SANTOSH
Deemed to be University

Celebrating 25+ Impactful years

Curriculum for

MDS

SANTOSH DEEMED TO BE UNIVERSITY
REGISTRAR
GHAZIABAD

SANTOSH

Deemed to be University

(Established u/s 3 of the UGC Act, 1956)

GHAZIABAD, NCR DELHI, INDIA

The Revised Regulations and Syllabi for the Degree Courses 2018 as available on Dental Council of India (DCI) Website, according to the DCI Notification dated 01.09.2017 and as Amended on 14.03.2018 and 02.09.2019 is printed and provided in a book shape.

1. RECOMMENDED BY THE **BOARD OF STUDIES** IN ITS MEETINGS HELD ON 23.10.2018 AND 09.06.2021

2. APPROVED BY THE **ACADEMIC COUNCIL** IN ITS MEETINGS HELD ON 23.10.2018 AND 11.06.2021.

3. APPROVED BY THE **BOARD OF MAGANEMENT** IN ITS MEETINGS HELD ON 27.10.2018 AND 16.06.2021

Dr. P. Mahalingam

Chairman, Santosh Deemed to be University

Dr. Santosh Mahalingam

Vice Chairman, Santosh Deemed to be University

Academic Officials

Dr. Manoj Goyal	-	Chancellor, Santosh Deemed to be University
Dr. Tripta S Bhagat	-	Vice Chancellor, Santosh Deemed to be University
Dr. V.P. Gupta	-	Registrar, Santosh Deemed to be University
Dr. Akshay Bhargava	-	Dean, Santosh Dental College & Hospital

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GHAZIABAD, NCR DELHI, INDIA

1ST Edition
JULY 2021

This book has been compiled from the available records as recommended by the Board of Studies and approved by the Academic Council and Board of Management from time to time. In compilation of this book due care has been taken for correction of the records. If any inadvertent error has occurred, we will appreciate receiving information in this regard, which shall be duly rectified in future editions.

ACKNOWLEDGEMENT

I owe special thanks to our Founder Chairman & Managing Trustee of the Maharaji Educational Trust, Santosh Trust, Santosh Deemed to be University & Paramedical Colleges and eminent Cardiologist Dr. Paramasivam Mahalingam for his constant support & guidance. I am thankful to Dr. Santosh Mahalingam, Vice Chairman, Santosh Deemed to be University and all Head of the Departments of Santosh Dental College & Hospital and all Members of the Academic Section for their help in framing and editing this Revised Regulations and Syllabi for the M.D.S Degree Courses running under the ambit of Santosh Deemed to be University.

[DR. V.P. GUPTA]
REGISTRAR

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

SANTOSH DENTAL COLLEGE & HOSPITAL, GHAZIABAD

PREAMBLE:

The Santosh Medical / Dental Colleges & Hospitals, Ghaziabad, were established by the "Maharaji Educational Trust", Registered under the Indian Trust Act, in the year 1995. The Government of India vide their letter no.U.12012/25/95-ME (P), Ministry of Health & Family Welfare, New Delhi, dated 15th January 1996 was granted permission for conducting MBBS course with 50 admissions annually and later on the same was increased from 50 to 100 admissions annually from the Academic year 2005-2006 vide the Government of India, Ministry of Health Family Welfare's Letter No.U.12012/79/2004 – ME (P-II) dated the 15 July 2005. Similarly the Santosh Dental College was also granted permission for conducting BDS course with 40 admissions annually from the year 1995 vide the Government of India, Ministry of Health Family Welfare's Letter No V.12017/12/95-PMS, dated 11-01-1996 and later on the same was increased from 40 to 100 admissions annually from the Academic year 2005-2006 vide the Government of India, Health Family Welfare letter No.12017/46/2002-PMS dated 07-07-2004. The Santosh Medical / Dental Colleges were affiliated with the Ch. Charan Singh University, Meerut vide their letter No. Affiliation/Self Finance/2025 dated the 15 June 2005.

The Central Government of India vide their No.F.9-2/2003-U.3, Ministry of Human Recourse Development (Department of Higher Education), New Delhi, dated June 13, 2007, declared the Santosh Medical/ Dental Colleges, Ghaziabad as one of the Institutions, deemed to be University in the name and style of Santosh University Ghaziabad on the recommendations of the University Grants Commission vide their letter No. F 6-77/2004/CPP-I dated 18-05-2007. Presently

various Post Graduate Medical Degree and Post Graduate Dental Degree Courses are successfully running under the ambit of the Santosh Deemed to be University with the prior approval of the Medical Council of India and Dental Council of India. Besides the PG Degree courses in Medical & Dental, various Medical Diplomas, M.Sc. in the Medical disciplines and Ph.D. in Medical and Dental disciplines are also running successfully under the ambit of Santosh Deemed to be University.

Santosh Deemed to be University serves as a unique institution delivering quality medical / dental education and services. A number of institutions function under the auspices of Santosh Deemed to be University providing excellent academic and infrastructure facilities.

Santosh Deemed to be University is an institution of higher learning, with a triple mission of education, service and research. In addition offering degrees in Medicine, Dentistry, the University provides and environment for learning and discovery through education of health care professionals and bio-medical students, research in health science and comprehensive health care.

Committed to fulfilling its responsibilities, it is the University's mission to educate students to become caring, compassionate, ethical and proficient health care professions and creative biomedical students; To conduct research in the health sciences, advancing knowledge and encouraging new response to health care needs; To provide excellence in patient care, in an environment that is respectful of others, adaptive to change, accountable for outcomes and attentive to the needs of the under privileged members of the society.

This Revised Regulations and Syllabi for the M.D.S Degree Courses at Santosh Dental College will provide an outlook of the MDS Degree Courses at the Santosh Deemed to be University which will be useful both for the students as well as to the faculty.

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Contents

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

REVISED REGULATIONS AND SYLLABUS FOR THE MDS DEGREE COURSES - 2018

In accordance of the Rules and Bye Laws of the Santosh Deemed to be University, Ghaziabad the Academic Council of the Santosh Deemed to be University, hereby makes the following regulations and Syllabus for the MDS Degree Courses.

CHAPTER – I

1. SHORT TITLE:

These regulations shall be called "**THE REGULATIONS AND SYLLABUS FOR THE MASTER OF DENTAL SURGERY DEGREE COURSES – 2018 OF THE SANTOSH DEEMED TO BE UNIVERSITY, GHAZIABAD".**

2. COMMENCEMENT:

These Regulations, curriculum and the Syllabi are in accordance with the Dental Council of India's Revised MDS Course Regulations, 01.09.2017, 14.03.2018 & 02.09.2019 and are subjected to modifications by the Academic Council of the Santosh Deemed to be University from time to time. These are made applicable to the students admitted to the MDS course under Santosh Deemed to be University from the academic year 2018-19.

3. ELIGIBILITY:

(1) A candidate for admission to the MDS (Master of Dental Surgery) Degree Course must have a recognized degree of BDS (Bachelor of Dental Surgery) awarded by an Indian University in of respect of recognized Dental College under Section 10(2) of the Dentists Act, 1948 or an equivalent qualification recognized by the Dental Council of India and should have obtained permanent registration with the State Dental Council.

Candidates not possessing a recognized Dental qualification for the above purpose should secure the prior approval of his/her qualifications by the Dental Council of India before he can be admitted to the MDS Course of any University in India.

(2) Candidates who possess PG Diploma recognized by the DCI with the duration of 2 years in particular specialty is eligible for admission in MDS in the same specialty and the duration will be 2 years.

Provided that in the case of a foreign national shall obtain temporary registration from the Dental Council of India, for the duration of the postgraduate training to which he is admitted.

Provided further that the temporary registration of such foreign national shall be subject to the condition that such person is duly registered as dental practitioner in his own country from which he has obtained his basic dental qualification and that his degree is recognized by the corresponding dental council or the Santosh Deemed to be University and No Objection Certificate from the Ministry of External Affairs of the Central Government for granting such admission in India.

4. AGE LIMIT:

There is no upper age limit.

5. PHYSICAL FITNESS CERTIFICATE:

Every candidate before admission to the course shall submit to the Principal of Santosh Dental College & Hospital, a Certificate of Medical Fitness from an authorized Medical Officer that the Candidate is physically fit to undergo the M.D.S course and does not suffer from any contagious disease. Students with disability should produce the Disability Certificate issued by the duly constituted District Medical Board.

6. CRITERIA OF SELECTION FOR ADMISSION:

Students for MDS course shall be admitted in accordance with the National Eligibility Entrance Test [NEET] provided further that when the number of qualifying candidates in the respective categories on the basis of the above mentioned percentile are less than three times the number of vacancies, the cut-off percentile will be automatically lowered in such a manner that the number of eligible candidates shall be minimum three times the number of seats in each respective category.

7. ELIGIBILITY CERTIFICATE:

No candidate shall be admitted to any postgraduate MDS degree course of study unless the candidate has obtained and produced eligibility certificate issued by the Santosh University. The candidate who has passed the qualifying examination as specified in Regulation No.3 above, has to make an application to the University by remitting the prescribed fees along with the filled in application form, which is available in the University, with required documents there for.

8. CUT OFF DATE FOR ADMISSION TO THE COURSE:

As per NEET all kinds of admission shall be completed on or before 31st May of the academic year. There shall not be any admission after 31st May, even if seats are vacant or any other directions from the Competent Authorities.

9. SUBMISSION OF ANTI – RAGGING UNDERTAKING:

The candidates admitted to the course of study shall furnish, duly countersigned by his/her parent/guardian, an undertaking to the Principal of the college, as per the directions of the Hon'ble Supreme Court of India, that the student shall not indulge in any Ragging activities during his/her period of study and accepting the consequences of such involvement as in **Annexure – I** of this Regulation.

10. REGISTRATION OF CANDIDATES:

A candidate admitted to the 1st year MDS degree course of this University shall Register his / her name by submitting the prescribed application form for

Registration duly filled along with the original documents, prescribed fee and an Undertaking and Declaration as in the formats in **Annexure - I, II & III** to the University through the Principal, Santosh Dental College within 60 days from the cut-off date prescribed for admission to the MDS degree course.

11. DURATION OF THE COURSE:

(a) The period of certified study and training of the Master of Dental Surgery Post-Graduate Degree Course shall be Three Academic Years.

(b) No exemption shall be given from this period of study and training for any other experience gained prior to admission to the course except as mentioned in eligibility criteria No.2.

12. COMMENCEMENT OF THE COURSE:

Academic Year for the Master of Dental Surgery course shall commence from 1st May of the year of admission.

13. CURRICULUM:

The Curriculum and the Syllabi for the courses shall be as prescribed in the regulations and are subject to modifications by the Academic Council from time to time.

14. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all the subjects of the M.D.S. course.

15. METHOD OF TRAINING:

(a) The training of Postgraduate Dental degree shall be full time with graded responsibilities in the management and treatment of patients entrusted to his / her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meeting, CPS and clinical meeting. Every candidate should participate in the teaching and training programme of undergraduate students. Training

should include involvement in laboratory and experimental work and research studies.

(b) The students undergoing postgraduate courses shall be exposed to the following :-

i. Basics of Statistics to understand and critically evaluate published research papers.

ii. Few Lectures on other type of exposure to human behaviour studies.

iii. Basic understanding of Pharmaco-economics.

iv. Introduction to the non-linear mathematics.

16. GUIDELINES:

The guidelines issued in this regulation and syllabus for the MDS degree course training program are intended to maintain a good academic standards and to impart quality training in Dental Education. Most of the guidelines are consistent with the norms laid down by the University, Dental Council of India and the practice followed throughout India in different Universities. Moreover, for upgrading the standard of MDS degree course training, the University can issue such other guidelines from time to time.

17. ATTENDANCE, PROGRESS, CONDUCT, PUNCTUALITY, OBEDIENCE & LEAVE:

17.1 Attendance

(i) A candidate pursuing MDS degree should work in the concerned department of the college for the full period as a full time student.

(ii) A candidate is required to put in minimum of 80% of attendance both in theory and practical / clinical separately in each subject before admission to the examination. However, candidate should not be absent continuously as the course is a full time one.

(iii) A candidate lacking in the prescribed attendance and progress in any one subject in theory and practical / clinical, wherever necessary, in the first appearance shall not be permitted for admission to the entire examination.

17.2 Progress

Every candidate shall attend symposia, seminars, conferences, journal review meeting, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself from work without valid reasons.

17.3 Conduct

(i) No candidate is permitted to run a Clinic / work in Clinic / Laboratory / Nursing Home while studying postgraduate course.

(ii) No candidate shall join any other course of study or appear for any other examination conducted by this University or any other University in India or during the period of registration.

17.4 Punctuality

A Post-graduate MDS student is expected to follow the discipline of institution and follow punctuality, not only regarding the college time table but also in the hospital clinics and laboratory.

17.5 Obedience

(i) It is universally true that the student should be obedient and receptive for his / her total involvement in the teaching / learning process. The instructions issued by the P.G. Teacher, HOD and the competent authority from time to time must be followed.

(ii) The assignments allotted by the concerned P.G. Teachers and HOD must be completed within stipulated time with full involvement and dedication. Individual Department discipline must be followed. The acts of insubordination and indiscipline shall not be tolerated.

17.6 Monitoring progress of study

17.6.1 Work Diary / Log Book

(i) Every MDS candidate shall maintain a work diary / Log Book and record of his/her participation in the three years training program conducted by the department such as day to day patient record. Relevant record pertaining to his/her specialty must be maintained for presentation during University examination. The record includes – Case records, models, Clinical photographs, X-rays, relevantly particular case and specialty journal reviews.

(ii) Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Guide once in three months, Head of the Department and the Principal of Santosh Dental College and presented in the University practical/ clinical examination.

(iii) The candidate is also required to participate in the teaching and training program for the Under Graduate students under the direct supervision of the concerned teacher.

(iv) In addition, the Head of the Department shall involve their Post-Graduate students in seminars, Journal Group Discussions and Participation in conferences.

(v) At the end of the course, the candidate should summarize the contents and get the Log Book certified by the Head of the Department.

(vi) Every Post-Graduate candidate should be encouraged to present short papers in conferences and improve on it and submit them for publication in reputed Dental journals. Motivation by the Heads of Departments shall be essential in this area to sharpen the research skills of the Post-Graduate candidates.

17.6.2 Periodic tests

a. The Internal Assessment tests may be held once in six months during the course of three years study. These tests shall consist of - (i) theory (ii) Clinical/ Practical / Viva Voce.

b. The average of all the above tests marks may be taken for the Internal Assessment Marks of the candidate.

17.6.3 Leave

i. A postgraduate can avail 12 days causal leave during a calendar year.

ii. Special leaves can be granted on the recommendation of the P.G. Guides & HOD for attending conference, symposium, Seminars which will not be exceeded 8 days in a year.

iii. Official deputation for research work, clinical posting, library work etc. can be given on the recommendation of the P.G. guide and P.G. teacher and head of the department provided that the student produces attendance certificate of the institution he was deputed to.

iv. No other leave apart from this shall be applicable.

Note: The sub-clause (ii) and (iii) are permissible subject to production of attendance certificate from the authorities where the conference/seminars or research work etc. was attended by him/her.

18. CONDONATION OF ATTENDANCE:

There shall be no condonation of attendance for the course.

19. DISSERTATION

(1) Every candidate pursuing MDS degree course is required to carry out work on a selected research project under the guidance of a recognized P.G. teacher. The result of such a work shall be submitted in the form of a dissertation.

(2) The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a

hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results, drawing and conclusions.

(3) The dissertation should be written under the following headings:

i. Introduction
ii. Aims and objectives of study
iii. Review of literature
iv. Materials and methods
v. Observation and result
vi. Discussion
vii. Conclusion
viii. Summary
ix. Reference
x. Tables
xi. Annexure

(4) The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided; The dissertation should be certified by the Guide, Head of the department and the Principal of the Santosh Dental College and Hospital.

(a) The **topic** of the dissertation should be submitted within six months from the date of commencement of the course. The Candidate should also inform the name of the Guide for the dissertation to the University while submitting the dissertation topic.

(b) If there is change in the dissertation topic, the same has to be informed before the end of the first year course.

(c) The **dissertation / thesis** should be submitted six months before appearing for the University Examination duly signed by the Guide and

the same has to be forwarded to the Controller of Examination through the Head of the Department and Principal / Dean of the College six months prior to the Examination.

(d) No marks will be allowed for dissertation, the External Examiners should mark the dissertation as either “approved” or “not approved”.

(e) If the dissertation is not approved or rejected by the majority of the examiners, the results shall be withheld till the resubmitted dissertation is approved.

(i) **Guide**

The academic qualification and teaching experience required for recognition by the University as a Guide for dissertation work is as laid down by the Dental Council of India as a P.G. Teacher.

(ii) Co-guide

A co-guide may be included provided the work requires substantial contribution from the same department, and / or from a sister department or from another institution recognized for teaching / training by the Dental Council of India.

(iii) Change of guide

In the event of a recognized guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

20. SUBJECTS OF STUDY

20.1 The subject of study in Applied Basic Medical Sciences shall be as under:

i. Applied Anatomy
ii. Applied Physiology
iii. Applied Pathology
iv. Biostatistics

v. Nutrition and Dietetics
vi. Teaching and Testing Methodology
vii. Research Methodology
viii. Psychology and Practice Management
ix. Comparative Anatomy
x. Genetics Growth and Development
xi. Applied Chemistry including Metallurgy, Dental Materials
xii. Pharmacology

20.2 Syllabus distribution among 4 papers in various specialties are as under:-

(i) PROSTHODONTICS AND CROWN & BRIDGE

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Embryology, Growth and Development Genetics, Immunology, Anthropology, Physiology, Nutrition and Biochemistry, Pathology and Microbiology, Virology, Applied Pharmacology, Research Methodology and Bio Statistics, Applied Dental Anatomy and Histology, Oral Pathology &Oral Microbiology, Adult and Geriatric Psychology. Applied Dental Materials.

PART-II

PAPER-I : Removable Prosthodontics and Implant supported Prosthesis
(Implantology), Geriatric Dentistry and Cranio Facial Prosthodontics
PAPER-II : Fixed Prosthodontics, Occlusion, TMJ and Esthetics.
PAPER-III : Descriptive and analysing type question

(ii) PERIODONTOLOGY

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology And Biostatistics.

PART-II

PAPER-I : Normal Periodontal Structure, Etiology and Pathogenesis of Periodontal Diseases, Epidemiology as related to Periodontics

PAPER-II : Periodontal Diagnosis, Therapy and Oral Implantology

PAPER-III : Descriptive and analysing type question

(iii) ORAL & MAXILLOFACIAL SURGERY

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology And Biostatistics.

PART-II

PAPER-I : Minor Oral Surgery and Trauma

PAPER-II : Maxillo-Facial Surgery

PAPER-III : Descriptive and analysing type question

(iv) CONSERVATIVE DENTISTRY AND ENDODONTICS

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology, Pathology Including Oral microbiology, Pharmacology, Biostatistics and Research Methodology and Applied dental Materials.

PART-II

PAPER-I : Conservative Dentistry

PAPER-II : Endodontics

PAPER-III : Descriptive and analysing type question

(v) ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

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 Maloclusion, Dentofacial Anomalies, Diagnostic procedures and Treatment Planning in Orthodontics, Practice Management in Orthodontic

PAPER-II : Clinical Orthodontics

PAPER-III : Descriptive and analysing type question

(vi) ORAL AND MAXILLOFACIAL PATHOLOGY AND ORAL MICROBIOLOGY:

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology (General and Oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (Oral And Dental Histology), Biostatistics and Research Methodology

PART-II

PAPER-I : Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology

PAPER-II : Laboratory Techniques and Diagnosis and Oral Oncology

PAPER-III : Descriptive and analysing type question

(vii) PUBLIC HEALTH DENTISTRY

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy and Histology, Applied Physiology and biochemistry, Applied Pathology, Microbiology, Oral Pathology, Physical and Social Anthropology, Applied Pharmacology and Research Methodology and Biostatistics.

PART-II

PAPER-I : Public Health

PAPER-II : Dental Public Health

PAPER-III : Descriptive and analysing type question

(viii) PEDIATRIC & PREVENTIVE DENTISTRY

PART-I

PAPER-I : Applied Basic Sciences : Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics Growth and Development and Dental plaque, Genetics

PART-II

PAPER-I : Clinical Pedodontics

PAPER-II : Preventive and Community Dentistry as applied to pediatric dentistry

PAPER-III : Descriptive and analysing type question

(ix) ORAL MEDICINE AND RADIOLOGY

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology And Biostatistics

PART-II

PAPER-I : Oral and Maxillofacial Radiology

PAPER-II : Oral Medicine, Therapeutics and Laboratory investigations

PAPER-III : Descriptive and analysing type question

21. REVALUATION / RE-TOTALING OF ANSWER PAPERS

There is no provision for revaluation of answer papers. However, re-totaling is allowed in the failed subjects on application and on remittance of prescribed fees.

22. NUMBER OF APPEARANCE

A candidate registered for three years M.D.S. Course must qualify in the Examinations within six years from the date of his / her admission.

The candidate will not be permitted to appear for more than five attempts in the final examinations and shall be discharged from the course if he / she fails to pass examination in the said number of attempts.

23. DURATION OF COMPLETION OF THE COURSE OF STUDY

The duration for the completion of the course shall be fixed as double the time of the course and the students have to pass within the said period otherwise they have to get fresh admission.

24. AWARD OF DISTINCTION AND UNIVERSITY RANKS

Distinction will be awarded to successful candidates who secure 75% marks or more as a course aggregate in all the subjects without any failure.

The names of first Ten University rank holders at the end of the course without any failure will be published in the University website.

25. RE-ADMISSION AFTER BREAK OF STUDY

As per the University common Regulations for Re-admission after break of study for all courses.

26. MIGRATION / TRANSFER OF CANDIDATES

Request for Migration/Transfer of candidates during the course of study from one recognized college to another recognized college of this University or from another University shall not be granted under any circumstances.

27. ELIGIBILITY NORMS FOR ADMISSION OF CANDIDATES TO M.D.S. EXAMINATIONS

No candidate shall be permitted to appear in any one of the parts of M.D.S. Examinations, unless he / she has attended the course in all the subjects for the prescribed period of three years in the Dental College of this University and has produced the necessary certificate of study, attendance, satisfactory conduct and progress from the Head of the Institution. The following requirements shall be fulfilled by every candidate to become eligible to appear for the final examination:

(i) Attendance

Every candidate shall have fulfilled the 80% attendance, prescribed by the Dental Council of India and the University, during each academic year of the MDS course. In case of failure in the final examination of MDS, the

unsuccessful candidate will have to secure full attendance to become eligible to appear in the next scheduled examination.

(ii) Progress and Conduct

Every candidate shall have participated in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year as designed by the concerned department.

(iii) Work Diary and Log Book

Every candidate shall maintain a work diary and logbook for recording his/her participation in the training program conducted by the department. The work diary and logbook shall be verified and certified by the Co-guide, if available, Guide and the Head of the Department.

