AMRITA VISHWA VIDYAPEETHAM | School of Dentistry

MASTER OF DENTAL SURGERY (MDS)-
Oral & Maxillofacial Surgery
(MDS.OMS)

(As per the Regulations of the Dental Council of India)

Our Inspiration

H.H. Mata Amritanandamayee Devi

Hon. Chancellor, Amrita Vishwa Vidyapeetham

Contents

PROGRAM OUTCOMES

The program outcomes of MDS Oral & Maxillofacial Surgery may be grouped under three main heads: Knowledge, Attitude and Skill

KNOWLEDGE:

At the end of the three year training program, the student needs to:

- To have acquired adequate knowledge and understanding of the etiology, pathophysiology and diagnosis, treatment planning of various common Oral and Maxillofacial surgical problems both minor and major in nature.
- To have understood the general surgical principles like pre and post surgical management, particularly evaluation, post surgical care, fluid and electrolyte management, blood transfusion and post surgical pain management.
- Understanding of basic sciences relevant to practice of oral and maxillofacial surgery.
- Able to identify social, cultural ,economic, genetic and environmental factors and their relevance to disease process management in the oral Maxillofacial region.
- Essential knowledge of personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste keeping in view the high prevalence of hepatitis and HIV.

ATTITUDE:

AT the end of the three-year training, the student shall:

- Develop attitude to adopt ethical principles in all aspect of surgery practice, professional honesty and integrity are to be

fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
- Willing to share the knowledge and clinical experience with professional colleagues.
- Willing to adopt new techniques of surgical management developed from time to time based on scientific research which are in the best interest of the patient.
- Respect patient right and privileges, including patients right to information and right to seek a second opinion.
- Developed attitude to seek opinion from an allied medical and dental specialists as and when required.

COMMUNICATION SKILLS:

- Developed adequate communication skills particularly with the patients giving them the various options available to manage a particular surgical problem and obtain a true informed consent from them for the most appropriate treatment available at that point of time.
- Develop the ability to communicate with professional colleagues.
- Develop ability to teach undergraduates.

PROGRAM SPECIFIC OUTCOMES

A candidate undergoing training for the MDS program in Oral & Maxillofacial Surgery, shall, at the end of the three year training, inculcate the following specific skills:

- To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures and order relevant laboratory tests and interpret them and to arrive at a reasonable diagnosis about the surgical condition.
- To perform with competence minor oral surgical procedures and common maxillofacial surgery. To treat both surgically and medically (or by other means of the oral and Maxillofacial and the related area).

- Capable of providing care for maxillofacial surgery patients.

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".

- 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.

- 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

- 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.
- 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.

- 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.

- 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.

- 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-I : Minor Oral Surgery and Trauma
PAPER-II : Maxillofacial Surgery
PAPER-III: Essay

B. Practical / Clinical Examination : 200 Marks

1. Minor Oral Surgery - 100 Marks

Each candidate is required to perform the minor oral surgical procedures under local anesthesia. The minor surgical cases may include removal of impacted lower third molar, cyst enucleation, any similar procedure where students can exhibit their professional skills in raising the flap, removing the bone and suturing the wound.

2. (a) one long case - 60 marks
   (b) two short cases - 20 marks each

C. Viva Voce: (100 Marks including 20 for Pedagogy)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.

Pedagogy Exercise: (20 marks)

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

MARKS DISTRIBUTION

Part I Applied Basic Sciences Examination	**Maximum Marks**	**Marks required for Pass**
Theory Written Exam	100	50 out of 100
Grand Viva	50	25 out of 50
Part II Examinations		
Theory Written Exams (3 papers)	300 (100 marks each)	150
Practical and Viva-voce	300 (200 for Practicals, 80 for Grand Viva, 20 for Pedagogy)	150
Total for Part II Exams	600 (300 + 300)	300

COURSE DETAILS

Sl#	**COURSE NAME**	**COURSE CODE**
1	Applied Basic Sciences	MOMF1
2	Minor Oral Surgery and Trauma	MOMF2
3	Maxillofacial Surgery	MOMF3
4	Recent Advances	MOMF4

