Paper 2: periodontal diagnosis, therapy and oral implantology
Paper 3: essay (with emphasis on recent advances in periodontics)

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

B. Practical/ clinical examination
The clinical examination shall be of 2 days duration

1st day
Case discussion
  - Long Case -One
  - Short Case -Two
Periodontal surgery – Periodontal flap surgery on a previously prepared case in one quadrant of the mouth after getting approval from the examiners

2nd Day
Post-surgical discussion and review of case treated on 1st day
Presentation of dissertation and discussion
All the examiners should participate in all aspect of examinations /Viva voce

Distribution of marks for clinical examination

<table>
<thead>
<tr>
<th></th>
<th>Marks</th>
</tr>
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<tbody>
<tr>
<td>Long Case</td>
<td>50</td>
</tr>
<tr>
<td>2 short case</td>
<td>50</td>
</tr>
<tr>
<td>Periodontal surgery</td>
<td>75</td>
</tr>
<tr>
<td>Post operative review</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
</tr>
</tbody>
</table>

C. Viva Voce 80 Marks

All examiners shall conduct viva voce on candidate’s comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all component of course content. It include presentation and discussion of dissertation

Pedagogy 20 Marks
A topic is given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on topic for 8-10 minutes

**MARKS DISTRIBUTION**

<table>
<thead>
<tr>
<th>Part I Applied Basic Sciences Examination</th>
<th>Maximum Marks</th>
<th>Marks required for Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Written Exam</td>
<td>100</td>
<td>50 out of 100</td>
</tr>
<tr>
<td>Grand Viva</td>
<td>50</td>
<td>25 out of 50</td>
</tr>
</tbody>
</table>

**Part II Examinations**

<table>
<thead>
<tr>
<th>Theory Written Exams (3 papers)</th>
<th>300 (100 marks each)</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical and Viva-voce</td>
<td>300 (200 for Practicals, 80 for Grand Viva, 20 for Pedagogy)</td>
<td>150</td>
</tr>
<tr>
<td>Total for Part II Exams</td>
<td>600 (300 + 300)</td>
<td>300</td>
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</tbody>
</table>

**COURSE DETAILS**

<table>
<thead>
<tr>
<th>Sl#</th>
<th>COURSE NAME</th>
<th>COURSE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Applied Basic Sciences</td>
<td>MPER1</td>
</tr>
<tr>
<td>2</td>
<td>Normal periodontal structures, Etiology and pathogenesis of periodontal diseases, epidemiology as related to Periodontics</td>
<td>MPER2</td>
</tr>
<tr>
<td>3</td>
<td>Periodontal diagnosis, therapy and oral implantology</td>
<td>MPER3</td>
</tr>
<tr>
<td>4</td>
<td>Recent Advances</td>
<td>MPER4</td>
</tr>
</tbody>
</table>
## COURSE OUTCOMES

### Applied Basic Sciences (MPER1)

<table>
<thead>
<tr>
<th>CO1</th>
<th>Acquire knowledge about the basics of Periodontology in order to apply the same in Periodontal practice</th>
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</thead>
<tbody>
<tr>
<td>CO2</td>
<td>Knowledge of the regional anatomy, histology, embryology and osteology of head and neck with general disposition of thorax, abdominal and pelvic organs and translating this knowledge in Periodontal practice</td>
</tr>
</tbody>
</table>

### Normal Periodontal Structures, Etiology And Pathogenesis Of Periodontal Diseases, Epidemiology As Related To Periodontics (MPER2)

<table>
<thead>
<tr>
<th>CO1</th>
<th>Knowledge of normal periodontal structures and pathogenesis of periodontal diseases in order to apply the same in periodontal Diagnosis and Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>Knowledge about epidemiology related to periodontal diseases and translate the same into research.</td>
</tr>
</tbody>
</table>

### Periodontal Diagnosis, Therapy and Implantology (MPER3)

| CO1 | Knowledge about etiology, pathogenesis, diagnosis and management of common periodontal diseases with emphasis on Indian population  
Familiarize with the biochemical, microbiologic and immunologic, genetic aspects of periodontal health and pathology |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|
| CO2 | Perform both non surgical procedure and patient education regarding periodontal diseases, maintenance after treatment  
Perform both surgical and non surgical procedures independently |

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COURSE SYLLABUS

Applied Anatomy
1. Development of Periodontium
2. Micro and Macro structural anatomy and biology of the periodontal tissues
3. Age changes in periodontal tissues
4. Anatomy of periodontium
   - Macroscopic and microscopic anatomy
   - Blood supply of Periodontium
   - Lymphatic system of the periodontium
   - Nerves of periodontium
5. Temporo-mandibular joint, Maxillae and Mandible
6. Cranial nerves (5,7,9,11,12)
7. Tongue, oropharynx
8. Muscles of mastication