(iv) The certificate of satisfactory progress by the Guide, Head of the Department and head of the institution shall be based on (i), (ii), and (iii) as mentioned above,

(v) Dissertation: Approval of dissertation shall be a precondition for the candidate to appear for the MDS examination.

(vi) Internal Assessment: The Internal Assessment tests may be held once in six months during the course of three years study. These tests shall consist of (i) theory (ii) practical / Clinical and Viva Voce.

28. SCHEDULE OF EXAMINATIONS

28.1 The University examinations for the MDS degree course shall be held at the end of 1st year i.e. **Part – I** and at the end of three academic years i.e. **Part – II**. The University shall conduct examinations in two sessions in a year during **MAY** and during **AUGUST.**

28.2 Theory Examination will not be held on Sundays and University Holidays. If the date of commencement of the Examination falls on Sundays and on the University holidays, the next working day will be the date of commencement of examinations**.**

29. PATTERN OF UNIVERSITY EXAMINATIONS

The University MDS examinations in any branch of study shall consist of dissertation, written paper (theory), practical/clinical and viva voce.

(i) Dissertation: Approval of dissertation shall be a precondition for the candidate to appear for the MDS examination.

(ii) Written (theory) examination: Written examination of three hours duration for each paper.

(iii) Practical/Clinical examination: The practical examination should be aimed at assessing competence and skills of techniques and procedures. It should also to test the student's ability to make relevant and valid observations, interpretation and inference of laboratory or experimental or clinical work relating too his/her subject for undertaking independent work as a specialist.

(iv) Viva-voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills.

MARKS DISTRIBUTION

PROSTHODONTICS AND CROWN & BRIDGE							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

PERIODONTOLOGY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

ORAL & MAXILLOFACIAL SURGERY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

CONSERVATIVE DENTISTRY AND ENDODONTICS							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

ORAL AND MAXILLOFACIAL PATHOLOGY AND ORAL MICROBIOLOGY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

PUBLIC HEALTH DENTISTRY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

PEDIATRIC & PREVENTIVE DENTISTRY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

ORAL MEDICINE AND RADIOLOGY							
Paper		Year of Study	Theory	Practical / Clinical	Viva Voce	Pedagogy	Grand Total
Part- I	Paper – I	1 year	100	-	100	-	200
Part - II	Paper – I	3 years *	300 [100 marks each paper]	200	80	20	600
	Paper – II						
	Paper – III						

* Including one year of Part-I

30. DISTRIBUTION OF MARKS&QUESTION PATTERN

Theory (Total 400 Marks)

(1) Part I University Examination (100 Marks)

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each) [300 Marks]

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:

2 out of 3 essay questions (50 x 2 = 100 Marks)

Practical and Clinical Examination :

Part – I

Viva-Voce	100 Marks

Part – II

Practical and Clinical Examinations	200 Marks
Viva-voce and Pedagogy	100 Marks

31. Marks Qualifying For A Pass:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	150/300
50% of marks in University Practical/Clinical including Viva Examinations	150/300
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	300/600

****

ANNEXURE - I

ANTI – RAGGING UNDERTAKING

[Regulation No.9]

I, ……..S/o / D/o / W/o …… secured admission to the MDS (20……-20…… ..) course at Santosh Dental College and Hospital, Ghaziabad hereby states that I am fully explained and aware of the orders and directions of the Hon'ble Supreme Court of India, dated the 16th May 2007, directing the authorities of the Educational Institutes to file F.I.R. compulsorily with the local police and to award explanatory punishment to the Ragging Offenders and it is the prima facie of the authorities of the Educational Institutions to get an Undertaking from the candidates before admitting them to the course of study stating that he/she had not involved in any Ragging activities in the past and if the Undertaking was found to be false, the student should be expelled from the course of study and the college.

In the light of the above directions of the Hon'ble Supreme Court of India, I…….. S/o / D/o / W/o …….. hereby affirm and state that I was not involved in any Ragging activities in the past in any of my School/College/Institute where I last studied and if found that this statement is false at any stage of my course admission/study, I am aware that I am liable to be expelled from this course and the college as per directions of the Hon'ble Supreme Court of India. Further, I hereby undertake that I shall not involve in any type of **RAGGING ACTIVITIES** in future during the entire course of study in this College and in case of my involvement in this regard I am fully ware that the authorities of the college shall have the right to file **FIR** against me and I shall be expelled immediately from the course of study/college without any Notice.

SIGNATURE OF THE STUDENT

Date **(Name in Block letters):**

I,…… Father /Guardian /Husband of Mr / Ms / Mrs…… …… …….. admitted in MDS (……) course at Santosh Dental College, Ghaziabad do hereby affirm and consent to the above undertaking of my ward.

SIGNATURE OF THE PARENT / GUARDIAN / HUSBAND

Date: **(Name in Block letters):**

Forwarded to the Controller of Examinations.

SIGNATURE OF THE PRINCIPAL
Santosh Dental College, Ghaziabad

ANNEXURE – II

UNDERTAKING

[REGULATION 10]

I,_____, S/o./D/o._____ aged about _____ years and residing at do hereby solemnly affirm and sincerely state as follows:

1. That I am presently studying I year MDS degree course in Santosh Dental College, Ghaziabad.

2. That I hereby give my consent and undertaking to pursue my course of MDS study for the full duration and I shall at all times score at least the minimum of 80% of attendance and 50% of internal assessment, which are the pre-requisite eligibility for applying to the examinations conducted by the Santosh Deemed to be University.

3. On the strength of this declaration, I am fully aware of the above criteria and if I am failed to fulfill the above norms, I know that I have no rights, whatsoever, to claim to appear for the Santosh Deemed to be University Examinations.

Signature of the student.

Date : (NAME IN CAPITAL LETTERS) ( )

COUNTER SIGNED BY THE PARENT / GUARDIAN

I am also fully agree to abide the above conditions of this declaration.

Signature of the parent/guardian.

Date : (NAME IN CAPITAL LETTERS) ( )

ADDRESS and
PHONE No:

FORWARDED TO CONTROLLER OF EXAMINATIONS, SANTOSH UNIVERSITY

Principal
Santosh Dental College,
Ghaziabad.

Office date seal

ANNEXURE – III
DECLARATION
[REGULATION 10]

I, …… S/o./D/o.……. admitted to the I year Master of Dental Surgery PG degree course at Santosh Dental College and Hospital, Ghaziabad do hereby solemnly affirm and sincerely state as follows :

I declare that I shall abide all the Rules and Regulations, Statutes, Ordinances etc. prescribed by the Santosh Deemed to be University, Ghaziabad and the Dental Council of India from time totimefor the Master of Dental Surgery PG degree course including regulations for re-readmission after the break of study.

Signature of the candidate.

Date : (NAME IN BLOCK LETTERS) ( )

I , ……..Father / Guardian of Mr./Miss……., I Year MDS Student of Santosh Dental College, Ghaziabad residing at ……also do hereby agree to abide by the Rules and Regulations Statutes, Ordinances etc. prescribed by the Santosh Deemed to be University, Ghaziabad and the Dental Council of India from time to time for the Master of Dental Surgery degree course including regulations for re-readmission after the break of study.

Date Signature of the Parent / Guardian.

(NAME IN BLOCK LETTERS) ( )

Countersigned and Forwarded to the Controller of Examinations

Principal,

(Office date seal) Santosh Dental College, Ghaziabad.

CHAPTER - II

GOALS AND OBJECTIVES OF THE CURRICULUM

1. GOALS

The goals of postgraduate training in various specialties is to train the graduate in dental surgery who will -

- Practice respective specialty efficiently and effectively, backed by scientific knowledge and skill.
- Exercise empathy and a caring attitude and maintain high ethical standards.
- Continue to evince keen interest in continuing professional education in the specialty and allied specialties irrespective of whether in teaching or practice.
- Willing to share the knowledge and skills with any learner, junior or a colleague.
- To develop the faculty for critical analysis and evaluation of various concepts and views, to adopt the most rational approach.

2. OBJECTIVES

The objective is to train a candidate so as to ensure higher level of competence in both general and especial areas of interest and prepare him for a career in teaching, research and specialty practice. A candidate must achieve a high degree of clinical proficiency in the subject matter and develop competence in research and its methodology as related to the field concerned.

The above objectives are to be achieved by the time the candidate completes the course. The objectives may be considered as under:-

(i) Knowledge (Cognitive domain)
(ii) Skills (Psycho motor domain)
(iii) Human values, ethical practice and communication abilities.

2.1 KNOWLEDGE

- Demonstrate understanding of basic sciences relevant to specialty.

- Describe etiology, pathophysiology, principles of diagnosis and management of common problems within the specialty in adults and children.
- Identify social, economic, environmental and emotional determinants in a given case and take them into account for planning treatment.
- Recognize conditions that may be outside the area of specialty / competence and to refer them to an appropriate specialist.
- Update knowledge by self-study and by attending courses, conferences and seminars relevant to specialty.
- Undertake audit, use information technology and carryout research both basic and clinical with the aim to publishing or presenting the work at various scientific gatherings.

2.2 SKILLS

- Take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the condition.
- Acquire adequate skills and competence in performing various procedures as required in the specialty.

2.3 Human values, ethical practice and communication abilities

- Adopt ethical principles in all aspects of practice.
- Professional honesty and integrity are to be fostered.
- Patient care is to be delivered irrespective of social status, caste, creed or religion of the patient.
- Develop communication skills, in particular and skill to explain various options available in management and to obtain a true informed consent from the patient.
- Provide leadership and get the best out of his team in a congenial working atmosphere.
- Apply high moral and ethical standards while carrying out human or animal research.
- Be humble and accept the limitations in his knowledge and skills and to ask for help from colleagues when needed.

- Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

3. SPECIALITIES FOR THE MDS DEGREE

i. Prosthodontics and Crown & Bridge.
ii. Periodontology
iii. Oral & Maxillofacial Surgery
iv. Conservative Dentistry and Endodontics.
v. Orthodontics & Dentofacial Orthopedics.
vi. Oral & Maxillofacial Pathology and Oral Microbiology.
vii. Public Health Dentistry.
viii. Pediatrics & Preventive Dentistry.
ix. Oral Medicine & Radiology.

3.1 Prosthodontics and Crown & Bridge

Prosthodontics and Crown and Bridge and Oral Implantology is that branch of Dental art and science pertaining to the restoration and maintenance of oral function, health, comfort and appearance by the replacement of missing or lost natural teeth and associated tissues either by fixed or removable artificial substitutes.

3.2 Periodontology

Periodontology and Oral Implantology is the science dealing with the health and diseases of the investing and supporting structures of the teeth and oral mucous membrane.

3.3 Oral & Maxillofacial Surgery

Oral and Maxillofacial Surgery and Implantology deals with the diagnosis and surgical and adjunctive treatment of diseases, injuries and defects of the human jaws and associated oral and facial structures.

3.4 Conservative Dentistry and Endodontics

Conservative dentistry deals with prevention and treatment of the diseases and injuries of the hard tissues and the pulp of the tooth and associated periapical lesions.

3.5 Orthodontics and Dentofacial Orthopedics

Deals with prevention and correction of oral anomalies and malocclusion and the harmonizing of the structures involved, so that the dental mechanisms will function in a normal way.

3.6 Oral & Maxillofacial Pathology and Oral Microbiology

Oral Pathology deals with the nature of oral diseases, their causes, processes and effects. It relates the clinical manifestation of oral diseases to the physiologic and anatomic changes associated with these diseases.

3.7 Public Health Dentistry

Community Dentistry is the science and art of preventing and controlling Dental diseases and promoting Dental health through organized community efforts.

3.8 Pediatrics and Preventive Dentistry

Deals with prevention and treatment of oral and Dental ailments that may occur during childhood.

3.9 Oral Medicine and Radiology

Oral Medicine is that specialty of dentistry concerned with the basic diagnostic procedures and techniques useful in recognizing the diseases of the oral tissues of local and constitutional origin and their medical management.

Radiology is a science dealing with x-rays and their uses in diagnosis and treatment of diseases in relation to orofacial diseases.

****

CHAPTER - III

TEACHING AND LEARNING ACTIVITIES

All the candidates registered for MDS course in various specialties shall pursue the course for a period of three years as fulltime students. During this period each student shall take part actively in learning and teaching activities:-

PERIOD OF TRAINING.

The period of training for the award of the MDS course shall be of three years duration for three academic years as full time candidates in the institution including the period of examination.

Provided that the time period required for passing out of the MDS course shall be a maximum of six years from the date of admission in said course.

Provided further that the duration of the post-graduate course for the post-graduate Diploma holders shall be of two years in the respective specialty. The syllabus and curriculum shall be the same as MDS Course in the concerned specialty except that they are not required (i) to undergo study and training in Basic Sciences and (ii) pass the PART-I Examination of MDS Course. However, they have to submit the dissertation work, as part of the post-graduate programme.

During the period, each student shall take part actively in learning and teaching activities design of training, by the institution or the university. The teaching and learning activities in each specialty, shall be as under:

1. LECTURES

There shall be some didactic lectures in the specialty and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics.

2. JOURNAL REVIEW

The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. The trainee should make presentations from the allotted journals of selected articles at least 5 times in a year.

3. SEMINARS

The seminars shall be held at least twice a week in each postgraduate department. All trainees are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5 seminar presentation in each year.

4. SYMPOSIUM

It is recommended to hold symposium on topics covering multiple disciplines.

5. CLINICAL POSTINGS

Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.

6. EVALUATION SKILLS

All the trainees shall be encouraged to take part evaluating the skills and knowledge in clinical laboratory practice including theory by formulating question banks and model answers.

7. CLINICO PATHOLOGICAL CONFERENCE

The clinico pathological conferences should be held once in a month involving the faculties of oral medicine and radiology, oral pathology and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo-pathological interpretations and participation in the discussions.

8. INTER-DEPARTMENTAL MEETINGS

To bring in more integration among various specialties there shall be inter-departmental meeting chaired by the Principal with all the Heads of Postgraduate departments at least once a month.

9. RURALORIENTED PROSTHODONTIC HEALTHCARE

To carry out Prosthodontics therapy interacting with rural centers and the institution.

10. TEACHING SKILLS

All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions.

11. CONTINUING DENTAL EDUCATION PROGRAMMES

Each postgraduate department shall organize these programmes on regular basis involving the other institutions. The trainees shall also be encouraged to attend such programmes conducted in other institutions.

12. CONFERENCES / WORKSHOPS / ADVANCED COURSES

The trainees shall be encouraged not only to attend conferences / workshops / advance courses but also to present atleast two papers at state / national spatiality meetings during their training period.

13. ROTATION & POSTING IN OTHER DEPARTMENTS

To bring in more integration between the specialty and allied fields each postgraduate department shall workout a programme to rotate the trainees in related disciplines.

14. DISSERTATION / THESIS

The trainees shall prepare a dissertation based on the clinical or experimental work or any other study conducted by them under the supervision of the guide. A model check list for evaluation of dissertation presentation and continuous evaluation of dissertation work by guide / co-guide is annexed at Checklist 7 of Chapter IV of these regulations. A model overall assessment sheet to be filled by all the trainees undergoing post-graduate course is annexed at Checklist 8 of Chapter IV of these regulations.

All the students of the specialty departments shall complete the minimum quota for the teaching and learning activities, as follows:—

a) Journal Review meetings : 5 in a year

b)	Seminars	:	5 in a year
c)	Clinical Case Presentations	:	4 in a year
d)	Lectures taken for undergraduates	:	1 in a year
e)	Scientific Paper / Poster Presentations In State /National Level Conferences	:	4 papers/posters during three years of training period
f)	Clinico Pathological Conferences	:	2 presentations during three years of training period
g)	Scientific Publications (optional)	:	one publication in any indexed scientific journal
h)	Submission of Synopsis	:	one synopsis within six months from the date of commencement of the course
i)	Submission of Dissertation	:	one dissertation six months before appearing for the university examination
j)	Submission of Library Dissertation	:	one dissertation within eighteen months from the date of commencement of the course

CHAPTER - IV
CHECK LISTS AND LOG BOOKS
CHECK LIST – 1

MODEL CHECK LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

1. Name of the Trainee : Date :
2. Topic
3. Name of the Faculty / Observer :

Sl. No	Items for Observation during presentation	SCORE *
1.	Article Chosen was	
2.	Extent of Understanding of scope & Objectives of the paper by the candidate	
3.	Whether cross-references have been consulted	
4.	Whether other relevant publications consulted	
5.	Ability to respond to questions on the paper/subject	
6.	Audio – Visual aids used	
7.	Ability to defend the paper	
8.	Clarity of presentation	
9.	Any other observation	
10.	**Total Score**	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

CHECK LIST – 2

MODEL CHECK LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

1. Name of the Trainee : Date :
2. Topic
3. Name of the Faculty / Observer :

Sl. No	Items for Observation during presentation	SCORE *
1.	Whether other relevant publications consulted	
2.	Whether cross references have been consulted	
3.	Completeness of Preparation	
4.	Clarity of presentation	
5.	Understanding of subject	
6.	Ability to answer the questions	
7.	Time scheduling	
8.	Appropriate use of Audio-Visual aids	
9.	Overall performance	
10.	Any other observation	
	Total Score	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

CHECK LIST – 3

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN OPD

[To be completed once a month by respective Unit Heads including posting in other departments]

1. Name of the Trainee : Date :
2. Topic
3. Name of the Faculty / Observer :

Sl. No	Items for Observation during presentation	SCORE *
1.	Regularity of Attendance	
2.	Punctuality	
3.	Interaction with colleagues and supportive staff	
4.	Maintenance of case records	
5.	Presentation of cases	
6.	Investigations work up	
7.	Chair-side manners	
8.	Rapport with patients	
9.	Overall quality of clinical work	
	Total Score	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

CHECK LIST – 4

EVALUATION FROM THE CLINICAL CASE PRESENTATION

1. Name of the Trainee : Date :
2. Topic
3. Name of the Faculty / Observer :

Sl. No	Items for Observation during presentation	SCORE *
1.	Completeness of history	
2.	Whether all relevant points elicited	
3.	Clarity of presentation	
4.	Logical order	
5.	Mentioned all positive and negative	
6.	Accuracy of general physical examination	
7.	Diagnosis: Whether it follows logically from history and findings	
8.	Investigations required	
	Complete list	
	Relevant order	
	Interpretation of Investigation	
9.	Ability to react to questioning. Whether it follows logically from history and findings	
10.	Ability to defend diagnosis	
11.	Ability to justify differential diagnosis	
12.	Others	
13.	**Grand Total**	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

Note: Please use a separate sheet for each faculty member.

CHECK LIST – 5

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL

1. Name of the Trainee : Date :
2. Topic
3. Name of the Faculty / Observer :

Sl.No.	Details of Evaluation	SCORE *
1.	Communication of the purpose of the talk	
2.	Evokes audience interest in the subject	
3.	The Introduction	
4.	The sequence of ideas	
5.	The use of practical examples and / or illustrations	
6.	Specking style (enjoyable, monotonous, etc. specify)	
7.	Attempts audience participation	
8.	Summary of the main points at the end	
9.	Asks questions	
10.	Answers questions asked by the audience	
11.	Rapport of speaker with his audience	
12.	Effectiveness of the talk	
13.	Use of AV aids appropriately	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

CHECK LIST – 6

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

1. Name of the Trainee : Date :
2. Title
3. Name of the Faculty / Observer :

Sl. No	Points to be considered	SCORE *
1.	Interest shown in selecting topic	
2.	Appropriate review	
3.	Discussion with guide and other Faculty	
4.	Quality of protocol	
5.	Preparation of Proforma	
	Total Score	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature
HOD

CHECK LIST – 7

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO-GUIDE
(To be completed once in 3 Months)

1. Name of the Trainee : Date :
2. Title
3. Name of the Faculty / Observer :

Sl. No	Items for Observation during presentation	**SCORE ***
1.	Periodic consultation with guide / co-guide	
2.	Regular collection of case material	
3.	Depth of analysis / Discussion	
4.	Department presentation of findings	
5.	Quality of final output	
6.	Others	
	Total Score	

*** Poor- 0, Below Average-1, Average-2, Good-3, Very Good-4**

Signature **Signature** **Signature**
Co-Guide **Guide** **HOD**

CHECK LIST – 8

OVERALL ASSESSMENT SHEET

Date:

Sl.No	Name of the Faculty	Name of the trainee and Mean Score									
		A	B	C	D	E	**F**	G	H	I	J

Signature of the HOD Signature of the Principal

The above overall assessment sheet used along with the logbook should form the basis for certifying satisfactory completion of course of study, in addition to the attendance requirement.

Key:

Name of the Faculty Member (Doing assessment):

Mean Score (Is the sum of all the scores of checklists 1 to 7):

A, B,….. : Name of the trainees.

LOG BOOK

TABLE – 1

ACADEMIC ACTIVITIES ATTENDED

Name : **Admission Year:**

Date	Type of activity Specify Seminar, Journal Club, Presentation, UG Teaching	Particulars

TABLE – 2

ACADEMIC PRESENTATIONS MADE BY THE TRAINEE

Name : **Admission Year:**

Date	Topic	Type of activity Specify Seminar, Journal Club, Presentation, UG Teaching etc.

TABLE – 3

DIAGNOSTIC AND OPERATIVE PROCEDURES PERFORMED

Name : **Admission Year:**

Date	Name	OP No.	Procedure	Category O, A, PA, PI.

Key:

O – Washed up and observed – Initial 6 months of admission.
A – Assisted a more senior surgeon – I year MDS
PA - Performed procedure under the direction supervision of a senior surgeon – II year MDS. PI - Performed independently – III Year MDS.

CHAPTR – V

SANTOSH DEEMED TO BE UNIVERSITY, GHAZIABAD, NCR DELHI
MDS DEGREE COURSE – SYLLABUS

M.D.S BRANCH-I - PROSTHODONTICS AND CROWN & BRIDGE

1. AIM:

To train dental graduates so as to ensure higher competence in both general and special area of Prosthodontics and prepare a candidate for teaching, research and clinical abilities including prevention and after care in Prosthodontics including crown and bridge and Implantology.

2. GENERAL OBJECTIVES OF THE COURSE:

2.1 Training programme for the dental graduates in Prosthetic dentistry-removable dental prosthodontics, fixed dental prosthodontics (Crown & Bridge), implantology, maxillofacial prosthodontics and esthetic dentistry. It is structured to achieve knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to perform research with a good understanding of social, cultural, education and environmental background of the society.

2.2 To have adequate acquired knowledge and understanding of applied basic and systematic medical sciences, both in general and in particularly of head and neck region.

2.3 The postgraduates should be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied medical, behavioral and clinical science that are beyond the treatment skills of the general B.D.S. graduates and M.D.S. graduates of other specialties evaluation and judgment skills in making appropriate decisions regarding prevention, treatment, after care and referral to deliver comprehensive care to patients.