APPLIED BASIC SCIENCES (MOMF1)

COURSE OUTCOMES

Course Outcomes
CO1: Obtain sound knowledge of basic sciences in relation to Oral and Maxillofacial Surgery and apply the same in diagnosis and treatment planning
CO2. To acquire fine knowledge and skill in handling vital body structures and organs as is required during imparting treatment for various maxillofacial surgical procedures.
CO3. Knowledge about infections and infection control and application of the same in oral surgery practice

MINOR ORAL SURGERY AND TRAUMA (MOMF2)

Course Outcomes
CO1: To have understood the general surgical principles like pre and post surgical management, particularly evaluation, post surgical care, fluid and electrolyte management, blood transfusion and post surgical pain management.
CO2. To perform with competence minor oral surgical procedures and common maxillofacial surgery. To treat both surgically and medically (or by other means of

the oral and Maxillofacial and the related areas).

MAXILLOFACIAL SURGERY (MOMF3)

Course Outcomes
CO1: To have understood the general surgical principles like pre and post surgical management, particularly evaluation, post surgical care, fluid and electrolyte management, blood transfusion and post surgical pain management.
CO2: To perform with competence oral surgical procedures and common maxillofacial surgery. To treat both surgically and medically (or by other means of the oral and maxillofacial and the related area).

COURSE SYLLABUS

APPLIED BASIC SCIENCES:

A thorough knowledge both on theory and principles in general and particularly the basic medical subjects as relevant to the practice of maxillofacial surgery. It is desirable to have adequate knowledge in bio-statistics, Epidemiology, research methodology, nutrition and computers.

ANATOMY:

Development of face, paranasal sinuses and structures and their anomalies: surgical anatomy of scalp temple and face, anatomy and

its applied aspects of triangles of neck, deep structures of neck , cranial and facial bones and its surrounding soft tissues , cranial nerves tongue , temporal and infratemporal region, orbits and its contents , muscles of face and neck, paranasal sinuses, eyelids and nasal septum, teeth, gums and palate, salivary glands, pharynx, thyroid and parathyroid glands, larynx , trachea and esophagus, congenital abnormality of orofacial regions, General consideration of the structure and function of brain and applied anatomy of intracranial venous sinuses; cavernous sinus and superior sagittal sinus, Brief consideration of autonomous nervous system of head and neck, Functional anatomy of mastication, deglutition, speech, respiration and circulation. Histology of skin, oral mucosa, connective tissue bone, cartilage cellular elements of blood vessels, lymphatic, nerves, muscles, tongue, tooth and its surrounding structures.

PHYSIOLOGY:

Nervous system-physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature; Blood- its composition hemostasis, blood dyscrasias and its management, hemorrhage and its control, blood grouping , cross matching , blood component therapy, complications of blood transfusion, blood substitutes, auto transfusion, cell savers ; Digestive system composition and function of saliva mastication deglutition, digestion, assimilation, urine formation, normal and abnormal constituents; Respiration control of ventilation anoxia , asphyxia, artificial respiration, hypoxia- types and management ; CVS – cardiac cycle , shock, heart sounds, blood pressure , hypertension; Endocrinology- metabolism of calcium ; endocrinal activity and disorder relating to thyroid gland, parathyroid gland , adrenal gland, pituitary gland, pancreas and gonads ; Nutrition – general principles balanced diet. Effect of dietary deficiency, protein energy malnutrition, kwashiorkor, Marasmus, Nutritional assessment, metabolic responses to stress , need for nutritional support , entrails nutrition, roots of acces to GI tract, Parenteral nutrition , Access to central veins, Nutrition support ; Fluid and Electrolytic balance/ Acid Base

metabolism – body fluid compartment , metabolism of water and electrolytes, factors maintaining hemostasis, causes & treatment of acidosis and alkalosis.

BIOCHEMISTRY:

General principles governing the various biological principles of the body , such as osmotic pressure, electrolytes, dissociation, oxidation, reduction etc; general composition of body , intermediary metabolism , carbohydrate, proteins, lipids, enzyme, vitamins , minerals and antimetabolites.