Physiology
1. Blood
2. Respiratory system- Respiratory diseases which are a cause for periodontal disease
3. Cardiovascular system
   - Blood Pressure
   - Normal ECG
   - Shock
4. Endocrinology- hormonal influence on periodontium
5. Gastrointestinal system
   - Salivary secretion- Composition, function and regulation
   - Reproductive physiology- Hormones – actions and regulation, role in periodontics
6. Nervous system
   - Pain pathways
   - Taste – taste buds, primary taste sensation and pathways for sensation

Biochemistry
1. Basics of carbohydrates, lipids, proteins, vitamins, enzymes and minerals
2. Diet, nutrition and periodontium
3. Biochemical tests and their significance
4. Calcium and phosphorous

Pathology
1. Cell structure and metabolism
2. Inflammation and repair, necrosis and degeneration
3. Immunity and hypersensitivity
4. Circulatory disturbances-edema, hemorrhage, shock, thrombosis, embolism, infraction and hypertension
5. Disturbance of nutrition
6. Diabetes Mellitus
7. Cell growth and differentiation, regulation
8. Lab investigations
9. Blood

Microbiology
1. General bacteriology
2. Immunology and infection
3. Systemic bacteriology with special emphasis on oral microbiology—staphylococci, Genus Actinomyces and other filamentous bacteria and actinobacillus actinomycetum comitans
4. Virology
5. Mycology
6. Applied Microbiology
7. Diagnostic microbiology and immunology, hospital infections and management

Pharmacology
1. General pharmacology
2. Detailed pharmacology of
   a) Analgesics-opiod and non opiod
   b) Local anesthetics
   c) Haematinics and coagulants, anticoagulants
   d) Vitamin D and Calcium preparations
   e) Anti diabetics drugs
   f) Steroids
   g) Antibiotics
h) Anti hypertensive
   i) Immunosuppressive drugs and their effects on oral tissues
j) Antiepileptic drugs

3. Brief pharmacology, dental use and adverse effect of
   a) General anesthetic
   b) Antipsycotics
   c) Antidepressants
   d) Anxiolytic drugs
   e) Sedatives
   f) Anti epileptics
   h) Antihypertensive
   i) Antianginal drugs
   j) Diuretics
   k) Antidepressants
   l) Hormones
   k) Pre anesthetic medications

4. Drug used in bronchial asthma cough

5. Drug therapy of
   a) Emergencies
   b) Seizures
   c) Anaphylaxis
   d) Bleeding
   e) Shock
   f) Diabetic ketoacidosis
   g) Acute Addisonian crisis

6. Dental pharmacology
   a) Antiseptics
   b) Astringents
   c) Sialogogues
   d) Disclosing agents
   e) Antiplaque agents

7. Fluoride pharmacology

Biostatistics
1. Introduction, definition and branches of biostatistics
2. Collection of data, sampling, types, bias and errors
3. Compiling data graphs and charts
4. Measures of central tendency (mean, median, mode), standard deviation and variability
5. Tests of significance
6. Null hypothesis

**Etiopathogenesis**
1. Classification of periodontal diseases
   1 hour
2. Epidemiology of gingival and periodontal diseases
   3 hours
3. Defense mechanism of gingiva
   2 hours
4. Periodontal microbiology
   3 hours
5. Basic concepts of inflammation and immunity
   3 hours
6. Microbial interactions within the host in periodontal diseases
   3 hours
7. Pathogenesis of plaque associated periodontal disease
   2 hours
8. Dental calculus
   2 hours
9. Role of iotrogenic and other local factors
   3 hours
10. Genetic factors associated with the periodontal disease
    3 hours
11. Influence of systemic diseases and disorders of periodontium
    3 hours
12. Role of environmental factors in the etiology of periodontal diseases
    2 hours
13. Stress and periodontal disease
    3 hours
14. Occlusion and periodontal disease
    3 hours
15. Smoking and tobacco in the etiology of periodontal diseases
    3 hours
16. AIDS and periodontium
    -2 hours
Clinical and therapeutic Periodontology and oral Implantology

Clinical Periodontology includes gingival diseases, periodontal diseases, periodontal instrumentation, diagnosis, prognosis and treatment of periodontal diseases

Gingival disease
1. Gingival inflammation
   1 hour
2. Clinical features of gingivitis
   3 hours
3. Gingival enlargement
   3 hours
4. Acute gingival infections
   3 hours
5. Desquamative gingivitis and oral mucous membrane disease
   3 hours
6. Gingival disease in childhood
   3 hours