3. KNOWLEDGE:

3.1 The candidate should possess knowledge of applied basic and systematic medical sciences on human anatomy, embryology, histology, applied in general and particular to head and neck, Physiology & Biochemistry, Pathology and Microbiology, Virology, Health and diseases of various systems of the body (systemic), principles in Surgery and Medicine, Pharmacology, Nutrition, Behavioral Science, Age changes, Genetics, Immunology, Congenital defects and syndromes, Anthropology, Bio-engineering, Bio-medical and Biological Principles and Applied Dental Material Science.

3.2 Ability to diagnose and planned treatment for patients requiring Prosthodontic Therapy.

3.3 Ability to read and interpret a radiograph and other investigations for the purpose of diagnosis and treatment plan.

3.4 Tooth and tooth surface restorations, complete denture Prosthodontics, removable partial dentures Prosthodontics, fixed Prosthodontics and maxillofacial and craniofacial Prosthodontics, implants and implants supported Prosthodontics, T.M.J. and occlusion, craniofacial esthetics, and biomaterials Craniofacial disorders – problems of psychogenic origin.

3.5 Age changes and Prosthodontic therapy for the aged.

3.6 Ability to diagnose failed restoration and provide Prosthodontic therapy and after care.

3.7 Should have essential knowledge of ethics, laws and jurisprudence and forensic odontology in Prosthodontics.

3.8 General health conditions and emergency as related to Prosthodontics treatment.

3.9 Should be able to identify social, cultural, economic, environmental, educational and emotional determinants of the patient and consider them in planning the treatment.

3.10 Identify cases, which are outside the area of his / her specialty / competence and refer them to appropriate specialists.

3.11 Advice regarding case management involving surgical, interim treatment, etc.

3.12 Should be competent in team management of craniofacial defects.

3.13 To have acquired adequate knowledge and understanding of applied basic and systematic medical science knowledge in general and particular to head and neck.

3.14 Should attend continuing education programmes, seminars and conferences related to Prosthodontics thus updating himself / herself.

3.15 Teach and guide his / her team, colleagues and other students.

3.16 Should be able to use information technology tools and carry out research both basic and clinical, with the aims of publishing his/her work and presenting his/her work at various scientific forums.

3.17 Should have essential knowledge of personal hygiene, infection control, prevention of cross infection and safe disposal of waste, keeping in view the risks of transmission of Hepatitis and HIV.

3.18 Should have the ability to plan to establish Prosthodontic clinic / hospital, teaching department and practice management.

3.19 Should have a sound knowledge for the application of Pharmacology Effects of drugs on oral tissue and systems of body and for medically compromised patients.

3.20 The Postgraduates will be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied

medical behavioral and clinical science that are beyond the treatment skills of the general BDS graduate and MDS graduate of other specialties to demonstrate, evaluative and judgment skills in making appropriate decisions regarding prevention, treatment after care and referral to deliver comprehensive care to patients.

4. SKILLS:

4.1. The candidate should be able to examine the patients requiring Prosthodontic therapy, investigate the patient systematically, analyze the investigation results, radiographs, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.

4.2. Understand the prevalence and prevention of diseases of craniomandibular system related to Prosthetic dentistry.

4.3. The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts by understanding biological, biomedical, bioengineering principles and systemic condition of the patient to provide a quality health care of the craniofacial region.

4.4. The candidate should be able to interact with other specialties including medical specialty for planned team management of patients for craniofacial and oral acquired and congenital defects, temporomandibular joint syndromes, esthetics, implant supported prosthesis and problems of psychogenic origin.

4.5. Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their specialty area.

4.6. Should be able to interpret various radiographs like IOPA, OPG, CBCT and CT. Should and be able to plan and modify treatment plan based on radiographic findings.

4.7. Should be able to critically appraise articles published and understand various components of different types of articles and be able to gather the weight of evidence from the same

4.8. Identify target diseases and create awareness amongst the population for Prosthodontic therapy.

4.9. Perform clinical and Laboratory procedure with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skill for performing all clinical and laboratory procedures in fixed, removable, implant, maxillofacial T.M.J. and esthetic Prosthodontics.

4.10. To carry out necessary adjunctive procedures to prepare the patient before prosthesis like tissue preparation and preprosthetic surgery and to prepare the patient before prosthesis / prosthetic procedures.

4.11. To understand demographic distribution and target diseases of Craniomandibular region related to Prosthodontics including Crown &Bridge and Implantology.

5. ATTITUDES:

5.1. Adopt ethical principles in all Prosthodontic practice. Professional honesty and integrity are to be fostered. Treatment to be delivered irrespective of social status, caste, creed or religion of patient.

5.2. Willing to share the knowledge and clinical experience with professional colleagues.

5.3. Should develop an attitude towards quality, excellence, non-compromising in treatment.

5.4. Should be able to self-evaluate, reflect and improve on their own.

5.5. Should pursue research in a goal to contribute significant, relevant and useful information, concept or methodology to the scientific fraternity.

5.6. Should be able to demonstrate evidence-based practice while handling cases

5.7. Willing to adopt new methods and techniques in Prosthodontics from time to time based on scientific research, which is in patient's best interest.

5.8. Respect patient's rights and privileges including patient's rights to information and right to seek second opinion.

6. COMMUNICATIVE ABILITIES

6.1. Develop communication skills, in particular, to explain treatment options available in management.

6.2. Provide leadership and get the best out of his / her group in a congenial working atmosphere.

6.3. Should be able to communicate in simple understandable language with the patient and explain the principles of Prosthodontics to the patient. He / she should be able to guide and counsel the patient with regard to various treatment modalities available.

6.4. Develop the ability to communicate with professional colleagues through various media like Internet, E-mail, Video conference etc., to render the best possible treatment.

7. COURSE CONTENTS:

The candidates shall undergo training for 3 academic years with satisfactory attendance of 80% for each year.

1) The course includes epidemiology and demographic studies, research and teaching skills.

2) Ability to prevent, diagnose and treat with after care for all patients for control of diseases and / or treatment related syndromes with patient satisfaction for restoring functions of Stomatognathic system by Prosthodontic therapy.

3) The programme outline addresses the knowledge, procedural and operative skills needed in Master Degree in Prosthodontics. A minimum of 3 years of formal training through a graded system of education as specified will enable the trainee to achieve Master Degree in Prosthodontics including Crown & Bridge and Implantology, competently and have the necessary skills / knowledge to update themselves with advancements in the field. The course content has been identified and categorized as essential knowledge as given below.
4) The topics to be considered are :- Basic Sciences, Biological and Mechanical considerations in Prosthodontics including Crown & Bridge and Implantology and Material Science.

PART – I

PAPER – I

APPLIED BASIC SCIENCES:

A thorough knowledge on the applied aspects of Anatomy, Embryology, Histology in General and Particular to Head and Neck, Physiology, Biochemistry, Pathology and Microbiology, Virology, Pharmacology, Health and Diseases of various systems of Body (systemic) principles in Surgery, Medicine and Anesthesia, Nutrition,

Behavioral Sciences, Age changes, Genetics, Dental Material Science, Congenital defects and Syndromes and Anthropology, Biomaterial Sciences, Bio-engineering, Research Methodology as related to Master Degree in Prosthodontics including Crown & Bridge and Implantology.

It is desirable to have knowledge in Bio-statistics Research Methodology and use of computers and to develop necessary teaching skills in Prosthodontics including Crown & Bridge and Implantology.

A. APPLIED ANATOMY OF HEAD AND NECK

(i) General Human Anatomy – Gross Anatomy, Anatomy of Head & Neck in detail. Cranial and facial bones, T.M.J. and function, muscles of mastication and facial expression, muscles of neck and chain of back muscles including muscles of deglutition and tongue, arterial supply and venous drainage of the head and neck, Anatomy of the Para nasal sinuses with relation to the 5^{th} cranial nerve. General consideration of the structure and function of the brain. Brief considerations of V, VII, XI, XII cranial nerves and autonomic nervous system of the head and neck. The salivary glands, Pharynx, Larynx, Trachea, Esophagus, Functional Anatomy of mastication, Deglutition, Speech, Respiration and Circulation, Teeth eruption, Morphology, Occlusion and function. Anatomy of T.M.J., its movements and myofascial pain dysfunction syndrome.

(ii) Embryology – Development of the face, tongue, jaws, T.M.J., paranasal sinuses, pharynx, larynx, trachea, esophagus, salivary glands, development of oral and para oral tissues including detailed aspects of tooth and dental hard tissue formation.

(iii) Growth & Development – Facial form and Facial growth and development overview of Dentofacial growth and physiology from fetal period to maturity and old age, comprehensive study of craniofacial biology. General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeletal, relationship between development of the dentition and facial growth.

(iv) Dental Anatomy – Anatomy of primary and secondary dentition, concept of occlusion, mechanism of articulation and masticatory function. Detailed structural and functional study of the oral dental and para oral tissues. Normal occlusion, development of occlusion in deciduous mixed and permanent dentitions, root length, root configuration, tooth numbering system.

(v) Histology – Histology of enamel, dentin, cementum, periodontal ligament and alveolar bone, pulpal anatomy, histology and biological consideration. Salivary glands and Histology of epithelial tissues including glands. Histology of general and specific connective tissue including bone, haematopoietic system, lymphoid, etc. Muscle and neural tissues, Endocrinal system including thyroid, Salivary glands. Histology of skin, oral mucosa, respiratory mucosa, connective tissue, bone, cartilage, cellular elements of blood vessels, lymphatics, nerves, muscles, tongue, tooth and its surrounding structures.

(vi) Anthropology & Evolution – Comparative study of tooth, joints, jaws, muscles of mastication and facial expression, tongue, palate, facial profile and facial skeletal, system. Comparative anatomy of skull, bone brain, musculo – skeletal system, neuromuscular coordination, posture and gait – plantigrade and orthograde posture.

(vii) Applied Genetics and Heredity – Principles of orofacial genetics, molecular basis of genetics, genetic risks, counseling, bioethics and relationship to Orthodontic management. Dentofacial anomalies, Anatomical psychological and pathological characteristic of major groups of developmental defects of the orofacial structures.

(viii) Cell biology – Detailed study of the structure and function of the mammalian cell with special emphasis on ultra structural features and molecular aspects. Detailed consideration of Inter cellular junction. Cell cycle and division, cell-to-cell-extra cellular matrix interactions.

B. APPLIED PHYSIOLOGY AND NUTRITION

(i) Introduction, mastication, deglutition, digestion and assimilation, homeostasis, fluid and electrolyte balance. Blood composition, volume,

blood pressure, capillary and lymphatic circulation, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration. Endocrine glands with particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Role of calcium and Vitamin D in growth and development of teeth, bone and jaws. Role of Vitamin – A, C, and B complex in oral mucosal and periodontal health. Physiology and function of the masticatory system. Speech mechanism, mastication, swallowing and deglutition mechanism, salivary glands and saliva.

(ii) Endocrines

General principles of endocrine activity and disorders relating to pituitary, thyroid, pancreas, parathyroid, adrenals, gonads, including pregnancy and lactation physiology of saliva, urine formation, normal and abnormal constituents, physiology of pain, Sympathetic and parasympathetic nervous system, Neuromuscular co-ordination of the stomatognathic system.

(iii) Applied Nutrition

General principles, balanced diet, effect of dietary deficiencies and starvation, Diet, digestion, absorption, transportation and utilization, diet for elderly patients.

C. APPLIED BIOCHEMISTRY

General principles governing the various biological activities of the body, such as osmotic pressure, electrolytic dissociation, oxidation-reduction etc., general composition of the body, intermediary metabolism, carbohydrates, proteins, liquids and their metabolism, enzymes, vitamins and minerals, hormones, blood and other body fluids, metabolism of inorganic elements, detoxication in the body, anti-metabolites.

D. APPLIED PHARMACOLOGY AND THERAPEUTICS

Definition of terminologies used – dosage and mode of administration of drugs. Action and fate of drugs in the body, drug addiction, tolerance and hypersensitivity reaction, drugs acting on the central nervous system, general anaesthetics, hypnotics, Analeptics and tranquilizers, local anaesthetics,

chemotherapeutics and antibiotics, antitubercular and anti-syphilitic drugs, analgesics and antipyretics, antiseptics, styptics, sialogogues and anti-sialogogues, haematinics, cortisone, ACTH, insulin and other anti-diabetics, Vitamins – A, D, B-complex, group - C and K etc., Chemotherapy and Radiotherapy. Drug regime for antibiotic prophylaxis and infectious endocarditis and drug therapy following dental surgical treatments like placement of implants, pre and peri prosthetic surgery.

E. APPLIED PATHOLOGY

Inflammation, repair and degeneration, necrosis and gangrene, circulatory disturbances, ischemia, hyperemia, chronic venous congestion, edema, thrombosis, embolism and infarction. Infection and infective granulomas, allergy and hypersensitivity reaction, neoplasm; Classification of tumours, carcinogenesis, characteristics of benign and malignant tumours, spread of tumours. Applied histo pathology and clinical pathology.

F. APPLIED MICROBIOLOGY

Immunity, knowledge of organisms commonly associated with diseases of the oral cavity (morphology cultural characteristics, etc.) of strepto, staphylo, pneumo, gono and meningococci, clostridia group of organism, spirochetes, organisms of tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis, etc. Virology, cross infection control, sterilization and hospital waste management.

(i) Applied Oral Pathology

Developmental disturbance of Oral and Para oral structures. Regressive changes of teeth, bacterial, viral and mycotic infections of oral cavity, dental oral cavity, oral manifestations of metabolic and endocrine disturbances. Diseases of the blood and blood forming organs in relation to the oral cavity, periodontal diseases, diseases of the skin, nerves and muscles in relation to the oral cavity.

(ii) Laboratory determinations

Blood groups, blood matching, R.B.C and W.B.C. count, Bleeding and clotting time, Smears and cultures – Urine analysis and culture.

G. BIOSTATISTICS

Study of Biostatistics as applied to dentistry and research. Definition, aim characteristics and limitations of statistics, planning of statistical experiments, sampling, collection, classification and presentation of data (Tables, graphs, pictograms etc) Analysis of data.

(i) Introduction to Biostatistics

Scope and need for statistical application to biological data. Definition of selected terms – scale of measurements related to statistics, Methods of collecting data, presentation of the statistical diagrams and graphs. Frequency curves, mean, mode of median, Standard deviation and co-efficient of variation, Correlation – Co-efficient and its significance, Binominal distributions normal distribution and poisson distribution, Tests of significance.

(ii) Research Methodology

Understanding and evaluating dental research, scientific method and the behavior of scientists, understanding to logic – inductive logic – analogy, models, authority, hypothesis and causation, Quacks, Cranks, Abuses of Logic, Measurement and Errors of measurement, presentation of results, Reliability, Sensitivity and specificity diagnosis test and measurement, Research Strategies, Observation, Correlation, Experimentation and Experimental design. Logic of statistical interference balance, judgments, judgment under uncertainty, clinical vs., scientific judgment, problem with clinical judgment, forming scientific judgments, the problem of contradictory evidence, citation analysis as a Means of literature evaluation, influencing judgment: Lower forms of Rhetorical life, Denigration, Terminal Inexactitude.

H. APPLIED RADIOLOGY

Introduction, radiation, background of radiation, sources, radiation biology, somatic damage, genetic damage, protection from primary and secondary radiation, Principles of X – Ray production, Applied principles of radio therapy and after care.

I. ROENTGENOGRAPHIC TECHNIQUES

Intra oral Extra oral roentgenography, Methods of localization digital radiology and ultra sound, Normal anatomical landmarks of teeth and jaws in radiograms, temporomandibular joint radiograms, neck radiograms. Use of CT and CBCT in prosthodontics

J. APPLIED MEDICINE

Systemic diseases and its influence on general health and oral and dental health Medical emergencies in the dental offices – Prevention, preparation, medico legal consideration, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, and management of ambulatory patients, resuscitation, applied psychiatry, child, adult and senior citizens. Assessment of case, premaliation, inhibition, monitoring extubalin, complication assist in O.T. for anesthesia.

K. APPLIED SURGERY & ANESTHESIA

General principles of surgery, wound healing, incision wound care, hospital care, control of hemorrhage, electrolyte balance. Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc, surgical techniques, nursing assistance, anesthetic assistance.

Principles in speech therapy, surgical and radiological craniofacial oncology, applied surgical ENT and ophthalmology.

L. PLASTIC SURGERY

Applied understanding and assistance in programmes of plastic surgery for prosthodontics therapy.

M. APPLIED DENTAL MATERIALS

- All materials used for treatment of craniofacial disorders and defects – Clinical, treatment and laboratory materials, Associated materials, Technical consideration, Shelf life, Storage, Manipulations, Sterilization, and Waste management.
- Students shall be trained and practiced for all clinical procedures with an advanced knowledge of theory of principles, concepts and techniques of various accepted materials for Prosthodontic, treatment modalities includes honorable accepted methods of diagnosis, treatment plan, records maintenance and treatment and laboratory procedures and after care and prevention.
- Theoretical knowledge and clinical practice shall include knowledge for laboratory practice and material science.
- Student shall acquire knowledge of testing biological, mechanical and other physical property of all materials used for the clinical and laboratory procedures in Prosthodontics Therapy.
- Students shall acquire full knowledge and practice equipments, instruments, materials, and laboratory procedures at a higher competence with accepted methods.
- All clinic practice shall involve personal and social obligation of cross infection control, sterilization and waste management.

PART – II

PAPER – I

A. REMOVABLE PROSTHODONTICS AND IMPLANTOLOGY

1. Prosthodontics treatment for completely edentulous patients: – Complete denture, immediate complete denture, single complete denture, tooth supported complete denture, Implant supported Prosthesis for completely edentulous.

2. Prosthodontics treatment for partially edentulous patients: - Clasp–retained partial dentures, intra coronal and extra coronal precision attachments retained partial dentures, maxillofacial prosthesis.

1. Prosthodontics treatment for edentulous patients: - Complete Dentures and Implant supported Prosthesis:

Complete Denture Prosthesis – Definitions, terminology, G.P.T., Boucher's clinical dental terminology.

Scope of Prosthodontics – the Cranio mandibular system and its function, the reasons for loss of teeth and methods of restorations.

Infection control, cross infection barrier – Clinical and laboratory and hospital and lab waste management.

a) Edentulous Predicament, Biomechanics of the edentulous state, Support mechanism for the natural dentition and complete dentures, Biological considerations, Functional and Para functional considerations, Esthetic, Behavioral and adaptive responses, Temporomandibular joints changes.

b) Effects of aging of edentulous patients – aging population, distribution and edentulism in old age, impact of age on edentulous mouth – mucosa, bone, saliva, jaw movements in old age, taste and smell, nutrition, aging skin and teeth, concern for personal appearance in old age.

c) Sequalae caused by wearing complete denture – the denture in the oral environment – mucosal reactions, altered taste perception, burning mouth syndrome, gagging, residual ridge reduction, denture stomatitis, flabby ridge, denture irritation hyperplasia, traumatic ulcers, oral cancer in denture wearers, nutritional deficiencies, masticatory ability and performances, nutritional status and masticatory functions.

d) Temporomandibular disorders in edentulous patients – Epidemiology, etiology and management, pharmacotherapy, physical modalities, and bio-behavioural modalities.

e) Nutrition care for the denture wearing patient – Impact of dental status on food intake, gastrointestinal functions, nutritional needs and status of older adults, calcium and bone health, vitamin and herbal supplementation, dietary counseling and risk factor for malnutrition in patients with dentures and when teeth are extracted.

f) Preparing patient for complete denture therapy – Diagnosis and treatment planning for edentulous and partially edentulous patients – familiarity with patients, principles of perception, health questionnaires and identification data, problem identification, prognosis and treatment identification data, problem identification, prognosis and treatment planning – contributing history – patient's history, social information, medical status – systemic status with special reference to debilitating diseases, diseases of the joint, cardiovascular disorders, disease of the skin, neurological disorders, oral diseases, malignancies, climacteric, use of drugs, mental health – mental attitude, psychological and intra oral changes. Intra oral health – mucous membrane, alveolar ridges, palate and vestibular sulcus and dental health.

Data collection and recording, visual observation, radiography, palpation, measurement – sulci or fosse, extra oral measurement, the vertical dimension of occlusion, diagnostic casts.

Specific observations – existing dentures, soft tissue health, hard tissue health – teeth, bone.

Biomechanical considerations – jaw relations, border tissues, saliva, muscular development – muscle tones, neuromuscular co-ordination, tongue, cheek and lips.

Interpreting diagnostic findings and treatment planning.

g) Pre Prosthetic Surgery – Improving the patients' denture bearing areas and ridge relations : Non-surgical methods – rest for the denture supporting tissues, occlusal correction of the old prosthesis, good nutrition, conditioning of the patients' musculature. Surgical methods – Correction of conditions that preclude optimal prosthetic function – hyperplasic ridge, epulis fissuratum and papillomatosis, frenular attachments and pendulous maxillary tuberosities, ridge augmentation, maxillary and mandibular oral implants, corrections of congenital deformities, discrepancies in jaw size, relief of pressure on the mental foramen, enlargement of denture bearing areas, vestibuloplasty, ridge augmentation, replacement of tooth roots with Osseo integrated denture implants.

h) Immediate Denture – Advantages, disadvantages, contra indication, diagnosis, treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals / adjunctive care, oral prophylaxis and other treatment needs.

First extraction / surgical visit, preliminary impressions and diagnostic casts, management of loose teeth, custom trays, final impressions and final casts, two tray or sectional custom impression tray, location of posterior limit and jaw relation records, setting the denture teeth / verifying jaw relations and the patient try in , laboratory phase, setting of anterior teeth, wax contouring, flasking and boil out processing and finishing, surgical templates, surgery and immediate denture insertion, post operative care and patient instructions, subsequent service for the patient on the immediate denture, over denture tooth attachments, implants or implant attachments.

i) Over Dentures (tooth supported complete dentures) – indications and treatment planning, advantages and disadvantages, selection of

abutment teeth, lose of abutment teeth, tooth supported complete dentures. Non – coping abutments, abutment with copings, abutments with attachments, submerged vital roots, preparations of the retained teeth.

j) Single Dentures : Single mandibular denture to oppose natural maxillary teeth, single complete maxillary denture to oppose natural mandibular teeth to oppose a partially edentulous mandibular arch with fixed prosthesis, partially edentulous mandibular arch with removable partial dentures. Opposing existing complete dentures, preservation of the residual alveolar ridge, necessity for retaining maxillary teeth and mental trauma.

k) Art of communication in the management of the edentulous predicament – Communication – scope, a model of communication, why communication important, what are the elements of effective communications, special significance of doctor / patient communication, doctor behaviour, the iatrosedative (doctor & act of making calm) recognizing and acknowledging the problem, exploring and identifying the problem, interpreting and explaining the problem, offering a solution to the problem for mobilizing their resources to operate in most efficient way.

l) Materials prescribed in the management of edentulous patients – Denture base materials, general requirements of biomaterials for edentulous patients, requirement of an ideal denture base, chemical composition of denture base resins, materials used in the fabrication of prosthetic denture teeth, requirement of prosthetic denture teeth, denture lining materials and tissue conditioners, cast metal alloys as denture, bases – base metal alloys.

m) Articulators – Classification, selection, limitations, precision, accuracy and sensitivity and functions of the articulators and uses. Recent advancements including virtual articulators.

n) Fabrications of complete dentures – complete denture impressions – muscles of facial expressions and anatomical landmarks, support, retention, stability, aims and objectives – preservation, support, stability, aesthetics, and retention. Impression materials and techniques – need of 2 impressions the preliminary impression and final impression.