GENERAL PATHOLOGY:

Inflammation – Acute and chronic inflammation, repair and regeneration, necrosis and gangrene, role of component system in acute inflammation, role of arachidonic acid and its metabolites in acute inflammation, growth factors in acute inflammation role of NSAIDS in inflammation, cellular changes in radiation injury and its manifestation; Wound management – Wound healing factors influencing healing ; properties of suture materials, appropriate uses of sutures; hemostasis – role of endothelium in thrombogenesis ; arterial and venous thrombi, disseminated intravascular coagulation; Hypersensitivity; Shock and pulmonary failure: types of shock , diagnosis, resuscitation, pharmacological support, ARDS and its causes and prevention, ventilation and support, Neoplasm – classification of tumors, Carcinogens and Carcinogenesis, grading and staging of tumors, various laboratory investigation.

GENERAL MICROBIOLOGY:

Immunity , Hepatitis B and its prophylaxis, knowledge of organisms, commonly associated with diseases of oral cavity, culture and sensitivity tests, various staining techniques- Smears and cultures, urine analysis and culture.

ORAL PATHOLOGY AND MICROBIOLOGY:

Development disturbances of oral and para oral structures, regressive changes of teeth, bacterial, viral, mycotic infection of oral cavity, Dental caries, diseases of pulp and Periapical tissues. physical and chemical injuries of oral cavity, wide range of pathological lesions of hard and soft tissues of the orofacial regions like cysts, odontogenic infection, benign & malignant neoplasms, salivary gland diseases , maxillary sinus diseases, mucosal diseases, oral aspects of various systemic diseases & role of laboratory investigation in oral surgery.

PHARMACOLOGY AND THERAPEUTICS:

Definition of terminology used, pharmacokinetics and pharmacodynamic dosage and mode of administration of drugs , action and fate in the body , drug addiction , tolerance and hypersensitivity reaction, drugs acting on CNS , general and local anesthetics, antibiotics and analgesics, antiseptics, antitubercular, sialagogues, hemetinics, anti diabetics, Vitamins A, B-complex, C,D,E,K

COMPUTER SCIENCE:

Use of computers in surgery, components of computer and its use in practice, principles of word processing, spreadsheet function database and presentations; the internet and its use. The value of computer based systems in biomedical equipment.

ORAL AND MAXILLOFACIAL SURGERY:

- Evolution of Maxillofacial surgery.
- Diagnosis, history taking, clinical examination, investigations.
- Informed consent/ medico – legal issues.
- Concept of essential drugs and rational use of drugs.
- Communication skills with patients- understanding, clarity in communication, compassionate explanations and giving emotional support at the time of suffering and bereavement.

- Principles of surgical audit – understanding the audit of process and outcome. Methods adopted for the same. Basic statistics.
- Principles of evidence based surgery – understanding journal based literature study; the value of textbook, reference book articles; original articles and their critical assessment, understanding the value of retrospective, prospective, randomized control and blinded studies , understanding the principles and the meaning of various Bio- statistical tests applied in theses studies.
- Principles of surgery- developing a surgical diagnosis , basic necessities for surgery , aseptic technique, incisions, flap designs , tissue handling, hemostasis, dead space management, decontamination and debridement, suturing , edema control, patient general health and nutrition.
- Medical emergencies – Prevention and management of altered consciousness, hyper sensitivity reaction, chest discomfort, respiratory difficulty.
- Pre operative workup- concept of fitness for surgery; basic medical workup; workup in special situations like diabetes, renal failure, cardiac and respiratory illness; risk stratification.
- Surgical sutures, drains.
- Post operative care- concept of recovery room care, Airway management, Assessment of wakefulness, management of cardio vascular instability in this period, Criteria for shifting to the ward , pain management.
- Wound management- Wound healing , factors influencing healing, basic surgical techniques, Properties of suture materials, appropriate use of sutures.
- Surgical Infections – Asepsis and antisepsis, Microbiological principles, Rational use of antibiotics , special infections like Synergistic Gangrene and Diabetic foot infection , Hepatitis and HIV infection and cross infection.
- Airway obstruction / management – Anatomy of the airway, principles of keeping the airway patent, mouth to mouth resuscitation, oropharyngeal airway , endotracheal intubation, Cricothyroidectomy, Tracheostomy.