Periodontal disease
1. Periodontal pocket
   3 hours
2. Bone loss and patterns of bone destruction
   3 hours
3. Periodontal response to external forces
   3 hours
4. Masticatory system disorders
   2 hours
5. Chronic periodontitis
   3 hours
6. Aggressive periodontitis
   3 hours
7. Necrotising ulcerative periodontitis
   3 hours
8. Interdisciplinary approaches
   3 hours
   - Orthodontic
   - Endodontic
9. Endodontic considerations in periodontal therapy
   2 hours

Treatment of Periodontal disease
History, examination, diagnosis and treatment planning
   1. Clinical diagnosis
      3 hours
   2. Radiographic and other aids in the diagnosis of periodontal
disease 2 hours
   3. Advanced diagnostic technique
      3 hours
   4. Risk assessment
      3 hours
   5. Determination of prognosis
      3 hours
   6. Treatment plan
      3 hours
   7. Rationale for periodontal treatment
      3 hours
   8. General principles of anti-infective therapy with special
emphasis on infection control in periodontal practice
      3 hours
   9. Halitosis and its treatment
      2 hours
  10. Bruxism and its treatment
      2 hours

Periodontal instrumentation
   1. Instrumentation
      5 hours
   2. Principles of periodontal instrumentation
      5 hours
   3. Instruments used in different parts of the mouth

Periodontal therapy
1. Preparation of tooth surface
   3 hours
2. Plaque control
   3 hours
3. Anti microbial and other drugs used in periodontal therapy and wasting diseases of teeth
   2 hours
4. Periodontal management of HIV infected patients
   2 hours
5. Occlusal evaluation and therapy in the management of Periodontal disease
   3 hours
6. Role of orthodontics as an adjunct to periodontal therapy
   2 hours
7. Special emphasis on precautions and treatment for medically compromised patients
   3 hours
8. Periodontal splints
   3 hours
9. Management of dentinal hypersensitivity
   3 hours

Periodontal surgical phase- Special emphasis on drug prescription
1. General principles of periodontal surgery
   3 hours
2. Surgical anatomy of periodontium and related structures
   3 hours
3. Gingival curettage
   2 hours
4. Gingivectomy techniques
   2 hours
5. Treatment of gingival enlargement
   3 hours
6. Periodontal flaps
   3 hours
7. Osseous surgery (resective and regenerative)
   3 hours
8. Furcation – problems and management
   2 hours
9. Periodontic-endodontic problems
   3 hours
10. Periodontic plastic and esthetic surgery
    3 hours
11. Recent advances in surgical techniques
    3 hours

Future directions about controversial questions in periodontal therapy
1. Future directions of infection control
   3 hours
2. Research directions in regenerative therapy
   3 hours
3. Future directions in anti inflammatory therapy
   3 hours
4. Future directions in measurement of periodontal diseases

Periodontal maintenance phase
1. Supportive periodontal therapy
   2 hours
2. Results of periodontal treatment
   2 hours

Oral implantology
1. Introduction and historical review
   3 hours
2. Biological, clinical and surgical aspects of dental implants
   3 hours
3. Diagnosis and treatment planning
   3 hours
4. Implant surgery
   3 hours
5. Prosthetic aspects of implant
6. Diagnosis and treatment planning of peri-implant complications
   2 hours
7. Special emphasis on plaque control measures for implant patients
   3 hours
8. Maintenance phase
   3 hours
Management of medical emergencies in periodontal practice
3 hours

Teaching and learning activities

- Seminars: A minimum of 15 seminars to be presented by each student during the PG course
- Journal club: A minimum of 25 journal articles to be reviewed by each student during the PG course
- Interdepartmental seminar: Each PG student should present at least 1 seminar in an interdepartmental meeting during the PG course. Such meeting should be held at least once a month
- Library assignment: One to be presented at the end of 18th month of the course

Clinical work (Minimum No: of Cases)

First Year
1. Applied periodontal indices                                     10 Cases
2. Scaling and root planing
   - Hand                               15 cases
   - Ultrasonic                          15 Cases
3. Curettage                                                                   10 cases
4. Gingivectomy                                                            20 Cases
5. Gingivoplasty                                                             10 cases

Second year
1. Clinical work                                                         10 cases
2. Case history and treatment planning              05 cases
3. Local drug delivery techniques                           05 cases
4. Periodontal surgical procedures
   - Pocket therapy                    10 cases
   - Mucogingival surgeries             5 cases
   - Implants                           2 Implants
Management of Endo-perio problems
   5. Occlusal adjustments                     10 Cases
   6. Perio splints                           10 Cases
Third year

1. Regenerative techniques using various graft and barrier membranes
2. Record, maintenance and follow up of all treated cases including implants