Developing an analogue / substitute for the maxillary denture bearing area – anatomy of supporting structures – mucous membrane, hard palate, residual ridge, shape of the supporting structure and factors that influence the form and size of the supporting bones, incisive foramen, maxillary tuberosity, sharp spiny process, torus palatines, Anatomy of peripheral or limiting structures, labial vestibule, buccal vestibule, vibrating line, preliminary and final impressions, impression making, custom tray and refining the custom tray, preparing the tray to secure the final impression, making the final impression, boxing impression and making the casts.

Developing an analogue / substitute for the mandibular denture bearing area – mandible – Anatomy of supporting structure, crest of the residual ridge, the buccal shelf, shape of supporting structure, mylohyoid ridge, mental foramen, genial tubercles, torus mandibularis, Anatomy of peripheral or limiting structure – labial vestibule, buccal vestibule, lingual border, mylohyoid muscle, retromylohyoid fossa, sublingual gland region, alveolingual sulcus, mandibular impressions – preliminary impressions, custom tray, refining, preparing the tray, final impressions.

o) Mandibular movements, maxillo mandibular relation and concept of occlusion – Gnathology, identification of shape and location of arch form – Mandibular and maxillary, occlusion rim, level of occlusal plane and recording of trial denture base, tests to determine vertical dimension of occlusion, interocclusal, centric relation records, Biological and clinical considerations in making jaw relation records and transferring records from the patients to the articulator, Recording of mandibular movements – influence of opposing tooth contacts, temporomandbular

joint, muscular involvements, neuromuscular regulation of mandibular motion, the envelope of motion, rest position, maxillo- mandibular relations – the centric, eccentric, physiologic rest position, vertical dimension, occlusion, recording methods – mechanical, physiological, Determining the horizontal jaw relation – functional graphics, tactile or interocclusal check record methods, orientation / sagittal relation records. Arbitrary / Hinge axis and face bow record, significance and requirement, principles and biological considerations and securing on articulators.

p) Selecting and arranging artificial teeth and occlusion for the edentulous patient – anterior tooth selection, posterior tooth selection, and principles in arrangement of teeth, and factors governing position of teeth – horizontal, vertical. The inclinations and arrangement of teeth for aesthetics, phonetics and mechanics – to concept of occlusion.

q) The Try in – verifying vertical dimension, centric relation, establishment of posterior palatal seal, creating a facial and functional harmony with anterior teeth, harmony of spaces of individual teeth position, harmony with sex, personality and age of the patient, co-relating aesthetics and incisal guidance.

r) Speech considerations with complete dentures – speech production – structural and functional demands, neuropsychological background, speech production and the roll of teeth and other oral structures – bilabial sounds, labiodentals sounds, linguodental sounds, linguoalveolar sound, articulatoric characteristics, acoustic characteristics, auditory characteristics, linguopalatal and linguoalveolar sounds, speech analysis and prosthetic considerations.

s) Waxing contouring and processing the dentures their fit and insertion and after care – laboratory procedure – wax contouring, flasking and processing, laboratory remount procedures and selective, finishing and polishing. Critiquing the finished prosthesis – doctors evaluation,

patients' evaluation, friends' evaluation, elimination of basal surface errors, errors in occlusion, interocclusal records for remounting procedures – verifying centric relation, eliminating occlusal errors, special instructions to the patient – appearance with new denture, mastication with new dentures, speaking with new dentures, speaking with new dentures, oral hygiene with dentures, preserving of residual ridges and educational material for patients, maintaining the comfort and health of the oral cavity in the rehabilitated edentulous patients. Twenty-four hours oral examination and treatment and preventive Prosthodontics – Periodontics recall for oral examination 3 to 4 months intervals and yearly intervals.

t) Implant supported Prosthesis for partially edentulous patients - Science of Osseo integration, clinical protocol for treatment with implant supported over dentures, managing problems and complications, implant Prosthodontics for edentulous patients' current and future directions.

Implant supported prosthesis for partially edentulous patients – Clinical and laboratory protocol : Implant supported prosthesis, managing problems and complications

- ✓ Introduction and Historical Review.
- ✓ Biological, clinical and surgical aspects of oral implants.
- ✓ Diagnosis and treatment planning.
- ✓ Radiological interpretation for selection of fixtures.
- ✓ Splints for guidance fort surgical placement of fixtures.
- ✓ Intra oral plastic surgery.
- ✓ Guided bone and tissue generation consideration for implants fixture.
- ✓ Implants supported prosthesis for complete edentulism and partial edentulism.
- ✓ Occlusion for implants supported prosthesis.
- ✓ Peri – implant tissue and management.

- ✓ Peri – implant and management.
- ✓ Maintenance and after care.
- ✓ Management of failed restoration.
- ✓ Work authorization for implant supported prosthesis – definitive instructions, legal aspects, delineation of responsibility.

2. Prosthodontics treatment for edentulous patients – Removable partial Prosthodontics

(a) Scope, definition and terminology, Classification of partially edentulous arches – requirements of an acceptable methods of classification, Kennedy's classification, Applegate's rules for applying the Kennedy classification.

(b) **Components of R.P.D.**

i. Major connector – mandibular and maxillary, minor connectors, design, functions, form and location of major and minor connectors, tissue stops, finishing lines, reaction of tissue to metallic coverage.

ii. Rest and rest seats – from the Occlusal rest and rest seat, interproximal Occlusal rest seats, internal Occlusal rests, possible movements of partial dentures, support for rests, lingual rests on canines and incisor teeth, incisal rest and rest seat.

iii. Direct retainer – Internal attachment, extracoronal direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing – reciprocal clasp are, criteria for selecting a given clasp design, the basic principles of clasp design, circumferential clasp, bar clasp, combination clasp and other type of retainers.

iv. Indirect Retainer – denture rotation about an axis, factors influencing effectiveness of indirect retainers, forms of indirect

retainers, auxiliary Occlusal rest, canine extensions from Occlusal rests, canine rests, continuous bar retainers and linguoplates, modification areas, rugae support, direct – indirect retention.

v. Teeth & Denture Base

(c) Principles of removable partial denture design – Bio mechanic considerations, and the factors influence after mouth preparations – Occlusal relationship of remaining teeth, orientation of Occlusal plane, available space for restoration, arch integrity, tooth morphology, response of oral structure to previous stress, periodontal conditions, abutment support, tooth supported and tooth and tissue supported, need for indirect retention, clasp design, need for rebasing, secondary impression, need for abutment tooth modification, type of major connector, type of teeth selection, patients past experience, methods of replacing single teeth or missing anterior teeth.
Difference between tooth supported and tissue supported partial dentures, essential of partial denture design, components of partial denture design, tooth support, ridge support, stabilizing components, guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base, use of a component partial to gain support.

(d) Education of patient.

(e) Diagnosis and treatment planning – Infection control and cross infection barriers – clinical and laboratory and hospital and lab waste management, Objectives of Prosthodontic treatment, records, systemic evaluation, oral examination, preparation of diagnostic cast, interpretation of examination data, radiographic interpretation, periodontal considerations, caries activity, prospective surgical preparation, endodontic treatment, analysis of occlusal factors, fixed restorations, orthodontic treatment, need for determining the design of components, impression procedures and occlusion, need for reshaping remaining

teeth, reduction of unfavourable tooth contours, differential diagnosis : fixed or removable partial dentures, choice between complete denture and removable partial dentures, choice of materials.

(f) Design, treatment sequencing and mouth preparation.

(g) Surveying – Description of dental surveyor, purposes of surveyor procedure of survey, Aims and objectives in surveying of diagnostic cast and master cast, Final path of placement, Factors that determine path of placement and removal, Recording relation of cast to surveyor, measuring retention, Blocking of master cast – paralleled block out, shaped blockout, arbitrary blockout and relief.

(h) Preparation of Mouth for removable partial dentures – Oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation – objectives of periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery.

(i) Preparation of Abutment teeth – Classification of abutment teeth, sequence of abutment preparations on sound enamel or existing restorations, conservative restoration – using crowns, splinting abutment teeth, utilization, temporary crowns to be used as abutment.

(j) Impression Materials and Procedures for Removable Partial Dentures – Rigid materials, thermoplastic materials, Elastic materials, Impressions of the partially edentulous arch, Tooth supported, Tooth tissue supported, Individual impression trays.

(k) Support for the Distal Extension Denture Base – Distal extension removable partial denture, Factors influencing the support of distal extension base, Methods for obtaining functional support for the distal extension base.

(l) Laboratory Procedures – Duplicating a stone case, Waxing the partial denture frame work, Anatomic replica patterns, Spruing, investing,

burnout, casting and finishing of the partial denture framework, making record bases, occlusion rims, making a stone occlusal template from a functional occlusal record, arranging posterior teeth to an opposing case or template, types of anterior teeth, waxing and investing the partial denture before processing acrylic resin bases, processing the denture, remounting and occlusal correction to an occlusal template, polishing the denture.

(m) Initial placement, adjustment and servicing of the removable partial denture – adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow – up services.

(n) Relining and Rebasing the removable partial denture – Relining tooth supported dentures bases, relining distal extension denture bases, methods of reestablishing occlusion on a relined partial denture.

(o) Repairs and additions to removable partial dentures – Broken clasp arms, fractured occlusal rests, distortion or breakage of other components – major and minor connectors, loss of a tooth or teeth not involved in the support or retention of the restoration, loss of an abutment tooth necessitating its replacement and making a new direct retainer, Other types of repairs, Repair by soldering.

(p) Removable partial denture considerations in maxillofacial prosthetics – Maxillofacial prosthetics, intra oral prosthesis, design considerations, maxillary prosthesis, Obturators, speech aids, palatal lifts, palatal augmentations, mandibular prosthesis, treatment planning, framework design, Class I resection, Class II resection, mandibular flange prosthesis, jaw relation record.

(q) Management of failed restorations, work authorization.

2.1 MAXILLOFACIAL REHABILITATION

Scope, terminology, definitions, cross infection control and hospital waste management, work authorization.

Behavioural and Psychological issues in Head and Neck cancer, Psychodynamic interactions – clinician and patient – Cancer Chemotherapy : Oral Manifestations, Complications, and management, Radiation therapy of head and neck tumours :

Oral effects, Dental manifestations and dental treatment : Etiology, treatment and rehabilitation (restoration) – Acquired defects of the mandible, acquired defects of hard palate, soft palate, clinical management of edentulous and partially edentulous maxillectomy patients, Facial defects, Restoration of speech, Velopharyngeal function, cleft lip and palate, cranial implants, maxillofacial trauma, Lip and cheek support prosthesis, Laryngectomy aids, Obstructive sleep apnoea, Tongue prosthesis, Esophageal prosthesis, Vaginal radiation carrier, Burn stents, Nasal stents, Auditory inserts, trismus appliances, mouth controlled devices for assisting the handicapped, custom prosthesis for lagophthalmos of the eye. Osseo integrated supported facial and maxillofacial prosthesis. Resin bonding for maxillofacial prosthesis, Implant rehabilitation of the mandible compromise by Radiotherapy, Craniofacial Osseo integration, Prosthodontic treatment, Material and laboratory procedures for maxillofacial prosthesis.

PART – II

PAPER – II

I. FIXED PROSTHODONTICS

Scope, definitions and terminology, classification and principles, design, mechanical and biological considerations of components – Retainers, connectors, pontics, work authorization.

- Diagnosis and treatment planning – patients history and interview, patients desires and expectations and needs, systemic and emotional health, clinical examinations – head and neck, oral – teeth, occlusal and periodontal, Preparation of diagnostic cast, radiographic interpretation, Aesthetics, endodontics considerations, abutment selection – bone support, root proximities and inclinations, selections of abutments, for cantilever, pier abutments, splinting, available tooth structures and crown morphology, T.M.J. and muscles mastication and comprehensive planning and prognosis.

- Management of Caries Teeth – caries in aged, caries control, removing infected carious materials, protection of pulp, reconstruction measure for compromising teeth – retentive pins, horizontal slots, retention grooves, prevention of caries, diet, prevention of root caries and vaccine for caries.

- Periodontal considerations – attachment units, ligaments, gingivitis, periodontitis. Microbiological aspect of periodontal diseases, marginal lesion, occlusal trauma, periodontal pockets attached gingival, interdental papilla, gingival embrasures, radiographic interpretations of Periodontia, intraoral plastics, periodontal splinting – Fixed Prosthodontics with periodontially compromised dentitions, placement of margin restorations.

- Biomechanical principle of tooth preparations – individual tooth preparations – complete metal crowns – P.F.C., All porcelain – cerestore crowns, dicor crowns, incerem, etc., porcelain jacket crowns partial 3/4, half and half, ridiculer, telescopic, pin – hole, pin – ledge, laminates, inlays, onlays and preparations for restoration of teeth – amalgam, glass lonomer and composite resins, Resin Bond retainer, Gingival marginal preparations – Design, material selection, and biological and mechanical considerations – intracoronal retainer and precision attachments – custom made and ready made.

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

- Resins, Gold and gold alloys and glass lonomer restorations.

- Restorations of endodontically treated teeth, Stomatognathic Dysfunction and managements.

- Management of failed restorations.

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

II. OCCLUSION

EVALUATION, DIAGNOSIS AND TREATMENT OF OCCLUSAL PROBLEMS

Scope, definition, terminology, optimum oral health, anatomic harmony, functional harmony, occlusal stability, causes of deterioration of dental and oral health, Anatomical, physiological, neuro – muscular, psychological, considerations of teeth, muscles of mastication, temporomandibular joint, intra oral and extra oral and facial musculatures, the functions of Cranio mandibular system.

Occlusal therapy, the stomatognathic system, centric relation, vertical dimension, the neutral zone, the occlusal plane, differential diagnosis of temporomandibular disorders, understanding and diagnosing intra articular problems, relating treatment to diagnosis of internal derangements of T.M.J, Occlusal splints, Selecting instruments for occlusal diagnosis and treatment, mounting casts, Pankey-mann-schuyler philosophy of complete occlusal

rehabilitation, long centric, anterior guidance, restoring lower anterior teeth, restoring upper anterior teeth, determining the type of posterior teeth, restoring upper posterior teeth, functionally generated path techniques fro recording border movements intra orally, occlusal equilibration, Bruxism, Procedural steps in restoring occlusions, requirements for occlusal stability, solving – occlusal wear problems, deep overbite problems, anterior overjet problems, anterior open bite problems. Treating – end to end occlusion, splayed anterior teeth, cross bite patient, crowded, irregular or interlocking anterior bite, using cephalometric for occlusal analysis, solving severe arch malrelationship problems, transcranial radiography, postoperative care of occlusal therapy.

III. T.M.J. – TEMPOROMANDIBULAR JOINT DYSFUNCTION – SCOPE, DEFINITIONS AND TERMINOLOGY

Temporomandibular joint and its function, Orofacial pain, and pain from the temporomandibular joint region, temporomandibular joint dysfunction, temporomandibular joint sounds, temporomandibular joint disorders. Anatomy related, trauma, disc displacement, Osteoarthritis / Osteoarthritis, Hyper mobility and dislocation, infectious arthritis, inflammatory disease, Eagle's syndrome (Styloid – stylohyoid syndrome), Synovial chondromatosis, Osteochondrosis disease, Ostonecrosis, Nerve entrapment process, Growth changes, Tumours, Radiographic imaging.

- Etiology, diagnosis and Cranio mandibular pain, differential diagnosis and management, orofacial pain – pain from teeth, pulp, dentin, muscle pain, T.M.J. pain – psychologic, physiologic – endogenous control, acupuncture analgesia, placebo effects on analgesia, trigeminal neuralgia, temporal arterities.

- Occlusal splint therapy – construction and fitting of occlusal splints, management of occlusal splints, therapeutic effects of occlusal splints, occlusal splints and general muscles performance, T.M.J. joint

uploading and anterior repositioning appliances, use and care of occlusal splints.

- Occlusal adjustment procedures – Reversible – occlusal stabilization splints and physical therapies, jaw exercises, jaw manipulation and other physiotherapy or irreversible therapy – occlusal repositioning appliances, orthodontic treatment, orthognathic surgery, fixed and removable Prosthodontics treatment and occlusal adjustment, removable Prosthodontics treatment and occlusal adjustment, indication for occlusal adjustment, special nature of orofacial pain, indication for occlusal adjustment, special nature of orofacial pain, psychopathological considerations, occlusal adjustment philosophies, mandibular position, excursive guidance, occlusal contact scheme, goals of occlusal adjustment, significance of a slide in centric, preclinical procedures, clinical procedures for occlusal adjustment.

IV. AESTHETIC

SCOPE, DEFINITIONS

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

PART – II

PAPER – III

Emphasis on recent advances in Prosthodontics

8. TEACHING AND LEARNING ACTIVITIES:

All the candidates registered for M.D.S. course shall pursue the course for a period of three years as full time students. During this period each student shall take part actively in learning and teaching activities designed by the Santosh University. The following teaching and learning activities in each specialty are as follows :

Prosthodontics treatment should be practiced by treating plan various and more number of patients to establish skill for diagnosis and treatment plan and after care with bio-mechanical, biological, bio-esthetics, bio-phonetics and all treatment should be carried out in more number for developing clinical skill.

a) Lectures : There shall be didactic lectures both in the speciality and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics.

b) Journal Review : The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. The trainee should make presentations from the allotted journal of selected articles at least 5 times in a year.

c) Seminars : The seminars shall be held at least twice a week in the department, all trainees associated with postgraduate teachers are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5 – seminar presentation in each year.

d) Symposium : It is recommended to hold symposium on topics covering multiple disciplines one in each academic year.

e) Workshops : It is recommended to hold workshops on topics covering multiple disciplines one in each academic year.

f) Clinical Postings : Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.

g) Clinico Pathological Conference : The Clinico pathological conferences should be held once in a month involving the faculties of oral biology, oral medicine and radiology, oral pathology, oral surgery, Periodontology, endodontic and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo – pathological interpretations and participation in the discussions.

h) Interdepartmental Meetings : To bring in more integration among various specialities there shall be interdepartmental meetings chaired by the Dean with all heads of postgraduate departments at least once a month.

i) Rural Oriented Prosthodontics Health Care : To carry out Prosthodontics therapy interacting with rural centers and the institution.

j) Teaching Skills : All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions under the supervision of staff.

k) Evaluation Skills : All the trainees shall be encouraged to take part evaluating the skills and knowledge in clinical laboratory practice including theory by formulating question banks and model answers.

l) Continuing Dental Education Programmes : Each postgraduate department shall organize these programmes on regular basis involving the other

institutions. The trainees shall also be encouraged to attend such programmes conducted elsewhere.

m) Conferences / Workshops / Advanced Courses : The trainees shall be encouraged not only to attend conference / workshops / advance courses but also to present at least two papers at State / National specialty meeting during their training period.

n) Rotational Posting in Other Departments: To bring in more integration between the specialty and allied fields each post graduate department shall workout a programme to rotate the trainees in related disciplines and Craniofacial and maxillofacial ward.

o) Dissertation: Trainees shall prepare a dissertation based on the clinical or laboratory experimental work or any other study conducted by them under the supervision of the post graduate guide.

I YEAR M.D.S

- Theoretical exposure of all applied sciences of study.

- Clinical and non-clinical exercises involved in Prosthodontic therapy for assessment and acquiring higher competence.

- Commencement of dissertation within six months.

- Short epidemiological study relevant to Prosthodontics.

- Acquaintance with books, journals and referrals To acquire knowledge of list of published books, journal and website for the purpose of gaining knowledge and reference – in the fields of Prosthodontics including Crown & Bridge and Implantology.
- Acquire knowledge of instruments, equipment, and research tools in Prosthodontics.
- To acquire knowledge of Dental Material Science – Biological and Biomechanical, Bio-esthetics knowledge of using in laboratory and clinics including testing methods.

- Participation and presentation in Seminars, Didactics lectures.

- Evaluation – Internal Assessment Examinations on Applied Subjects and **University Examinations**.

II YEAR M.D.S

- Acquiring confidence in obtaining various phases and techniques for providing Prosthodontics therapy.

- Acquiring confidence by clinical practice with sufficient number of patients requiring tooth and tooth surface restorations.

- Fabrication of Adequate number of complete denture prosthesis following, higher clinical approach by utilizing semi-adjustable articulators, face bow and graphic tracing.

- Adequate number of complete denture prosthesis and techniques higher clinical approach by utilizing semi – adjustable articulators, face bow and graphic tracing.

- Understanding the use of the dental surveyor and its application in diagnosis and treatment plan in R.P.D.

- Adequate numbers of R.P.D. covering all clinical partially edentulous situation.

- Adequate number of Crowns, Inlays, Laminates F.P.D. covering all clinically, partially edentulous situation.

- Selection of cases and principles in treatment of edentulous patients, partial or complete by implant supported prosthesis.

- Treating single edentulous arch situation by implant supported prosthesis.

- Diagnosis and treatment planning for implant prosthesis.

- 1st stage and 2nd stage implant surgery.

- Understanding the maxillofacial Prosthodontics.
- Treating craniofacial defects.
- Management of orofacial esthetics.
- Prosthetic management of T.M.J. disorders.
- Occlusal rehabilitation.
- Maintenance and management of filled restoration.
- Prosthodontics management of patients with psychogenic disorders.
- Practice of child and geriatric Prosthodontics.
- Participation and presentation in seminars, didactics lectures.
- Evaluation – Internal Assessment Examinations.

III YEAR M.D.S

- Clinical and laboratory practice continued from 2nd year.
- Occlusion equilibration procedures – fabrication of stabilizing splint for parafunctional disorders, occlusal disorders and T.M.J. functions.
- Practice of dental, oral and facial esthetics.
- The clinical practice of all aspects of Prosthodontics therapy for elderly patients.
- Implants Prosthodontics – Rehabilitation of Partial Edentulism, Complete edentulism and for craniofacial rehabilitation.
- Management of failures in all aspects of Prosthodontics treatment and after care.
- Team management for esthetics, T.M.J. disorders and Maxillofacial and Craniofacial Prosthodontics.
- Management of Prosthodontics emergencies, resuscitation.
- Candidate should complete the course by attending large number and variety of patients to master Prosthodontics therapy. This includes the practice management, examinations, treatment planning, communication with patients, clinical and laboratory techniques, materials and instrumentation requiring different aspects of Prosthodontics therapy, Tooth and Tooth surface restoration, Restoration of root treated teeth, splints for periodontal rehabilitations and fractured jaws, complete dentures, R.P.D., F.P.D. Immediate dentures over dentures implant supported prosthesis, maxillofacial and body prosthesis, occlusal rehabilitation.