- Anesthesia – stages of Anesthesia , pharmacology of inhalation, intravenous and regional anesthetics, muscle relaxants.
- Facial pain; Facial palsy and nerve injuries.
- Pain control – acute and chronic pain , cancer and non- cancer pain, patient controlled analgesia .
- General patient management – competence in physical assessment of patient controlled analgesia competence in evaluation of patients presenting with acute injury , particularly to maxillofacial region. Competence in the evaluation of management of patients for Anesthesia.
- Clinical oral surgery – all aspects of dento alveolar surgery.
- Pre- prosthetic surgery – A wide range of surgical reconstructive procedures involving their hard and soft tissues of the edentulous jaws.
- Temporomandibular joint disorders – TMJ disorders and their sequelae need expert evaluation, assessment and management. It is preferable to be familiar with diagnostic and therapeutic arthroscopic surgery procedures.
- Tissue grafting – Understanding of the biological mechanisms involved in autogenous and heterogeneous tissue grafting.
- Reconstructive oral and maxillofacial surgery – hard tissue and soft tissue reconstruction.
- Cyst and tumors of head and neck region and their management – including principles of tumor surgery , gaint cell lesion of jaw bones, fibro osseous lesions of jaw.
- Neurological disorders of maxillofacial region – diagnosis and management of Trigeminal Neuralgia, MPDS, Bells Palsy, Frey's Syndrome, Nerve injuries.
- Maxillofacial trauma – basic principles of treatment , primary care, diagnosis and management of hard and soft tissue injuries, Comprehensive management including polytrauma patients.
- Assessment of trauma – multiple injuries patient , closed abdominal and chest injuries, penetrating injuries, pelvic fractures, urological injuries , vascular injuries.

- Orthognathic surgery- The trainee must be familiar with the assessment and correcting of jaw deformities
- Laser surgery- The application of laser technology in the surgical treatment of lesions amenable to such therapy.
- Distraction osteogenesis in maxillofacial region.
- Cryosurgeries – Principles, the application of cryosurgery in the surgical management of lesions amenable to such surgeries.
- Cleft lip and palate surgery – detailed knowledge of the development of the face, head and neck, diagnosis and treatment planning. Current concepts in the management of cleft lip and palate deformity, knowledge of nasal endoscopy and other diagnostic techniques in the evaluation of speech and hearing, concept of multi disciplinary team management.
- Aesthetic facial surgery – detailed knowledge of structures of face & neck including skin and underlying soft tissues, diagnosis and treatment planning of deformities and conditions affecting facial skin, underlying facial muscles, bone, eyelids, external ear etc., surgical management of post acne scarring, face lift, blepharoplasty, otoplasty, facial bone recontouring etc.
- Craniofacial surgery – basic knowledge of developmental anomalies of face, head and neck, basics concept in the diagnosis and planning of various head and neck anomalies including facial cleft, craniosynostosis, syndromes, etc., Current concept in the management of craniofacial anomalies.
- Head and neck oncology – understanding of the principles of management of head and neck oncology including various pre cancerous lesions, Experience in the surgical techniques of reconstruction following ablative surgery.
- Micro vascular surgery.
- Implantology – principles, surgical procedures for insertion of various types of implants, interdisciplinary management of implant cases.
- Maxillofacial radiology / radio diagnosis.
- Other diagnostic methods and imaging techniques.