- Prosthetic management of T.M.J. disorders.

- Management of failed restorations.
- Complete and submit Library Assignment 6 months prior to examination.

- Candidates should acquire complete theoretical and clinical knowledge through seminars, symposium, workshops and reading.

- Participation and presentation in seminars, didactic lectures.

- Evaluation – Internal Assessment examinations three months before University Examinations.

- Dissertation should be submitted to the University six months before the commencement of theory examination.

PROSTHODONTIC TREATMENT MODALITIES:

1. Diagnosis and treatment plan in Prosthodontics.
2. Tooth and tooth surface restorations.

- Fillings
- Veneers – composite, ceramic and alloys
- Onlay – composite, ceramic and alloys
- Partial crowns – ¾ th , 4/5 th, 7/8th , Proximal 1/2 crowns.
- Pin – ledge
- Radicular crowns
- Full crowns.

3. Tooth replacements:

	PARTIAL	COMPLETE
Tooth Supported	Fixed Partial denture	Overdenture
Tissue supported	Interim partial denture Intermediate partial denture	Complete denture Immediate denture Immediate complete denture
Tooth and Tissue Supported	Cast Partial Denture Precision attachment	Overdenture
Implant supported	Cement retained Screw retained Clip attachment	Bar attachment Ball attachment
Tooth and implant Supported	Screw retained Cement retained	
Root supported	Dowel and core Pin retained	Overdenture.

- Precision attachments
  i. Intra coronal attachments
  ii. Extra coronal attachments
  iii. Bar – slide attachments
  iv. Joints and hinge joint attachments.

4. Tooth and tissue defects (Maxillo – facial and cranio – facial prosthesis)

A. Congenital Defects –
a. Cleft lip and palate
b. Pierre Robin Syndrome
c. Ectodermal dysplasia
d. Hemifacial microsomia
e. Anodontia
f. Oligodontia
g. Malformed teeth

→ Cast partial dentures implant supported prosthesis complete dentures fixed partial dentures

B. Acquired Defects :

a. Head and Neck cancer patients – Prosthodontic splints and stents

b. Restoration of facial defects: - Auricular prosthesis
- Nasal prosthesis
- Orbital prosthesis
- Craniofacial implants.

c. Midfacial defects

d. Restoration of maxillofacial trauma

e. Hemimandibulectomy } Cast partial denture

f. Maxillectomy } Implant supported dentures

g. Lip and check support prosthesis Complete dentures.

h. Ocular prosthesis

i. Speech and Velopharyngeal prosthesis

j. Laeyngectomy aids

k. Esophageal prosthesis

l. Nasal stents

m. Tongue prosthesis

n. Burn stents

o. Auditory inserts

p. Trismus appliances.

5. T.M.J. and Occlusal disturbances **:**

a. Occlusal equilibration

b. Splints – Diagnostic
- Repositioners / Deprogrammers

c. Anterior bite plate;

d. Anterior bite plate

e. Bite raising appliance

f. Occlusal rehabilitation.

6. Esthetic / smile designing:

a. Laminates / Veneers

b. Tooth contouring (peg laterals, malformed teeth)

c. Tooth replacement

d. Team Management.

7. Psychological therapy
   a. Questionnaires
   b. Charts, Papers, Photographs
   c. Models
   d. Case reports
   e. Patient counseling
   f. Behavioural modifications
   g. Referrals.

8. Geriatric Prosthodontic
   a. Prosthodontics for the elderly
   b. Behavioral and psychological counseling
   c. Removable Prosthodontics
   d. Fixed Prosthodontics
   e. Implant supported Prosthodontics
   f. Maxillofacial Prosthodontics
   g. Psychological and Physiological considerations.

9. Preventive measures **:**
   a. Diet and nutrition modulation and counseling
   b. Referrals.

Preclinical Work- Bench Work

The bench work should be completed before the clinical work starts during the first year of the MDS course.

I. Complete Dentures.

i. Arrangements in adjustable articulator for - Class I : Class II: Class III.
ii. Various face bow transfer to adjustable articulators
iii. Processing of characterized anatomical denture.

II. Removable Partial Denture.

i. Design for Kennedy's Classification (Survey, Block out and design) –
   a. Class I
   b. Class II
   c. Class III
   d. Class IV

ii. 2. Designing of various components of RPD

iii. Wax pattern on refractory cast
   a. Class I
   b. Class II
   c. Class III
   d. Class IV

iv. Casting and finishing of metal frameworks.

v. Acrylisation on metal frameworks for - Class I and Class III with modification.

III. Fixed Partial Denture :

1. Preparation in ivory teeth / natural teeth.
   - FVC for metal
   - FVC for ceramic
   - Porcelain jacket crown
   - Acrylic jacket crown
   - PFM crown
   - 3/4th (canine, premolar and Central)
   - 7/8th posterior
   - Proximal half crown
   - Inlay - Class I, II, V
   - Onlay – Pin ledged, pinhole
   - Laminates

2. Preparation of different die system

3. Fabrication of wax pattern by drop wax build up technique
    - Wax in increments to produce wax coping over dies of tooth preparations on substructures
    - Wax additive technique
    - 3 – unit wax pattern (maxillary and Mandibular)
    - Full mouth
4. Pontic design in wax pattern
    - Ridge lap
    - Sanitary
    - Modified ridge lap
    - Modified sanitary
    - Spheroidal or conical
5. Fabrication of metal framework
    - Full metal bridge for posterior (3 units)
    - Coping for anterior (3 units)
    - Full metal with acrylic facing
    - Full metal with ceramic facing
    - Adhesive bridge for anterior
    - Coping for metal margin ceramic crown
    - Pin ledge crown.
6. Fabriction of crowns
    - All ceramic crowns with characterization
    - Metal ceramic crowns with characterization
    - Full metal crown
    - Precious metal crown
    - Post and core.
7. Laminates
    - Composites with characterization
    - Ceramic with characterization
    - Acrylic.

8. Preparation for composites
    - Laminates
    - Crown
    - Inlay
    - Onlat
    - Class I
    - Class II
    - Class III
    - Class IV
    - Fractured anterior tooth.

IV. Maxillofacial Prosthesis:

1. Eye
2. Ear
3. Nose
4. Face
5. Body
6. Cranial
7. Maxillectomy
8. Hemimandibulectomy
9. Finger prosthesis
10. Guiding flange
11. Obturator.

V. Implant supported prosthesis

1. Step by step procedures – laboratory phase

VI. Other exercises:

1. T splints – stabilization appliances, maxillary an d Mandibular repositioning appliances.
2. Anterior disclusion appliances
3. Chrome cobalt and acrylic resin stabilization appliances
4. Modification in accommodation in irregulatities in dentures
5. Occlusal splint

6. Periodontal splint
7. Precision attachments – custom made
8. Over denture coping
9. Full mouth rehabilitation (by drop wax technique, ceramic build up)
10. TMJ appliances – stabilization appliances

Clinical Work

Essential Skills

- Key : O - Washes up and observes
  A - Assists a senior
  PA - Performs procedure under the direct supervision of a senior specialist.
  PI - Performs independently.

PROCEDURE	CATEGORY			
	O	A	PA	PI
Tooth and tooth surface restoration				
a) Composites – fillings, laminates, inlay, onlay	2	2	2	10
b) Ceramics – laminates, inlays, onlays	2	2	2	10
c) Glass Ionomer	1	1	1	10
CROWNS				
FVC for metal	1	2	2	10
FVC for ceramic	1	2	2	10
Precious metal crown	1	-	1	5
Galvanoformed crown	-	-	1	1
3/4th crowns (premolars, canines and centrals)	1	-	-	5
7/8th posterior crown	1	-	-	5
Proximal half crown	1	-	-	5
Pinledge and pinhole crowns	1	-	-	5
Telescopic crowns	1	-	-	5
Intraradicular crowns (Central, lateral, canine, premolar and molar	1	-	-	5
Crown as implant supported prosthesis	1	-	1	5
CAD / CAM Crowns	1	2	2	5

FIXED PARTIAL DENTURES				
Cast porcelain (3 unit)	1	-	-	5
Cast metal – precious and non precious (3 unit posterior)	1	-	-	5
Porcelain fused metal (anterior and posterior)	1	1	1	10
Multiple abutment – maxillary and Mandibular full arch	1	1	1	5
Incorporation of custom made and ready made precision joint or attachments	1	1	1	4
Adhesive bridge for anterior / posterior	1	-	1	10
Metal fused to resin anterior FPD	-	-	1	5
Interim provisional restorations (crowns and FPDs)	1	1	1	10
Immediate fixed partial dentures (interim)	1	-	-	5
Fixed prosthesis as a retention and rehabilitation for acquired and congenital defects – maxillofacial prosthetics	1	1	1	5
Implant supported prosthesis	1	-	1	1
Implant – tooth supported prosthesis	1	-	1	1
CAD / CAM FPD	1	1	1	3
REMOVABLE PARTIAL DENTURE				
Provisional partial denture prosthesis	1	1	1	10
Cast removable partial denture (for Kennedy's Applegate classification with modification)	1	1	1	6
Removable bridge with precision attachments and telescopic crowns for anterior and posterior	1	1	1	5
Immediate RPD	1	1	1	5
Partial denture for medically compromised and handicapped patients	1	1	1	5
COMPLETE DENTURES				
Neurocentric occlusion & Characterizes prosthesis	1	1	1	5
Anatomic characterized prosthesis (by using semi adjustable articulator)	1	1	1	25

Single dentures	1	1	1	5
Overlay dentures	1	1	1	5
Interim complete dentures as a treatment prosthesis for abused denture supporting tissues	1	1	1	5
Complete denture prosthesis (for abnormal ridge relation, ridge form and ridge size)	1	1	1	3
Complete dentures for patients with TMJ syndromes	1	1	1	5
Complete dentures for medically compromised and handicapped patients	1	1	1	5
GERIATRIC PATIENTS				
Tooth and both surface restorations, crowns, fixed prosthesis, removable prosthesis	-	-	**1**	**5**
IMPLANT SUPPORTED COMPLETE PROSTHESIS				
Implant supported complete prosthesis (maxillary and Mandibular)	-	-	1	1
MAXILLOFACIAL PROSTHESIS				
Guiding flange and obturators	1	-	1	4
Speech and palatal lift prosthesis	1	-	1	2
Eye prosthesis	1	-	1	2
Ear Prosthesis	1	-	1	2
Nose Prosthesis	1	-	1	2
Face Prosthesis	1	-	-	1
Maxillectomy	1	-	1	2
Hemimandibulectomy	1	-	1	2
Cranioplasty	1	-	1	1
Finger / hand foot	1	-	1	2
Body Prosthesis	1	-	1	1
Management of burns, scars	1	-	-	1
TMJ SYNDROME MANAGEMENT				
Splints – Periodontal, teeth, jaws	1	-	1	4
TMJ supportive and treatment prosthesis	1	-	1	1

Stabilization appliances for maxilla and mandible with freedom to move from IP to CRCP	1	-	-	1
In IP without the freedom to move to CRCP	1	-	-	1
Repositioning appliances, anterior disclusion	1	-	-	1
Chromecobat and acrylic resin stabilization appliances for modification to accommodate for the irregularities in the dentition	1	-	-	2
Occlusal adjustment and occlusal equilibrium	1	-	1	4
FULL MOUTH REHABILITATION				
Full mouth rehabilitation – restoration of esthetics and function of stomatognathic system	1	-	1	4
INTER – DISCIPLINARTY TREATMENT MODALITIES				
Inter – disciplinary management – restoration of Oro craniofacial defects for esthetics, phonation, mastication and psychological comforts	-	-	1	2
MANAGEMENT OF FAILED RESTORATION				
Tooth and tooth surface restorations	-	-	-	5
Removable prosthesis	-	-	-	10
Crown and fixed Prosthesis	-	-	-	5
Maxillofacial prosthesis	-	-	-	2
Implant supported Prosthesis	-	-	-	1
Occlusal rehabilitation and TMJ syndrome	-	-	-	2
Restoration failure of psychogenic origin	-	-	-	5
Restoration failure to age changes	-	-	-	2

9. TITLE OF EACH PAPER:

Distribution of Topics for Each Paper

PART – I

Paper I : Applied Basic Sciences: Applied Anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, Nutrition & Biochemistry, pathology & Microbiology, virology, Applied Pharmacology, Research Methodology and Bio-statistics. Applied Dental Anatomy & Histology, Oral Pathology & Oral Microbiology, Adult and Geriatric Psychology. Applied Dental Materials.

PART – II

Paper I : Removable Prosthodontics and Implant supported Prosthesis (Implantology), Geriatric Dentistry and Craniofacial Prosthodontics.

Paper II : Fixed Prosthodontics, Occlusion, TMJ and esthetics.

Paper III : Essay (with emphasis on recent advances in Prosthodontics)

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

10. DISTRIBUTION OF MARKS &QUESTION PATTERN

A. Theory : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each):- [300 Marks]

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each.
(Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each.
(Total of 100 Marks)

(iii) Paper III:

2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL :
PART-II ONLY **200 Marks.**

Examination shall be for three days. If there are more than 6 candidates, it may be extended for one more day. Each candidate shall be examined for a minimum of three days, six hours per day including viva voce.

1. Presentation of treated patients and records during their 3 years training period – 35 Marks.

a)C.D	- 1 Mark
b)R.P.D	- 2 Marks
c)F.P.D. including single and surface restoration	- 2 Marks
d)I.S.P	- 5 Marks
e)Occlusal rehabilitation	- 5 Marks
f) T.M.J	- 5 Marks
g)Maxillofacial Prosthesis	- 5 Marks
h) Pre-clinical Exercise	-10 Marks
TOTAL MARKS	**- 35 Marks**

2. Present actual treated patients C.D. Prosthesis and Insertion – 75 Marks

1. Discussion on treatment plan and patient review - 10 Marks
2. Tentative jaw relation records - 5 Marks
3. Face Bow – Transfer - 5 Marks
4. Transferring it on articulators - 5 Marks
5. Extra oral tracing and securing centric and protrusive / lateral, record - 15 Marks
6. Transfer in on articulator and programming - 5 Marks
7. Selection of teeth - 5 Marks
8. Arrangement of teeth - 10 Marks
9. Waxed up denture trial - 10 Marks
10. Fit, insertion and instruction of previously processed characterized, anatomic complete denture prosthesis - 5 Marks

All steps will include chair side, lab and viva voce.

TOTAL MARKS	**- 75 Marks**

3. Fixed partial Denture – 35 Marks

a. Case discussion and selection of patients for F.P.D - 5 Marks
b. Abutment preparation isolation and fluid control - 15 Marks
c. Gingival retraction and impressions - 10 Marks
d. Cementation of provisional restoration - 5 Marks

TOTAL MARKS	**- 35 Marks**

4. Removable Partial Denture – 25 Marks

a. Surveying and designing of partial dentate cast - 5 Marks
b. Discussion on components and material selection including occulsal scheme. - 20 Marks

TOTAL MARKS	**- 25 Marks**

5. Implant Supported Prosthetics – 30 Marks

(2nd Stage Protocol)

a.	Case discussion including treatment planning and selection of patient for ISP	10 marks
b.	II stage preparation, Abutment selection, placement, evaluation	10 marks
c.	Implant impression and making of cast	10 marks

TOTAL MARKS	**- 30 Marks**

C. VIVA VOCE EXAMINATION

PART – I

VIVA VOCE EXAMINATION **- 100 MARKS.**

PART – II **- 100 MARKS**

i. Viva-Voce examination: 80 Marks

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.

ii. 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.

11. <u>MARKS QUALIFYING FOR A PASS:</u>

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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M.D.S. BRANCH - II – PERIODONTOLOGY

1. OBJECTIVES :

The training programme in Periodontology is structured to achieve the following goals of the course –

- Knowledge.
- Skills.

KNOWLEDGE:

Discuss historical perspective to advancement in the subject proper and related topics –

- Describe etiology, pathogenesis, diagnosis and management of common Periodontal diseases with emphasis on Indian population
- Familiarize with the biochemical, microbiologic and immunological and genetic aspects of periodontal pathology
- Describe various preventive periodontal measures
- Describe various treatment modalities of Periodontal disease from historical aspect to currently available ones.
- Describe interrelationship between periodontal disease and various systemic conditions.
- Describe periodontal hazards due to estrogenic causes and deleterious habits and prevention of it.
- Identify rarities in Periodontal disease and environmental/Emotion determinates in a given case.
- Recognize conditions that may be outside the area of his Speciality / Competence and refer them to an appropriate Specialist.
- Decide regarding non-surgical or surgical management of the case.
- Update him/her by attending course, conferences and seminars relevant to periodontics or by self-learning process.

- Plan out / carry out research activity both basic and clinical aspects with the aim of publishing his/her work in scientific journals.
- Reach to the public to motivate and educate regarding periodontal disease, its prevention and consequences if not treated.
- Plan epidemiological survey to assess prevalence and incidence of early onset periodontitis and adult periodontitis in Indian population (Region wise).
- Shall develop knowledge, skill in the science and practice of Oral Implantology.
- Shall develop teaching skill in the field of Periodontology and Oral Implantology.

SKILLS:

- Take a proper clinical history, thorough examination of intra orally, extra orally, medical history 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 disease, maintenance after the treatment.
- Perform both non-surgical and surgical procedures independently.
- Provide Basic Life Support Service (BLS) recognizes the need for and advance life support and does the immediate need for that.
- Human values, ethical practice to communication abilities.
- Develop, 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 his knowledge and skill and ask for help from colleagues when needed. Respect patients rights and privileges, including patients right to information and right to seek a second opinion.

2. COURSE CONTENTS:

PART – I

PAPER – I

APPLIED BASIC SCIENCES:

A. Applied Anatomy

1. Development of the Periodontium.
2. Micro and Macro structural anatomy and biology of the periodontal tissues
3. Age changes in the Periodontal tissues.
4. Anatomy of the Periodontium -
    - Macroscopic and Microscopic anatomy
    - Blood supply of the Periodontium
    - Lymphatic system of the Periodontium
    - Nerves of the Periodontium
5. Temporomandibular joint, Maxillae and Mandible.
6. Nerves of Periodontics
7. Tongue, Oropharynx
8. Muscles of mastication
9. Applied genetics & Hereditary
10. Growth & development
11. Embryology
12. Applied dental anatomy

B. PHYSIOLOGY

1. Blood
2. Respiratory system – Acknowledge of the respiratory diseases which are a cause of periodontal diseases (Periodontal Medicine)
3. Cardiovascular system.
    a. Blood pressure
    b. Normal ECG
    c. Shock.

4. Endocrinology – hormonal influences on Periodontium.
5. Gastrointestinal system.
   a. Salivary secretion – composition, function and regulation.
   b. Reproductive physiology.
   c. Hormones – Actions and regulations, role in Periodontal disease.
   d. Family Planning methods.
6. Nervous system.
   a. Pain pathways.
   b. Taste – Taste buds, primary taste sensation and pathways for sensation.

C. BIOCHEMISTRY

1. Basics of carbohydrates, lipids, proteins, vitamins, proteins, enzymes and mineral
2. Diet and nutrition in Periodontium.
3. Biochemical tests and their significance.
4. Calcium and phosphorus.

D. PATHOLOGY

1. Cell structure in metabolism
2. Inflammation and repair, necrosis and degeneration
3. Immunity and hypersensitivity
4. Circulatory disturbances – edema, hemorrhage, shock, thrombosis, embolism, infarction and hypertension.
5. Distribution of nutrition.
6. Diabetes mellitus.
7. Cellular growth and differentiation, regulation.
8. Lab investigations.
9. Blood.

E. MICROBIOLOGY

1. General bacteriology.
   a. Identification of bacteria.
   b. Culture media and methods

c. Sterilization and disinfection.

2. Immunology and Infection.

3. Systemic bacteriology with special emphasis on oral microbiology – staphylococci, genus actinomyces and other filamentous bacteria and actinobacillus action mycetum comitans.

4. Virology.
   a. General properties of viruses.
   b. Herpes, Hepatitis, virus, HIV virus.

5. Mycology
   a. Candidasis

6. Applied microbiology.
7. Diagnostic microbiology and Immunology, hospital infections and Management.

F. PHARMACOLOGY

1. General Pharmacology.
   a. Definitions – Pharmcokinetics with clinical applications, routes of administration including local drug delivery in Periodontics.
   b. Adverse drug reactions and drug interactions.
2. Detailed pharmacology of -
   a. Analgesics - opoid and nonopoid.
   b. Local anesthetics
   c. Haematinics and coagulants, Anticoagulants.
   d. Vit D and CalciumPreparations.
   e. Antidiabetics drugs.
   f. Steroids
   g. Antibiotics
   h. Antihypertensive
   i. Immunosuppressive drugs and their effects on oral tissues.
   j. Antiepileptic drugs.

3. Brief pharmacology, dental use and adverse effects of –
   a. General anesthetics
   b. Antipsychotics
   c. Antidepressants
   d. Anxiolytic drugs
   e. Sedatives
   f. Antiepileptics
   g. Antihypertensives
   h. Antianginal drugs.
   i. Diuretics
   j. Hormones
   k. Pre-anesthetic medications.

4. Drugs used in Bronchial asthma cough.

5. Drug theapy 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. Antiplague agents.

7. Fluoride Pharmacology.

G. 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 and mode), standard deviation and variability).
5. Tests of significance (chi square test't'test and Z-test)
6. Null hypothesis.
7. Research Methodology

PART – II

PAPER – I

ETIOPATHOGENESIS

1. Classification of periodontal diseases and conditions.
2. Epidemiology of gingival and periodontal diseases.
3. Defense mechanisms of gingiva.
4. Periodontal microbiology.
5. Basic concepts of inflammation and immunity.
6. Microbial interactions with the host in periodontal diseases.
7. Pathogenesis of plaque associated periodontal diseases.
8. Dental calculus.
9. Role of iatrogenic and other local factors.
10. Genetic factors associated with periodontal diseases.
11. Influence of systemic diseases and disorders of the periodontium.
12. Role of environmental factors in the etiology of periodontal disease.
13. Stress and periodontal diseases.
14. Occlusion and periodontal diseases.
15. Smoking and tobacco in the etiology of periodontal diseases.
16. AIDS and periodontium.
17. Periodontal medicine.
18. Dentinal hypersensitivity.

PAPER – II

CLINICAL AND THERAPEUTIC PERIODONTOLOGY AND ORAL IMPLANTOLOGY

Note: Clinical Periodontology includes gingival diseases, periodontal diseases,periodontal Instrumentation, diagnosis, prognosis and treatment of periodontal diseases.

I. GINGIVAL DISEASES

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

II. PERIODONTAL DISEASES

1. Periodontal pocket.
1. Bone loss and patterns of bone destruction.
2. Periodontal response to external forces.
3. Masticatory system disorders.
4. Chronic periodontitis.
5. Aggressive periodontitis.
6. Necrotising ulcerative periodontitis.
7. Interdisciplinary approaches.
    i. Orthodontic
    ii. Endodontic

III. TREATMENT OF PERIODONTAL DISEASES

History, examination, diagnosis, prognosis and treatment planning –

1. Clinical diagnosis.

2. Radiographic and other aids in the diagnosis of periodontal diseases.
3. Advanced diagnostic techniques.
4. Risk assessment.
5. Determination of progrnosis.
6. Treatment plan.
7. Rationale for periodontal treatment.
8. General principles of anti-infective therapy with special emphasis on infection control inperiodontal practice.
9. Halitosis and its treatment.
10. Brusixm and its treatment.

Periodontal instrumentation-

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

Periodontal therapy-

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

Periodontal Surgical phase - special emphasis on drug prescription-

1. General Principles of Periodontal surgery.
2. Surgical anatomy of Periodontium and related structures.

3. Gingival curettage.
4. Gingivectomy technique.
5. Treatment of gingival enlargements.
6. Periodontal flap.
7. Osseous surgery (respective and regenerative)
8. Furcation; Problem and its management
9. The periodontic - Endodontic continuum.
10. Periodontic plastic and esthetic surgery.
11. Recent advances in surgical techniques.

Future directions and controversial questions in Periodontal therapy-

1. Future directions for infection control.
2. Research directions in regenerative therapy.
3. Future directions in anti-inflammatory therapy.
4. Future directions in measurement of periodontal diseases.

Periodontal maintenance Phase-

1. Supportive periodontal treatment.
2. Results of periodontal treatment.

IV. ORAL IMPLANTOLOGY

1. Introduction and historical review.
2. Biological, clinical and surgical aspects of dental implants.
3. Diagnosis and treatment planning.
4. Implant surgery.
5. Prosthetic aspects of dental implants.
6. Diagnosis and treatment of Peri implant complications.
7. Special emphasis on plaque control measures implant patients.
8. Maintenance phase.

V. MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE

Periodontology treatment should be practiced by various treatment plans and more number of patients to establish skill for diagnosis and treatment and after care with bio-mechanical, biological, bio-esthetics, bio-phonetics and all treatment should be carried out in more number for developing clinical skill

PAPER-III

EMPHASIS ON RECENT ADVANCES IN PERIODONTICS

3. TEACHING AND LEARNING ACTIVITIES:

All the candidates registered for M.D.S. course shall pursue the course for a period of three years as full – time students. During this period each student shall take part actively in learning and teaching activities designed by the Institution / University.

The following teaching and learning activities in the specialty are as follows:

Periodontology treatment should be practiced with various treatment plan and more number of patients to establish skill for diagnosis and treatment plan and after care with bio-mechanical, biological, bio-esthetics, bio-phonetics and all treatment should be carried out in more number for developing clinical skill.

a) Lectures : There shall be didactic lectures both in the specialty and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics.

b) Journal Review : The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. The trainee should make presentations from the allotted journal of selected articles at least 5 times in a year.

c) Seminars : The seminars shall be held at least twice a week in the department, all trainees associated with postgraduate teachers are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5 – seminar presentation in each year.

d) Symposium : It is recommended to hold symposium on topics covering multiple disciplines one in each academic year.

e) Workshops : It is recommended to hold workshops on topics covering multiple disciplines one in each academic year.

f) Clinical Postings : Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.

g) Clinico Pathological Conference : The Clinico pathological conferences should be held once in a month involving the faculties of oral biology, oral medicine and radiology, oral pathology, oral surgery, Prosthodontics, endodontia and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo – pathological interpretations and participation in the discussions.

h) Interdepartmental Meetings : To bring in more integration among various specialties there shall be interdepartmental meetings chaired by the Dean with all heads of postgraduate departments at least once a month.

i) Rural Oriented Periodontic Health Care : To carry out Periodontal therapy interacting with rural centers and the institution.

j) Teaching Skills : All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions.

k) Evaluation Skills : All the trainees shall be encouraged to take part evaluating the skills and knowledge in clinical laboratory practice including theory by formulating question banks and model answers.

l) Continuing Dental Education Programs : The postgraduate department shall organize these programs on regular basis involving the other institutions. The trainees shall also be encouraged to attend such programs conducted elsewhere.

m) Conferences / Workshops / Advanced Courses : The trainees shall be encouraged not only to attend conference / workshops / advance courses but also to present at least two scientific papers at State / National specialty meeting during their training period.

n) Rotation and Posting in Other Departments : To bring in more integration between the specialty and allied fields each post graduate department shall workout a program to rotate the trainees in related disciplines and Craniofacial and maxillofacial ward.

o) Library Assignment : One to be presented at the end of 18 months of the course.

ACADEMIC ACTIVITIES

I Year : Submission of synopsis for Dissertation – within 6 months from the start of the course. The Library assignment to be submitted at the end of the I year.

II Year : Scientific papers presentation at the conferences.

III Year : Scientific Paper / Poster presentation at conferences.
Submission of Dissertation – 6 months before completion of III year.

SKILLS

First Year

Pre-Clinical work.

(a)Dental

1. Practice of incisions and suturing techniques on the typhodont models.
2. Fabrication of bite guards and splints.
3. Occlusal adjustments on the casts mounted on the articulator.
4. X-Ray techniques and interpretation.
5. Local anesthetic techniques.

(b) Medical

1. Basic diagnostic microbiology and immunology, collection and handling of saple, culture techniques.
2. Basic understanding of immunological diseases.
3. Interpretation of various biochemical investigations.
4. Practical training and handling medical emergencies and basic life support devices.
5. Basic Biostatistics – Surveying and data analysis.

CLINICAL WORK

1. Applied Periodontal indices	10 Cases
2. Scaling and root planning (SRP)	
a. Hand	15 Cases
b. Ultrasonic	15 Cases
3. Curettage	10 Cases
4. Gingivectomy	20 Cases
5. Gingivoplasty	10 Cases

Second Year

CLINICAL WORK

1. Case history and treatment planning 5 Cases
2. Local Drug Delivery Techniques
3. Periodontal surgical procedures

-Pocket therapy
-Muco-gingival surgeries.
-Implants (2 implants)
-Management of Perio endo problems

4. Occlusal adjustments 10 Cases
5. Perio splints 10 Cases

Third Year

CLINICAL WORK

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

ASSESSMENT EXAMINATIONS

In addition to the regular evaluation, log book etc., Assessment examination should be conducted once in every six months and progress of the student monitored.

Note:

1. Submission of Synopsis for Dissertation should be done within 6 months of the commencement of the course.
2. Submission of two copies of Library Assignments with in eighteen months from the date of commencement of course.
3. Submission of pre-clinical work as scheduled.
4. Submission of Dissertation – 6 months before completion of III year.
5. Maintenance of work Diary / Log Book as prescribed.

MONITORING LEARNING PROGRESS

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

4. UNIVERSITY EXAMINIATIONS

Distribution of Topics for Each Paper

PART- I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology And Biostatistics.

PART-II

PAPER I: Normal Periodontal Structure, Etiology and Pathogenesis of Periodontal Diseases, Epidemiology as related to Periodontics

PAPER II: Periodontal Diagnosis, Therapy and Oral Implantology

PAPER III: Descriptive and Analysing Type Question

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

5. DISTRIBUTION OF MARKS & QUESTION PATTERN

A. Theory : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each) [300 Marks]

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:

2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL :

PART – II - 200 Marks

The clinical examinations shall be of two days duration.

1st day : Case discussion:

1. Long Case - One
2. Short Case - One

Periodontal surgery – Periodontal flap surgery on a previously prepare case in one quadrant of the mouth after getting approval from the examiners.

2nd day :

1. Post-surgical review and discussion of the case treated on the 1st day.
2. Presentation of dissertation and discussion.
3. All the examiners shall participate in all the aspects of clinical examinations / viva voce

Distribution of Marks for Clinical Examinations :

a) Long Case discussion	50 Marks
b) Two Short cases	50 Marks
c) Periodontal Surgery	75 Marks
d) Post-operative review	25 Marks
Total	**200 Marks**

C. VIVA VOCE EXAMINATION :

PART – I – VIVA VOCE 100 MARKS

PART- II

i. Viva-Voce examination: 80 Marks

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.

ii. 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.

5. **MARKS QUALIFYING FOR A PASS:**

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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MDS BRANCH III –: ORAL AND MAXILLOFACIAL SURGERY

1. OBJECTIVES

The training programme in Oral and Maxillofacial Surgery is structured to achieve the following four objectives –

- Knowledge.
- Skills.
- Attitude.
- Communicative skills and ability.

Knowledge

- To have acquired adequate knowledge and understanding of the etiology, patho-physiology 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.

- Ability to identify social, cultural, economic, genetic and environmental factors and their relevance to the disease process management to equip the trainee with skill and knowledge at the end of three years course period to be able to practice basic Oral and Maxillofacial Surgeon competently and have the ability to intelligently pursue further apprenticeship towards advance Maxillofacial Surgery.

- 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 H.I.V.

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 the Oral and Maxillofacial region).
- Capable of providing care for maxillofacial surgery patients.

Attitude

- Develop attitude to adopt ethical principles in all aspect of surgical 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 interests of the patient.
- Respect patient right and privileges, including patients right to information and rights to seek a second opinion.
- Develop attitude to seek opinion from an allied medical and dental specialists as and when required.

Communication Skills

- Develop 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 undergraduate.

2. COURSE CONTENT:

The programme outlines and addresses both the knowledge needed in Oral and Maxillofacial Surgery and allied medical specialties in its scope. A minimum of three years of formal training through a graded system of education as specified will equip the trainee with skill and knowledge at its completion to be able to practice basic Oral and Maxillofacial Surgery competently and have the ability to intelligently pursue further apprenticeship towards advances in Maxillofacial Surgery.

THE TOPICS ARE CONSIDERED AS UNDER:-

- Applied Basic Sciences.
- Oral and Maxillofacial Surgery.
- Allied Specialties.
- Academic Clinical Programme

APPLIED BASIC SCIENCES:

A thorough knowledge of theory and principles in general and in particular 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.

A. ANATOMY

Development of face, paranasal sinuses and associated 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 facial bones and

surrounding soft tissues, cranial nerves, tongue, sub-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 abnormalities of orofacial regions, osteology of scapulae, rib, sternum, radius, ulna, tibia, fibula & Ilium – muscle attached, vascular & nerve supply General consideration of the structure and function and applied anatomy of intracranial venous sinuses; cavernous sinus and superior sagital 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, lymphatics, nerves, muscles, tongue, tooth and its surrounding structures.

B. PHYSIOLOGY

Nervous system – physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature; Blood – its composition, haemostasis, blood dyscrasias and management, haemorrhage and its control, blood grouping, cross matching, blood component therapy, complications of blood transfusion, blood substitutes, auto transfusion, cell savers; Digestive system : composition and functions 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 disorders relating to thyroid gland, parathyroid gland, adrenal 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, Routes of access to GI tract, Parenteral nutrition, Access to central veins, Nutritional support; Fluid and Electrolytic balance / Acid Base metabolism the body fluid compartment, metabolism of water and electrolytes, factors maintaining homeostasis, causes for treatment of acidosis and alkalosis.

C. 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, enzymes, vitamins, minerals and anti metabolites.

D. GENERAL PATHOLOGY

Inflammation – Acute and chronic inflammation, repair and regeneration, necrosis and gangrene, role of component system in acute inflammation, role of arachidonic acid & 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; 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 investigations.

E. GENERAL MICROBIOLOGY

Immunity, Hepatitis - B and its prophylaxis, Knowledge of organism commonly associated with disease of oral cavity, culture and sensitivity tests, various staining techniques – Smears and cultures, urine analysis and culture.

F. ORAL PATHOLOGY AND MICROBIOLOGY

Developmental disturbance 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 and malignant neoplasms, salivary gland and diseases,

maxillary sinus diseases, mucosal diseases, oral aspects of various systemic diseases, role of laboratory investigation in Oral Surgery.

G. PHARMACOLOGY AND THERAPEUTICS

Definition of terminology used, pharmacokinetics and pharmadynamics, dosage and mode of administration of drugs, action and fate in the body, drug addiction, tolerance and hypersensitive reactions, drugs acting on C.N.S., general and local anaesthetics, antibiotics and analgesics, antiseptics, antitubercular drugs, sialagogues, hematinics, anti diabetics, Vitamins – A, B-complex, C, D, E, K, chemotherapeutic agents.

H. 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 skill 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, value of review 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 these studies.

- Principles of surgery – developing a surgical diagnosis, basic necessities for surgery, aseptic techniques, incisions, flap designs, tissue handling, haemostasis, dead space management, decontamination and debridement, suturing, edema control, patients 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 work up; work up in special situation 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 H.I.V. infection and cross infection, Space infection of maxillofacial region (soft and hard tissue).
- Airway obstruction / management – Anatomy of the airway, principles of keeping the airway patent, mouth to mouth resuscitation, Oropharyngeal airway, endotracheal intubation, Cricothyroidtomy, Tracheostomy.
- Anaesthesia – stages of Anaesthesia, pharmacology of inhalation, intravenous and regional anaesthetics, 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 patients, competence in evaluation of patients presenting with acute injury,

particularly to maxillofacial region. Competence in the evaluation of management of patients for Anaesthesia.

- Clinical oral surgery – all aspects of dento alveolar surgery – impactions.
- Pre – prosthetic surgery – A wide range of surgical reconstructive procedures involving the 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.
- Maxillary sinus – related dental implications and their management.
- Salivary glands – disorders & tumours and their management.
- Cyst and tumours of head and neck region and their management – including principles of tumour surgery, giant cell lesion of jaw bones, fibro osseous lesion of jaw, vascular malformation.
- 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 patients With multiple injuries / closed abdominal and chest injuries / penetrating injuries, pelvic fractures, urological injuries, vascular injuries.
- Orthognathic surgery – The trainee must be familiar with the assessment and correction 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 surgery.
- 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 and 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 scaring, face lift, blepharoplasty, otoplasty, facial bone recountouring, 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 concepts 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, Cancer biology.
- Micro vascular surgery.
- Implantology – principles, surgical procedures for insertion of various types of implants.
- Maxillofacial radiology / radio diagnosis.
- Other diagnostic methods and imaging techniques.

ALLIED SPECIALTIES:

- General Medicine : General assessment of the patient including children with special emphasis on cardiovascular diseases endocrinal and metabolic, respiratory and renal disease, Blood dyscrasias.
- General Surgery : Principles of General Surgery, exposure to common general surgical procedures.
- Neuro – surgery : Evaluation of a patient with head injury, examination of various Neuro – surgical procedures.
- E.N.T. / Ophthalmology : Examination of ear, nose, throat, exposure to E.N.T. surgical procedures, ophthalmic examination and evaluation, exposure to ophthalmic surgical procedures.

- Orthopaedic : Basic principles of Orthopedic Surgery, bone diseases and trauma as relevant to Maxillofacial Surgery, interpretation of radiographs, C.T., M.R.I., and ultrasound.
- Anaesthesia : Evaluation of patients for GA techniques and management of emergencies, various IV sedation techniques.

ACADEMIC CLINICAL PROGRAMME *(applicable for all three years)*:

- **Seminars** to be attended once in a week.
- **Journals clubs** (departmental and interdepartmental) to be conducted once in 15 days.
- **Departmental and interdepartmental** discussions to be held once in a month.
- Minimum 2 scientific papers should be presented.
- Every candidates shall maintain a logbook to record his/her work or participation in all activities such as journal club s, 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.

1. TEACHING AND LEARNING ACTIVITIES

All the candidates registered for M.D.S. course shall pursue the course for a period of three years as full – time students. During this period each student shall take part actively in learning and teaching activities designed by the Institution / University.

The following teaching and learning activities in each specialty are as follows :

The Oral and Maxillofacial Surgery treatment should be practiced by various treatment plan and more number of patients to establish skill for diagnosis and treatment plan and after care with bio-mechanical, biological, bio-esthetics, bio-phonetics and all treatment should be carried out in more number for developing clinical skill.

1) **Lectures :** There shall be didactic lectures both in the specialty and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics.

2) **Journal Club :** The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. The trainee should make presentations from the allotted journal of selected articles at least 5 times in a year.

3) **Seminars :** The seminars shall be held at least twice a week in the department, all trainees associated with postgraduate teachers are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5 – seminar presentation in each year.

4) **Symposium :** It is recommended to hold symposium on topics covering multiple disciplines one in each academic year.

5) **Workshops :** It is recommended to hold workshops on topics covering multiple disciplines one in each academic year.

6) **Clinical Postings :** Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.

7) **Clinico Pathological Conference :** The Clinico pathological conferences should be held once in a month involving the faculties of oral biology, oral medicine and radiology, oral pathology, oral surgery, periodontology, endodontia and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo – pathological interpretations and participation in the discussions.

8) **Interdepartmental Meetings :** To bring in more integration among various specialities there shall be interdepartmental meetings chaired by the Dean with all heads of postgraduate departments at least once a month.

9) **Rural Oriented Oral and Maxillofacial Surgery Health Care :** To carry out Oral Surgery therapy interacting with rural centers and the institution.

10) **Teaching Skills :** All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions.

11) **Evaluation Skills :** All the trainees shall be encouraged to take part evaluating the skills and knowledge in clinical laboratory practice including theory by formulating question banks and model answers.

12) **Continuing Dental Education Programs :** Each postgraduate department shall organize these programs on regular basis involving the other institutions. The trainees shall also be encouraged to attend such programs conducted elsewhere.

13) **Conferences / Workshops / Advanced Courses :** The trainees shall be encouraged not only to attend conference / workshops / advance courses but also to present at least two scientific papers at State / National specialty meeting during their training period.

14) **Rotation and Posting in Other Departments :** To bring in more integration between the specialty and allied fields each post graduate department shall workout a program to rotate the trainees in related disciplines and Craniofacial and maxillofacial ward.

15) **Library Assignment :** One to be presented at the end of 18 months of the course.

YEAR BY YEAR PROGRAMME:

I Year

First Term

Dissection, 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.

Second Term:-*(rotation and postings in other department) :-*

Oncology	-	1 ½ months.
Emergency	-	1 month.
General Medicine	-	15 days.
General Surgery / Anaesthesia	-	15 days.
Ophthalmology	-	15 days.
Neurology	-	15 days.
E.N.T.	-	15 days.
Orthopaedic	-	15 days.
Plastic Surgery	-	15 days.

II Year –

Minor Oral Surgery and Higher Surgical Training.

Submission of library assignment with in eighteen months from the date of commencement of course.

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.

Sl. No.	**Procedure**	**Category**	**Year**	**Number**
1.	Injection I.M. and I.V.	PI	I, II	50, 20
2.	Minor suturing and removal of sutures.	PI	I	N, A
3.	Incision & drainage of an abscess.	PI	I	10
4.	Surgical extraction.	PI	I	15
5.	Impacted teeth.	PI, PA	I, II	20, 10
6.	Pre prosthetic Surgery : a) Corrective procedures. b) Ridge extension. c) Ridge reconstruction.	PI PI PA A	 I I, II II, III	 15 3 3
7.	OAF closure.	PI, PA	I, II	3, 2
8.	Cyst Enucleation	PI, PA	I, II	5, 5
9.	Mandibular fractures.	PI, PA	I, II	10, 10
10.	Peri – apical Surgery.	PI, PA	I	5
11.	Infection Management.	PI, PA	I, II	N, A
12.	Biopsy Procedures.	PI	I, II	N, A
13.	Removal of Salivary Calculi.	PA	I, II	3, 5
14.	Benign tumours.	PA, A	II, III	3, 3
15.	Mid Face Fractures.	PA, A	II, III	3, 5
16.	Implants.	PA, A	II, III	5, 5
17.	Tracheostomy.	PA, A	II, III	2, 2
18.	Skin Grafts.	PA	III	3, 5
19.	Orthognathic Surgery.	PA, A	II, III	3
20.	Harvesting Bone & Cartilage Grafts : a) Iliac Crest. b) Rib.	 PA A	 III III	 3

	c) Calvarial. d) Fibula.	A A, O	III III	2 2
21	T.M. Joint Surgery	PA, A	II, I	1
22	Jaw resections	PA, A	III, II	3, 3
23	Onco Surgery	A, O	III, III	3, 3
24	Micro vascular anastomosis	A, O	III	5, 10
25	Cleft lip & palate	PA, A	II, III	10, 15
26	Distraction osteogenesis	A, O	II, III	2, 3
27	Rhinoplasty	A, O	III	3, 5
28	Access osteotomies and base of skull surgeries	A, O	III	1,3

Key:

O – Washed up and observed – Initial 6 months of admission.
A – Assisted a more senior surgeon – I year MDS
PA - Performed procedure under the direction supervision of a senior surgeon – II year MDS.
PI - Performed independently – III Year MDS.

SYLLABUS:

PART – I
PAPER – I

APPLIED BASIC SCIENCES
Applied Anatomy, Physiology, Biochemistry, General and Oral Pathology and Microbiology and Pharmacology.

APPLIED ANATOMY

1. Surgical anatomy of the scalp, temple and face.
2. Anatomy of the triangles of neck and deep structures of the neck.
3. Cranial and facial bones and its surrounding soft tissues with its applied aspects in maxillofacial injuries.
4. Muscles of head and neck.

5. Arterial supply, venous drainage and lymphatics of head and neck.
6. Congenital abnormalities of the head and neck.
7. Surgical anatomy of the cranial nerves.
8. Anatomy of the tongue and its applied aspects.
9. Surgical anatomy of the temporal and infratemporal regions.
10. Anatomy and its applied aspects of salivary glands, pharynx, thyroid and parathyroid gland, larynx, trachea and esophagus.
11. Tooth eruption, morphology and occlusion.
12. Surgical anatomy of the nose.
13. The structure and function of the brain including surgical anatomy of intra cranial venous sinuses.
14. Autonomous nervous system of head and neck.
15. Functional anatomy of mastication, deglutition, speech, respiration and circulation.
16. Development of face, paranasal sinuses and associated structures and their anomalies.
17. TMJ: surgical anatomy and function.

PHYSIOLOGY

Nervous system

- Physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature.

Blood

- Composition
- Hemorrhage and its control
- Capillary and lymphatic circulation
- Blood grouping, transfusing procedures.

Digestive system

- Saliva – composition and functions of saliva.
- Mastication, deglutition, digestion, assimilation
- Urine formation, normal and abnormal constituents.

Respiration

- Control of ventilation, anoxia, asphyxia, artificial respiration
- Hypoxia – types and management.

Cardio Vascular System

- Cardiac cycle
- Shock
- Heart sounds
- Blood pressure
- Hypertension.

Endocrinology

- General endocrinal activity and disorder relating to thyroid gland
- Parathyroid gland, adrenal gland, pituitary gland, pancreas and gonads.
- Metabolism of calcium.

Nutrition

- General principles of a balanced diet, effect of dietary deficiency, protein energy, malnutrition, Kwashiorkor, Marasmus.
- Fluid and Electrolytic balance in maintaining haemostasis and significance in minor and major surgical procedures.