ALLIED SPECIALITIES:

- General surgery: Principles of general surgery, exposure to common general surgical procedures.
- General medicine : General assessment of the patient including children with special emphasis on cardiovascular diseases, endocrinal, metabolic respiratory and renal diseases, blood dyscrasias.
- Anesthesia: Evaluation of patients for GA technique and management of emergencies, various IV sedation techniques.
- Oncology: Planning the care for cancer patients, knowledge and skill development to perform oncosurgeries, basic knowledge of current concepts in radiation oncology and medical oncology.
- Plastic Surgery: Evaluation and management of burns, cosmetic procedures like rhinoplasty, facelift, browlift; advanced head and neck reconstruction
- Neurosurgery : Evaluation of a patient with head injury , knowledge & exposure of various neurosurgical procedures.
- ENT / Ophthalmology: Examination of ear, nose, throat, exposure to ENT surgical procedures, ophthalmic examination and evaluation, exposure to ophthalmic surgical procedures.
- Orthopedics: basic principles of orthopedic surgery, bone diseases and trauma as relevant to Maxillofacial surgery, interpretation of radiographs, CT, MRI and ultrasound

Academic Clinical programme (applicable for all three years):

- Seminars to be presented & attended once in a week.
- Journal clubs (departmental and interdepartmental) to be conducted once in fifteen days.
- Departmental and interdepartmental discussions to be held once in a month.
- Minimum 2 scientific papers should be presented.

- Every candidate shall maintain a logbook to record his / her work or participation in all activities such as journal clubs, seminars, CDE programs etc. This work shall be scrutinized and certified by the head of the department and head of the institution and presented to the university every year.

YEAR BY YEAR PROGRAMME:

I Year - First term:

Basic sciences, basic computer sciences, exodontias, seminars on basic topics, selection of dissertation topic, library assignment topic, attending O.T and ward rounds, preparation of synopsis and its submission within the six months after admission to the university as per calendar of events.
Posting in Anatomy Department of School of Medicine on a regular basis for three months to study and practice Dissection of human body for head and neck anatomy

Second Term (rotation and postings in other departments):

General Medicine - 1 month
General Surgery - 1 month
Emergency - 1 month
Minor oral surgery

II Year
Anaesthesia - 1 month
Oncology - 2 months
Plastic Surgery - 1 month
Ophthalmology - 15 days
Neurosurgery - 15 days
ENT - 15 days
Orthopedics - 15 days

Minor oral surgery and higher surgical training.
Submission of library assignment by the end of first term.
Examination on minor oral surgical procedures – one paper of three hours duration to be conducted by the college.

III Year

Maxillofacial surgery, submission of dissertation in the first term, i.e. six months before the final examination to the university.
Examination of three hours duration three months before the final examination to be conducted by the college. It is desirable to enter general surgical skills and operative procedure that are observed, assisted or performed in the log book in the format as given by RGUHS in the revised ordinance governing MDS degree course.

Sl.No	**Clinical Procedure**	**Year of study**	**Number to be completed**
1.	Injection I.M. and I.V.	I,II	50,20
2.	Minor suturing and removal of sutures	I	N,A
3.	Incision & drainage of an abscess	I	10
4.	Surgical extraction	I	15
5.	Impacted teeth	I,II	20,10
6.	Pre prosthetic teeth- a) corrective procedures b) ridge extension c) ridge reconstruction	 I I,II II,III	 15 3 3
7.	OAF closure	I,II	3,2
8.	Cyst enucleation	I,II	5,5
9.	Mandibular fractures	I,II	10,10
10.	Peri- apical surgery	I	5
11.	Infection management	I,II	N,A
12.	Biopsy procedures	I,II	N,A
13.	Removal of salivary calculi	I,II	3,5
14.	Benign tumors	II,III	3,3
15.	Mid face fractures	II,III	3,5
16.	Implants	II,III	5,5

17.	Tracheotomy	II,III	2,2
18.	Skin grafts	III	3,5
19.	Orthognathic surgery	II,III	3
20.	Harvesting bone & cartilage grafts a) Iliac crest b) Rib c) Calvarial d) Fibula	 III III III III	3,5 3 2 2
21.	T.M.Joint surgery	II,I	1
22.	Jaw resections	III,II	3,3
23.	Onco surgery	III,III	3,3
24.	Micro vascular anastamosis	III	5,10
25.	Cleft lip & palate	II,III	10,15
26.	Distraction osteogenesis	II,III	2,3
27.	Rhinoplasty	III	3,5
28.	Access osteotomies and base of skull surgeries	III	1,3