BIOCHEMISTRY

- General principles governing the various biological activities of the body, such as osmotic pressure, electrolytes, dissociation, oxidation, reduction etc.
- General composition of the body
- Intermediary metabolism
- Carbohydrates, proteins, lipids and their metabolism
- Nucleoproteins, nucleic acid and nucleotides and their metabolism
- Enzymes, vitamins and minerals
- Hormones
- Body and other fluids

- Metabolism of inorganic elements
- Detoxification in the body
- Antimetabolites.

PATHOLOGY

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 molecular events in cell growth and intercellular signaling cell surface receptors
- Role of NSAIDS in inflammation
- Cellular changes in radiation injury and its manifestation.

HAEMOSTASIS

- Role of endothelium in thrombogenesis
- Arterial and venous thrombi
- Disseminated Intravascular coagulation

SHOCK

- Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock
- Circulatory disturbances, ischemia hyperemia, venous congestion, edema, infarction.

CHROMOSOMAL ABNORMALITIES

Marfans Syndrome, Ehler's Danlos Syndrome, Fragile X-syndrome.

HYPERSENSITIVITY

- Anaphylaxis, type 2 hypersensitivity and cell mediated reaction and its clinical importance, systemic lupus erythematosus.
- Infection and infective granulomas.

NEOPLASIA

- Classification of tumors
- Carcinogenesis and carcinogen – chemical, viral and microbial
- Grading and staging of cancers, tumors Angiogenesis, Paraneoplastic syndrome, spread of tumors
- Characteristics of benign and malignant tumors.

OTHERS

- Sex linked agammaglobulinemia
- AIDS
- Management of immune deficiency patients requiring surgical procedures
- De George Syndrome
- Ghons complex, post primary pulmonary tuberculosis – pathology and pathogenesis.

ORAL PATHOLOGY

- Developmental disturbances of oral and Para oral structures
- Regressive changes of teeth
- Bacterial, viral and mycotic infections of oral cavity
- Dental caries, diseases of pulp and periapical tissues
- Physical and chemical injuries of the oral cavity
- Oral manifestations of metabolic and endocrinal disturbances
- Diseases of jawbones and TMJ
- Diseases of blood and blood forming organs in relation to oral cavity
- Cysts of the oral cavity
- Salivary gland diseases
- Role of laboratory investigations in oral surgery.

MICROBIOLOGY

- Immunity
- Knowledge of organisms commonly associated with disease of oral cavity

- Morphology cultural characteristics of strepto, staphylo, pneumo, gono, meningo, clostridium group of organism, spirochetes, organisms of TB, leprosy, diphtheria, actinomycosis and moniliasis
- Hepatitis B and its prophylaxis
- Culture and sensitivity test
- Laboratory determinations
- Blood groups, blood matching, RBC and WBC
- Bleeding and clotting time etc. smears and cultures
- Urine analysis and cultures.

APPLIED PHARMACOLOGY AND THERAPEUTICS

- Definition of terminologies used
- Dosage and mode of administration of drugs
- Action and fate of drugs in the body
- Drug addiction, tolerance and hypersensitivity reactions
- Drugs acting on the CNS
- General and local anesthetics, hypnotics, analeptics and tranquilizers
- Chemo therapeutics and antibiotics
- Analgesics and antipyretics
- Antitubercular and antisyphilitic drugs
- Antiseptics, sialogogues and antisialogogues
- Haematinics
- Antidiabetics
- Vitamins A, B-complex, C, D, E, K.

PART-II
PAPER –I – MINOR ORAL SURGERY AND TRAUMA

MINOR ORAL SURGERY

PRINCIPLES OF SURGERY

Developing a surgical diagnosis, Basic necessities for Surgery, Aseptic Technique, Incisions, Flap Design, Tissue Handing, Haemostasis, Dead space Management,

Decontamination and Debridement, Suturing, Oedema Control, Patient General Health and Nutrition.

MEDICAL EMERGENCIES

Prevention and management of altered consciousness (syncope, othostatic hypotension, seizures, diabetes mellitus, adrenal insufficiency), hypersensitivity reactions, chest discomfort and respiratory difficulty.

Examination and Diagnosis : Clinical history, physical and radiographic, clinical and laboratory diagnosis, oral manifestations of systemic diseases, implications of systemic diseases in surgical patients.

Haemorrhage and Shock : Applied physiology, Clinical abnormalities of coagulation, extra vascular hemorrhage and hemorrhagic lesions, management of secondary hemorrhage, shock.

Exodontia: Principles of extraction, indications and contra indications, types of extraction, complications and their management, Principles of elevators and elevators used in oral surgery.

Impaction: Surgical anatomy, classification, indications and contra indications, diagnosis, procedures, complications and their management.

Surgical Aids to Eruption of Teeth: Surgical exposure of unerupted teeth, surgical repositioning of partially erupted teeth.

Transplantation of Teeth.

Surgical Endodontics: Indications and contra indications, diagnosis, procedures of periradicular surgery.

Pre-Prosthetic Surgery: Requirements, types (alveoloplasty, tuberosity reduction, mylohyoid ridge reduction, genial reduction, removal of exostosis, vestibuloplasty).

Procedures to Improve Alveolar Soft Tissues: Hypermobile Tissues – Operative / Sclerosing method, epulis fissuratum, frenectomy and frenotomy.

Infection of Head and Neck: Odontogenic and non Odontogenic infections, factors affecting spread of infection, diagnosis and differential diagnosis, management of facial space infections, Ludwig angina, cavernous sinus thrombosis.

Chronic Infections Of the Jaws: Osteomyelitis (types, etiology, pathogenesis, management) osteoradionecrosis.

Maxillary Sinus: Maxillary sinusitis – types, pathology, treatment, closure of Oro – antral fistua, Caldwell – luc operation.

Cysts of the Orofacial Region: Classification, diagnosis, management of OKC, dentigerous, radicular, non Odontogeic, ranula.

Neurological Disorders of the Maxillofacial Region: Diagnosis and management of trigeminal neuralgia, MPDS, bell's palsy, Frey's syndrome, nerve injuries.

Implantology: Definition, Classification, indications and contra indications, advantages and disadvantages, surgical procedure.

ANESTHESIA:

LOCAL ANESTHESIA:

Classification of local anesthetic drugs, mode of action, indications and contra indications, advantages and disadvantages, techniques, complications and their management.

GENERAL ANESTHESIA:
Classification, stages of GA, Mechanism of action, indications and contra indications, advantages and disadvantages, post anesthetic complications and emergencies,

anesthetic for dental procedures in children, pre medication, conscious sedation, legal aspects for GA.

TRAUMA

SURGICAL ANATOMY OF HEAD AND NECK.

ETIOLOGY OF INJURY.

BASIC PRINCIPLES OF TREATMENT

PRIMARY CARE: Resuscitation, establishment of airway, management of hemorrhage, management of head injuries and admission to hospital.

DIAGNOSIS: Clinical and Radiological.

SOFT TISSUE INJURY OF FACE AND SCALP : Classification and management of soft tissue wounds, injuries to structure requiring special treatment.

DENTO ALVEOALR FRACTURES: Examination and diagnosis, classification and treatment.

MANDIBULAR FRACTURES: Classification, examination and diagnosis, general principles of treatment, complications and their management.

FRACTURE OF ZYGOMATIC COMPLEX: Classification, examination and diagnosis, general principles of treatment, complications and their management.

ORBITAL FRACTURES: Blow out fractures.

NASAL FRACTURES.

FRACTURES OF MIDDLE THIRD OF THE FACIAL SKELETON: Emergency care, fracture of maxilla and treatment of le fort I, II, III, fractures of NasoOrbito ethmoidal region.

OPHTHALMIC INJURIES: Minor injuries, non-perforating injuries, perforating injuries, retro bulbar hemorrhage and traumatic optic neuropathy.

TRAUMATIC INJURIES TO FRONTAL SINUS: Diagnosis, Classification, treatment.

MAXILLOFACIAL INJURIES IN GERIATRIC AND PEADIATRIC PATIENTS.

GUN SHOT WOUNDS AND WAR INJURIES.

OSSEOINTEGRATION IN MAXILLOFACIAL RECONSTRUCTION.

METABOLIC RESPONSE TO TRAUMA: Neuro endocrine responses, inflammatory mediators, clinical implications.

HEALING OF TRAUMATIC INJURIES: Soft tissues, bone, cartilage, response of peripheral nerve to injury.

NUTRITIONAL CONSIDERATION FOLLOWING TRAUMA.

TRACHEOSTOMY: Indications and contra indications, procedure, complications and their management.

PAPER – II – MAXILLOFACIAL SURGERY

SALIVARY GLAND :

- Sialography
- Salivary fistula and management.
- Diseases of salivary gland – developmental disturbances, cysts, inflammation and sialolithiasis.
- Mucocele and Ranula
- Tumors of salivary gland and their management
- Staging of salivary gland tumors
- Parotidectomy.

TEMPOROMANDIBULAR JOINT :

- Etiology, History Signs, Symptoms, Examination and diagnosis of temporo mandibular joint disorders.
- Ankylosis and management of the same with different treatment modalities.
- MPDS and Management.
- Condylectomy – different procedures.
- Various approaches to TMJ.
- Recurrent dislocations – Etiology and Management.

ONCOLOGY :

- Biopsy.
- Management of pre-malignant tumors of head and neck region.
- Benign and Malignant tumors of Head and Neck region.
- Staging of oral cancer and tumor markers.
- Management of oral cancer.
- Radical Neck dissection.
- Modes of spread of tumors
- Diagnosis and management of tumors of nasal, paranasal, neck, tongue, cheek, maxilla and mandible.
- Radiation therapy in maxillofacial regions
- Lateral neck swellings.

ORTHOGNATHIC SURGERY :

- Diagnosis and treatment planning.
- Cephalometric analysis.
- Model surgery.
- Maxillary and mandibular repositioning procedures.
- Segmental osteotomies.
- Management of apertognathia.
- Genioplasty.
- Distraction osteogenesis.

CYSTS AND TUMOR OF ORO FACIAL REGION :

- Odontogenic and non - Odontogenic tumors and their management.
- Giant Cell lesions of Jawbone.
- Fibro Osseous lesions of jawbone.
- Cysts of jaw.

LASER SURGERY :

- The application of laser technology in surgical treatment of lesions.

CRYOSURGERY :

- Principles, applications of cryosurgery in surgical management.

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 Naso endoscopy and other diagnostic techniques in the evaluation of speech and hearing.
- Concept of multidisciplinary team management.

AESTHETIC FACIAL SURGERY:

- Detailed knowledge of the structures of the face and neck including skin and underlying soft tissue.
- Diagnosis and treatment planning of deformities and conditions affecting facial skin.
- Underlying facial muscles, bone, Eyelids, external ear.
- Surgical management of post acne scarring, facelift, blepharoplasty, otoplasty, facial bone recontouring, etc.

CRANIOFACIAL SURGERY:

- Basic knowledge of developmental anomalies of the face, head and neck.
- Basic concept in the diagnosis and planning of various head and neck anomalies including facial clefts, craniosynostosis, syndromes etc.
- Current concept in the management of Craniofacial anomalies.

PAPER – III – RECENT ADVANCES IN ORAL & MAXILLOFACIAL SURGERY:

The Paper III in this Branch shall be on recent advances on the course content in this Specialty.

ASSESSMENT EXAMINATIONS:

In addition to the regular evaluation, log book etc., Assessment examination should be conducted once in every six months and progress of the student monitored.

Note:

1. Submission of Synopsis for Dissertation should be done within six months of the commencement of the course.
2. Submission of Library Assignments with in a period of eighteen months from the commencement of the course.
3. Submission of pre-clinical work as scheduled.
4. Submission of Dissertation – 6 months before completion of III year.
5. Maintenance of work Diary / Log Book as prescribed.

MONITORING LEARNING PROGRESS:

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

2. <u>UNIVERSITY EXAMINATION:</u>

Distribution Of Topics For Each Paper

PART-I

PAPER-I: Applied Basic Sciences: Applied Anatomy, Physiology, &

Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

PART- II

PAPER-I : Minor Oral Surgery and Trauma

PAPER-II: Maxillo-Facial Surgery

PAPER-III : Descriptive and Analysing Type Question

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

5. DISTRIBUTION OF MARKS & QUESTION PATTERN

A. Theory : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be one paper only 10 questions of 10 marks each University examination (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each) (300 Marks):-

(i) Paper-I:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:
2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL EXAMINATION:

PART – II **200 Marks.**

Minor Oral Surgery : **100 Marks**

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

(a) One Long Case(1 x 60Marks)	-60 Marks
(b) Two short cases (2 x 20 Marks)	-40 Marks
Total	100 Marks

C. VIVA VOCE:

PART-I **100 Marks.**
PART-II **100 Marks.**

(i) Viva Voce Examination : 80 Marks.

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.

(ii) Pedagogy .. 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 topics for 8-10 minutes.

MARKS QUALIFYING FOR A PASS:

PART – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

PART – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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MDS BRANCH – IV: CONSERVATIVE DENTISTRY AND ENDODONTICS

1. OBJECTIVES:

The following objectives are laid out to achieve the goals of the course. These are to be achieved by the time the candidate completes the course. These objectives may be considered under the following subtitles.

1.1 KNOWLEDGE:

At the end of 36 months of training, the candidates should be able to

- Describe aeitology, pathophysiology, Periapical diagnosis and management of common restorative situations, endodontic situations that will include contemporary management of dental caries, management of trauma and pulpal pathoses including periodontal situations.
- Demonstrate understanding of basic sciences as relavant to conservative / restorative dentistry and Endodontics.
- Identify social, economic, environmental and emotional determinants in a given case of community and take them into account for planning and execution at individual and community level.
- Ability to master differential diagnosis and recognise conditions that may require multi disciplinary approach or a clinical situation outside the realm of the specialty, which he or she should be able to recognise and refer to appropriate specialist.
- Update himself by self-study and by attending basic and advanced courses, conferences, seminars, and workshops in the specialty of Conservative Dentistry-Endodontics-Dental Materials and Restorative Dentistry.
- Ability to teach/guide, colleagues and other students.
  Use information technology tools and carry out research both basic and clinical with the aim of his publishing his work and presenting the same at scientific platform.

1.2 SKILLS:

- Take proper chair side history, exam the patient and perform medical and dental diagnostic procedures and order as well as perform relevant tests and interpret to them to come to a reasonable diagnosis about the dental condition in general and Conservative Dentistry - Endodontics in particular. And undertake complete patient monitoring including preoperative as well as post operative care of the patient.
- Perform all levels of restorative work and surgical and non-surgical Endodontics including endodontic endoosseous implants, as well as endodontic-periodontal surgical procedures as part of multidisciplinary approach to clinical condition.
- Provide basic life saving support in emergency situations.
- Manage acute pulpal and pulpo periodontal situations.
- Have a a thorough knowledge of infection control measures in the dentalclinical environment and laboratories.

1.3 HUMAN VALUES, ETHICAL PRACTICE AND COMMUNICATION ABILITIES

- Adopt ethical principles in all aspects of restorative and contemporaries Endodontics including non-surgical and surgical Endodontics.
- Professional honesty and integrity should be the top priority.
- Dental care has to be provided regardless of social status, caste, creed or religion of the patient.
- Develop communication skills in particular to explain various options available management and to obtain a true informed consent from the patient.
- Apply high moral and ethical standards while carrying on human or animal research.
- He/she shall not carry out any heroic procedures and must know his limitations in performing all aspects of restorative dentistry including Endodontics. Ask for hel[from colleagues or seniors when required without hesitation.
- Respect patient's rights and privileges including patients right to information.

2. COURSE CONTENTS

PART – I

PAPER – I

APPLIED BASIC SCIENCES:

(1) APPLIED ANATOMY OF HEAD AND NECK:

- Development of face, paranasal sinuses and the associated structures and their anomalies, cranial and facial bones, TMJ anatomy and function, arterial and venous drainage of head and neck, muscles of face and neck including muscles of mastication and deglutition, brief consideration of structures and function of brain. Brief consideration of all cranial nerves and autonomous nervous system of head and neck. Salivary glands, Functional anatomy of mastication, deglutition and speech. Detailed anatomy of deciduous and permanent teeth, general consideration in physiology of permanent dentition, form, function, alignment, contact, occlusion).
- Internal anatomy of permanent teeth and its significance.
- Applied histology – histology of skin, oral mucosa, connective tissue, bone cartilage, blood vessels, lymphatics, nerves, muscles, tongue.

(2) DEVELOPMENT OF TEETH :

- Enamel – development and composition, physical characteristics, chemical properties, structure.
- Age changes – clinical structure.
- Dentin – development, physical and chemical properties, structure type of dentin, innervations, age and functional changes.
- Pulp – development, histological structures, innervations, functions, regressive changes, clinical considerations.
- Cementum – composition, cementogenesis, structure, function, clinical consideration.
- Periodontal ligament – development, structure, function and clinical consideration.
- Salivary glands – structure, function, clinical considerations.
- Eruption of teeth.

(3) APPLIED PHYSIOLOGY :

- Mastication, deglutition, digestion and assimilation, fluid and electrolyte balance.
- Blood compostition, volume, function, blood groups, haemostasis, coagulation, blood transfusion, circulation, heart, pulse, blood pressure, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration and endocrinology – general principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.
- Physiology of saliva – composition, function, clinical significance.
- Clinical significance of vitamins, diet and nutrition – balance diet.
- Physiology of pain, sympathetic and Para sympathetic nervous system, pain pathways, physiology of pulpal pain, Odontogenic and non Odontogenic pain, pain disorders – typical and atypical, biochemistry such as osmotic pressure, electrolytic dissociation, oxidation, reduction etc. Carbohydrates, proteins, lipids and their metabolism, nucleoproteins, nucleic acid and their metabolism. Enzymes, vitamins and minerals, metabolism of inorganic elements, detoxification in the body, anti metabolites, chemistry of blood lumph and urine.

(4) PATHOLOGY :

- Inflammation, repaid, degeneration, necrosis and gangrene.
- Circulatory disturbances – ischemia, hyperemia, edema, thrombosis, embolism, infarction, allergy and hypersensitivity reaction.
- Neoplasms – classification of tumors, characteristics of benign and malignant tumors, spread tumors.
- Blood dyscrasias.
- Developmental disturbances of oral and Para oral structures, dental caries, regressive changes of teeth, pulp, Periapical pathology, pulp reaction to dental caries and dental procedures.
- Bacterial, viral, mycotic infections of the oral cavity.

(5) MICROBIOLOGY :

- Pathways of pulpal infection, oral flora and micro organisms associated with endodontic diseases, pathogenesis, host defense, bacteril virulence factors, healing, theory of focal infections, microbes or relevance to dentistry – strepto, staphylococci, lactobacilli, cornyebacterium, actinomycetes, clostridium, neisseria, vibrio, bacteriods, fusobacteria, spirochetes, mycobacterium, virus and fungi.
- Cross infection, infection control, infection control procedure, sterilization and disinfection.
- Immunology – antigen antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts, viral hepatitis, HIV infections and aids. Identification and isolation of micro organisms from infected root canals. Culture medium and culturing technique (Aerobic and anaerobic interpretation and antibiotic sensitivity test).

(6) PHARMACOLOGY :

- Dosage and route of administration of drugs, actions and fate of drug in body, drug addiction, tolerance of hypersensitivity reactions.
- Local anaesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anaesthetic, ideal properties, techniques and complications.
- General anesthesia – Pre medications, neuro muscular blocking agents, induction agents, inhalation anesthesia and agents used, assessment of anesthetic problems in medically compromised patients.
- Anaesthetic emergencies.
- Antihistamines. Corticosteroids, chemotherapeutic and antibiotics, drug resistance, haemostasis and haemostatic agents, anticoagulants, sympathomimitic drugs, vitamins and minerals (A, B, C, D, E, K IRON), anti sialogogue, immunosupressants, drug interactions, antiseptics, disinfectants, anto-viral agents, drugs acting on CNS.

(7) BIOSTATISTICS :

- Introduction, Basic concepts, Sam[pling, Health information systems – collection, compilation, presentation of data. Elementary statistical methods – Presentation of statistical data, statistical averages – measures

opf central tendency, measures of dispersion, Normal distribution. Tests of significance – parametric and non-parametric tests (Fisher extract test, Sign test, Median test, Mann Whitney test, Krusical Wallis one way analysis, Friedmann two way analysis, Regression analysis), Correlation and regression, Use of computers.

(8) RESEARCH METHODOLOGY:

- Essential features of a protocol for research in humans.
- Experimental and non-experimental study designs.
- Ethical considerations of research.

(9) APPLIED DENTAL MATERIALS :

- Physical and mechanical properties of dental materials, biocompatibility.
- Impression materfials, detailed study of various restorative materials, restorative resin and recent advances in composite resins, bonding – recent – developments – tarnish and corrosion, dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments, casting procedures, defects, dental cements for restorationand pulp protection (luting, liners, bases) cavity varnishes.
- Dental ceramics – recent advances, finishing and polishing materials.
- Dental burs – design and mechanics of cutting – other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

PART – II
PAPER – I

CONSERVATIVE DENTISTRY

1. Examination, diagnosis and treatment plan.
2. Occlusion as related to conservative dentistry, contour, its significance. Separation of teeth, matrices, used in conservative dentistry.
3. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology, diagnosis, caries activity test, prevention of dental caries and management – recent methods.
4. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.

5. Dental burs and other modalities of tooth reparation – recent development (air abrasions, lasers etc.)
6. Infection control procedures in conservative dentistry, isolation equipments etc.
7. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
8. Direct and indirect composite restorations.
9. Indirect tooth colores restorations – ceramic inlays and onlays, veneers, crowns, recent advances in fabrication and materials.
    - Tissue management.
10. Impression procedures used for indirect restorations.
11. Cast metal restorations, indications, contra indications, tooth preparation for class 2 inlay, onlay full crown restorations.
    - Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and
12. Direct gold restorations.
13. Recent advances in restorative materials and procedures.
14. Management of non-carious lesion.
15. Advance knowledge of minimal intervention dentistry.
16. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth.
17. Hypersensitivity, theories, causes and management.
18. Lasers in Conservative Dentistry.
19. CAD-CAM and CAD-CIM in restorative dentistry.
20. Dental imaging and its applications in restorative dentistry (Clinical photography)
21. Principles of esthetics -
    a. Colour
    b. Facial analysis
    c. Smile design
    d. Principles of esthetic integration
    e. Treatment planning in esthetic dentistry.

PAPER – II

ENDODONTICS:

1. Rationale of endodontics.
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and Periapical pathology.
5. Pathobiology of periapex.
6. Diagnostic procedure – recent advances and various aids used for diagnosis.
   - Orofacial dental pain emergencies: endodontic diagnosis and management.
7. Case selection and treatment planning.
8. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc.)
9. Access cavity preparation – objectives and principles.
10. Endodontic instruments and instrumentation – recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.
11. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
12. Root canal irrigants and intra canal medicaments used including non-surgical Endodontics by calcium hydroxide.
13. Endodontic microbiology.
14. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
15. Traumtic injuries and management – endodontic treatment for young permanent teeth. Pediatric Endodontics – treatment of immature apex.
16. Endodontic surgeries, recent developments in technique and devices, endoosseous endodontic implants – biology of bone and wound healing.
17. Endoperio interrelationship, endo + Perio lesion and management.
18. Drugs and chemicals used in Endodontics.
19. Endo emergencies and management.
20. Restoration of endodontically treated teeth, recent advances.
21. Geriatric Endodontics.
22. Endo emergencies and management.

23. Biologic response of pulp to various restorative materials and operative procedures.
24. Lasers in Endodontics.
25. Multidisciplinary approach to endodontics situations.
26. Endodontics radiology – digital technology in endodontics practice.
27. Local anesthesia in endodonticsw.
28. Procedural erros in endodontics and their management.
29. Endodontics failures and retreatment.
30. Resorptions and its management.
31. Microscopes in endodontics.
32. Single visit endodontics, current concepts and controversies.

PAPER – III

DESCRIPTIVE AND ANALYZING TYPE QUESTIONS

3. TEACHING / LEARNING ACTIVITIES :

The following is the minimum required to be completed before the candidate can be considered eligible to appear for final MDS exam : -

(a) **First Year :**

(i) Pre Clinical Work – Operative and Endodontics
(ii) Preclinical work on typhodont teeth:

1. Class 2 amalgam cavities –
   a. Conservative preparation. - 03
   b. Conventional preparation . 03

2. Inlay cavity preparation on premolars –
   And molars – MO, DO, MOD - 10
   a. Wax pattern - 06
   b. Casing - 04

3. Onlay preparation on molars - 02
   a. Casting - 01

4. Full crown

a. Anterior	-	05
b. Posterior (2 each to be processed)	-	05

5. 7/8 crown (1 to be processed) - 02

6. ¾ crown premolars (1 to be processed) - 02

(iii)Pre Clinical Work on natural teeth:

1. Inlay on molars and premolars MO, DO and MOD	-	08
a. Casting	-	02
b. Wax pattern	-	02
2. Amalgam cavity preparation –		
a. Conventional	-	02
b. Conservative	-	02
3. Pin retained amalgam on molar teeth	-	02
4. Post and core build up		
a. Anterior teeth	-	10
b. Posterior teeth	-	05
5. Casting		
a. Anterior	-	04
b. Posterior	-	02
6. Onlay on molars (1 to be processed)	-	03
7. Full crown Premolars and molars	-	04
8. Full crown anterior (2 and 3 to be processed)	-	06
9. Veneers anterior teeth (indirect method)	-	02
10. Composite inlay (class 2) (1 to be processed)..	-	03
11. Full tooth wax carving – all permanent teeth		

ENDODONTICS:

1. Sectioning of all maxillary and mandibular teeth.
2. Sectioning of teeth – in relation to deciduous molar, 2nd primary upper and lower molar 1 each.

3. Access cavity opening and root canal therapy in relation to maxillary and mandibular permanent teeth.
4. Access cavity preparation and BMP Anterior.
   a. Conventional prep
   b. Step back.
   c. Crown down
   d. Obturation - 03
5. BMP Premolar - 06 (2 upper and 2 ,lower) obturation 1 each.
6. BMP Molar - 06 (3 upper - 2 first molars and 1 second molar, 3 lower – 2 first molars and 1 second molar) obturation 1 each.
7. Post and core preparation and fabrication in relation to anterior and posterior teeth –
   a. Anterior - 10 (casting 4)
   b. Posterior - 05 (casting 2)
8. Removable dies - 04

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

Clinical Works:

A	Composite restorations	30
B	GIC Restorations	30
C	Complex amalgam restorations	05
D	Composite inlay + veneers (direct and indirect)	05
E	Ceramic jacket crowns	05
F	Post and core for anterior teeth	05
G	Bleaching vital	05
	Non-vital	05
H	RCT Anterior	20
I	Endo surgery – observation and assisting	05

Presentation of:

- Seminars – 5 seminars by each student – should include topics in dental materials,Conservative dentistry and endodontics.

- Seminars – 5 seminars by each students – should include topics in dental materials, conservative dentistry and endodontics.
- Journal clubs – by each student.
- Submission of synopsis at the end of 6 months.
- Library assignment work.
- Internal assessment – theory and clinical.

Second year

(i) Case discussion - 5

1	Ceramic jacket crowns	10
2	Post and core for anterior teeth	10
3	Post and core for posterior teeth	5
4	Composite restoration	15
5	Full crown for posterior teeth	15
6	Cast gold inlay	05
7	Other special types of work such as splinting – reattachment of fractured teeth etc.	05
8	Anterior RCT	20
9	Posterior RCT	30
10	Endo surgery performed independently	05
11	Management of endo – Period problems	05

- Under graduate teaching programme as allotted by the HOD.
- Seminars – 5 by each student.
- Journal club – 5 by each student
- Dissertation work
- Prepare scientific paper and present in conference and clinical meeting.
- Library assignment to be submitted 18 months after starting of the course.
- Internal assessment – theory and clinical.

(c) Third year :

Dissertation work to be submitted 6 months before final examination.

(i) Clinical work :

- Cast gold inlay – Onlay, cuspal restoration .. 10
- Post and core 20

- Molar endodontics 50
- Endo Surgery 05
- All other types of surgeries including crown lengthening, perioesthetics, hemi sectioning, splinting, replantation, endodontic implants.

(ii) Presentation of :

- Seminars
- Journal club
- Teaching – lecture (under graduates)
- Internal assessment – Theory and clinical.

ASSESSMENT EXAMINATIONS:

In addition to the regular evaluation, log book etc., Assessment examination should be conducted once in every six months and progress of the student monitored.

Note:

1. Submission of Synopsis for Dissertation should be done within six months of the commencement of the course.
2. Submission of two copies of Library Assignments within a eighteen months from the commencement of the course.
3. Submission of pre-clinical work as scheduled.
4. Submission of Dissertation – 6 months before completion of III year.
5. Maintenance of work Diary / Log Book as prescribed.

MONITORING LEARNING PROGRESS:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various teaching/learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Section IV.

4. UNIVERSITY EXAMINATION

Distribution of topics for each paper

PART-I

PAPER-I: Applied Basic Sciences: Applied Anatomy, Physiology, Pathology Including Oralmicrobiology, Pharmacology, Biostatistics and Research Methodology and Applied dental Materials.

PART-II

PAPER-I : Conservative Dentistry

PAPER-II : Endodontics

PAPER-III : Descriptive and Analysing Type Question

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

5. DISTRIBUTION OF MARKS &QUESTION PATTERN:

A. Theory: (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each) [300 Marks]

(i) Paper-I:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:
2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL EXAMINATION :

Part – II **200 Marks.**

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 4, the programme can be extended to 3rd day.

Day - 1 :

Clinical Exercise - I	**…**	**50 Marks.**
Cast core preparation –		
(i) Tooth Preparation	…	10 Marks.
(ii) Direct Wax pattern	…	10 Marks
(iii) Casting	…	10 Marks
(iv) Cementation	…	10 Marks
(v) Retraction & Elastomeric Impression	…	10 Marks
Clinical Exercise - II (Inlay Exercise)	**…**	**50 Marks.**
(i) Tooth preparation for Class II Gold Inlay	..	25 Marks
(ii) Fabrication of Direct Wax Pattern	..	25 Marks.

Day- 2 :

Clinical Exercise III: … … 100 Marks

(Molar Endodontics)

(i) Local Anaesthesia and Ruber Dam Application.. 20 Marks
(ii) Access Cavity .. 20 Marks
(iii) Working length determination. .. 20 Marks
(iv) Canal Preparation .. .. 20 Marks
(v) Masterbone selection .. .. .. 20 Marks

C. VIVA VOCE EXAMINATION :

PART – I – VIVA VOCE 100 MARKS

PART- II

(i) Viva Voce Examination : 80 Marks.

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.

(ii) Pedagogy .. 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 topics for 8-10 minutes.

MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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M.D.S BRANCH – V: ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

1. OBJECTIVES:

The training programme in Orthodontics is structured to achieve the following four objectives –

- Knowledge.
- Skills.
- Attitude.
- Communicative skills and ability.

(a) Knowledge

- The dynamic interaction of biologic processes and mechanical forces acting on the stomatognathic system during orthodontic treatment.
- The etiology, pathophysiology, diagnosis and treatment planning of various common Orthodontic problems
- Various treatment modalities in Orthodontics preventive interceptive and corrective.
- Basic sciences relevant to the practice of Orthodontics.
- Interaction of social cultural, economic, genetic and environmental factors and their relevance of social, cultural, economic, genetic and environmental factors and their relevance to management of oro-facial deformities.
- Factors affecting the long-range stability of orthodontic correction and their management.
- 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 and other highly contagious disease.

(b) Skills

- To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures and interpret them and arrive at a reasonable diagnosis about the Dentofacial deformities.

- To be competent to fabricate and manage the most appropriate appliance – intra or extra oral, removable or fixed mechanical or functional and active or passive – for the treatment of any orthodontic problem to be treated singly or as a part of multidisciplinary treatment of orofacial deformities.

(c) Attitudes

- Develop an attitude to adopt ethical principles in all aspects of Orthodontic practice.
- Professional honesty and integrity are to be fostered.
- Treatment care is to be delivered irrespective of the social status, cast, creed or colleagues.
- Willingness to share the knowledge and clinical experience with professional colleagues.
- Willingness to adopt, after a criticl assessment new methods and techniques of orthodontic management development from time to time based on scientific research, which are in the best interest of the patient.
- Respect patients rights and privileges including patients right to information and right to seek a second opinion.
- Develop attitude to seek opinion from allied medical and dental specialists as and when required.

(d) Communication skills

- Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Dentofacial problem and to 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 in Orthodontics or other specialities through various media like correspondence, Internet, e-video, conference etc. to render the best possible treatment.
- Develop ability to teach undergraduate.

2. COURSE CONTENT:

The training programme outlined, addresses both the knowledge needed in Orthodontics and allied Medical specialities in its scope. A minimum of three years of formal training through a graded system of education as specified, will equip the trainee with skill and knowledge at its completion to be able to practice basic Orthodontics and have the ability to intelligently pursue further apprenticeship towards advanced Orthodontics.

PART – I

PAPER - I

(a) APPLIED ANATOMY

- Prenatal growth of head:
  Stages of embryonic development, origin of head, origin of face, origin of teeth.
- Postnatal growth of head:
  Bones of skull, the oral cavity, development of chin, the hyoid bone general growth of head, face growth.
- Bone growth:
  Origin of bone, composition of bone, units of bone structure, schedule of Ossification, mechanical properties of bone, roentgen graphic appearance of bone.
- Assessment of growth and development:
  Growth prediction, growth spurts, the concept of normality and growth increments of growth, differential growth, gradient of growth, methods of gathering growth data. Theories of growth and recent advances, factors affecting physical growth.
- Muscles of Mastication:
  Development of muscles, muscle change during growth, muscle function and facial development muscle function and malocclusion.

- Development of dentition and occlusion:
  Dental development periods, order of tooth eruption, chronology of permanent tooth formation, periods of occlusal development, pattern of occlusion.
- Assessment of skeletal age.
  The carpal bones, carpal x-rays, cervical vetegrae.

(b) PHYSIOLOGY:

- Endocrinology and its disorders:

Growth hormone, thyroid hormone, parathyroid hormone, ACTH Pituitary gland hormones, thyroid gland hormones, parathyroid gland hormones.

- Calcium and its metabolism.
- Nutrition-metabolism and their disorders: Proteins, carbohydrates, fats, vitamins and minerals.
- Muscle physiology.
- Craniofacial Biology: Cell adhesion molecules and mechanism of adhesion.
- Bleeding disorders in orthodontics: Hemophilia.

(c) DENTAL MATERIALS

- Gypsum Products : Dental plaster, dental stone andtheir properties, setting reaction etc.
- Impression Materials : Impression materials in general and particularly of alginate impression material.
- Acrylics : Chemistry, composition physical properties.
- Composites: Composition types, properties setting reaction.
- Banding and bonding cements: Zn (PO4)2, zinc silicophosphate, Zinc polycarboxylate, resin cements and glass lonomer cements.
- Wrought metal alloys :Deformation, strain hardening, annealing, recovery, recrystallization, grain growth, properties of metal alloys.
- Orthodontic arch wires: Stainless steel gold, wrought cobalt chromium nickel alloys, alpha & beta titanium alloys.
- Elastics: Latex and non-latex elastics.

- Applied physics: Bioengineering and metallurgy.
- Specification and tests methods used for materials used in Orthodontics.
- Survey of all contemporary literature and recent advances in above – mentioned materials.

(d) GENETICS

- Cell structure, DNA, RNA, protein synthesis, cell division
- Chromosomal abnormalities
- Principles of orofacial genetics.
- Genetics in malocclusion
- 5 Molecular basis of genetics.
- Studies related to malocclusion
- Recent advances in genetics related to malocclusion.
- Genetic counseling.
- Bioethics and relationship to Orthodontic management of patients.

(e) PHYSICAL ANTHROPOLOGY

- Evolutionary development of dentition.
- Evolutionary development of jaws.

(f) PATHOLOGY

- Inflammation.
- Necrosis.

(g) BIOSTATISTICS

- Statistical principles.
- Data Collection.
- Method of presentation
- Method of Summarizing
- Methods of analysis – different tests / errors.
- Sampling and Sampling technique.
- Experimental models, design and interpretation.

- Development of skills for preparing clear concise and cognent scientific abstracts and publication.

(h) APPLIED RESEARCH METHODOLOGY IN ORTHODONTICS

- Experimental design.
- Animal experimental protocol
- Principles in the development, execution and interpretation of methodologies in Orthodontics.
- Critical Scientific appraisal of literature.

(i) APPLIED PHARMACOLOGY

Definitions & terminologies used – Dosage and mode of administration of drugs. Action and fate of drugs in the body, Drug addiction, tolerance and hypersensitive reactions, Drugs acting on the central nervous system, general anesthetics hypnotics, analeptics and tranquilizers. Local anesthetics, Chemotherapeutics and antibiotics. Vitamins: A, D, B–complex group, C & K etc.

PART – II

PAPER – I

a. ORTHODONTIC HISTORY:

- Historical perspective.
- Evolution of orthodontic appliances.
- Pencil sketch history of Orthodontic peers.
- History of Orthodontics in India.

b. CONCEPTS OF OCCLUSION AND ESTHETICS:

- Structure and function of all anatomic components of occlusion.
- Mechanics of articulation.
- Recording of masticatory function.
- Diagnosis of Occlusal dysfunctiln.

- Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

c. ETIOLOGY AND CLASSIFICATION OF MALOCCLUSION :

- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- Various classifications of malocclusion.

d. DENTOFACIAL ANOMALIES :

- Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

e. CHILD AND ADULT PSYCHOLOGY :

- Stages of child development.
- Theories of psychological development.
- Management of child in orthodontic treatment.
- Management of handicapped child.
- Motivation and Psychological problems related to malocclusion / orthodontics.
- Adolescent psychology.
- Behavioral psychology and communication.

f. DIAGNOSTIC PROCEDURES AND TREATMENT PLANNING IN ORTHODONTICS :

- Emphasis on the process of data gathering, synthesis and translating it into a treatment plan.
- Problem cases – analysis of cases and its management.
- Adult cases, handicapped and mentally retarded cases and their special problems.
- Critique of treated cases.

Cephalometrics :

- Instrumentation.
- Image processing.
- Tracing and analysis of errors and applications.

- Radiation hygiene.
- Advances Cephalometrics techniques.
- Comprehensive review of literature.
- Video imaging principles and application.

g. PRACTICE MANAGEMENT IN ORTHODONTICS :

- Economics and dynamics of solo and group practices.
- Personal management.
- Materials management.
- Public relations.
- Professional relationship.
- Dental ethics and jurisprudence.
- Office sterilization procedures.
- Community based Orthodontics.

PART – II

PAPER – II

CLINICAL ORTHODONTICS:

a. Myofunctional Orthodontics :

- Basic principles.
- Contemporary appliances – their design and manipulation.
- Case selection and evaluation of the treatment results.
- Review of the current literature.

b. Dentofacial Orthopeadics:

- Principles.
- Biomechanics
- Appliance design and manipulation.
- Review of contemporary literature.

c. Cleft lip and palate rehabilitation:

- Diagnosis and treatment planning.
- Mechanotherapy.
- Special growth problems of cleft cases.
- Speech physiology, pathology and elements of therapy as applied to orthodontics.
- Team rehabilitative procedures.

d. Biology of tooth movement:

- Principles of tooth movement-review..
- Review of contemporary literature.
- Applied histophysiology of bone, periodontal ligament.
- Molecular and ultra cellular consideration in tooth movement.

e. Orthodontic / Orthognathic surgery:

- Orthodontist' role in conjoint diagnosis and treatment planning..
- Pre and post surgical Orthodontics.
- Participation in actual clinical cases, progress evaluation and post retention study.
- Review of current literature.

f. Ortho / Perio / Prostho inter relationship :

- Principles of interdisciplinary patient treatment.
- Common problems and their management.

g. Basic principles of Mechanotherapyincludes Removable appliances and fixedappliances **:**

- Design.
- Construction.
- Fabrication
- Management
- Review of current literature on treatment methods and results.

h. Applied preventive aspects in Orthodontics :

- Caries and periodontal disease prevention.
- Oral hygiene measures
- Clinical procedures.

i. Interceptive Orthodontics :

- Principles.
- Growth guidance.
- Diagnosis and treatment planning.
- Therapy emphasis on.
  a. Dento-facial problems.
  b. Tooth material discrepancies.
  c. Minor surgery for Orthodontics.

j. Retention and relapse :

- Mechanotherapy – special reference to stability of results with various procedures.
- Post retention analysis.
- Review of contemporary literature.

Part – II

Paper-III

Contempory orthodontics with focus on recent advances

SKILLS:

(1)First year :

A. **Pre – Clinical Exercises:**

A general outline of the type of exercise is given here. Every institution can decide the details of exercise under each category.

a) General wire bending exercises to develop the manual dexterity.
b) Clasps, Bows and springs used in the removable appliances.

c) Soldering and welding exercises.
d) Fabrication of removable habit breaking, mechanical and functional appliances, also all types of space maintainers and space regainers.
e) Bonwill Hawley Ideal arch preparation.
f) Construction of orthodontic models trimmed and polished preferably as per specifications of Tweed or A.B.O.
g) Cephalometric tracing and various Analysis also superimposition methods.
h) Fixed appliances typhodont exercises.
    (i) Training shall be imparted in at least one basic technique i.e. Standard Edgewise / Begg Technique or its derivative / Straight wire etc. with adequate exposure to other techniques.

    (ii) Typhodont exercise - Band making
    - Bracket positioning and placement.
    -Different stages in treatment appropriate to technique taught.
i) Clinical photography
j) Computerized imaging.
k) Preparation of surgical splints and splints for TMJ problems.
l) Handling of equipments like vacuum forming appliances and hydro solder etc.

Basic Pre-Clinical Exercise Work for the MDS students: First 6 months.

I. NON-APPLIANCE EXERCISES :

All the following exercises should be done with 0.7 or 0.8mm wire.

A. WIRE BENDING

Sl. No.	Exercise	No.
1	Straightening of 6" & 8" long wire	1 each
2.	Square	1
3	Rectangle	1
4	Triangle of 2" side	1

5	Circle of 2” side	1
6	Bending of 5U’s	1
7	Bending of 5V’s	1

B. CLASPS

Sl. No.	Exercise	No.
1	¾ Clasps	2
2.	Full Clasps	2
3	Triangular Clasps	2
4	Adam’s Clasp – Upper molar	2
5	Adam’s Clasp – Lower molar	2
6	Adam’s Clasp – Pre-molar	2
7	Adam’s Clasp – Incisor	2
8	Modification of Adam’s – With Helix	2
9	Modification of Adam’s – With distal extension	2
10	Modification of Adam’s – With soldered tube	2
11	Duyzing Clasps on Molars	2
12	South end Clasp	1

C. LABIAL BOWS

Sl. No.	Exercise	No.
1	Short labial bow (upper & lower)	1
2.	Long labial bow (upper & lower)	1
3	Robert’s retractor	1
4	High labial bow-with apron spring’s	1
5	Mill’s labial bow	1
6	Reverse loop labial bow	1
7	Retention labial bow soldered to Adam’s clasp	1
8	Retention labial bow extending distal to second molar	1
9	Fitted labial bow	1
10	Split high labial bow	1

D. SPRINGS

Sl. No.	Exercise	No.
1	Finger springmesial movement	2
2	Finger spring-distal movement	2
3	Double cantilever spring	2
4	Flapper spring	2
5	Coffin spring	2
6	T spring	2

E. CANINE RETRACTORS

Sl. No.	Exercise	No.
1	U loop canine retractor	2 Pairs
2.	Helical canine retractor	2 Pairs
3	Palatal canine retractor	2 Pairs
4	Self-supporting canine retractor	2 Pairs

II. APPLIANCES EXERCISES:

Sl. No.	Exercise
1	Hawley's retention appliance with anterior bite plane
2.	Upper Hawley's appliance with posterior bite plane
3	Upper expansion appliance with coffin spring
4	Upper expansion appliance with expansion screw
5	Habit breaking appliance with tongue crib
6	Oral screen and double oral screen
7	Lip bumper
8	Splint for Bruxism
9	Catalans appliance
10	Activator
11	Bionator
12	Frankel-FR 2 appliance

13	Twin block
14	Lingual arch
15	TPA
16	Quad helix
17	Bihelix
18	Utility arches
19	Pendulum appliance

III. SOLDERING EXERCISES

Sl. No.	Exercise	No.
1	Star	1
2	Comb	1
3	Christmas tree	1
4	Soldering buccal tube on molar bands	1

IV. WELDING EXERCISE

Sl. No.	Exercise
1	Pinching and welding of molar, premolar, canine and Incisor bands
2	Welding of buccal tubes and brackets on molar bands and incisor bands

V. IMPRESSION OF UPPER AND LOWER ARCHES IN ALGINATE

VI. STUDY MODEL PREPARATION.

VII. MODEL ANALYSIS

Sl. No.	Exercise
1	Impression of upper and lower dental arches
2.	PREPARATION OF STUDY MODEL - 1 And all the permanent dentition analyses to be done
3	PREPARATION OF STUDY MODEL - 2 And all the permanent dentition analysis to be done
4	PREPARATION OF STUDY MODEL - 3 And all the mixed dentition analysis to be done

VIII. CEPHALOMETRICS

Sl. No.	Exercise
1	Lateral cephalogram to be traced in five different colors and super imposed to see the accuracy of tracing
2	Steiner's analysis
3	Down's analysis
4	Tweed analysis
5	Rickett's analysis
6	Burstone analysis
7	Rakosi's analysis
8	Mc Namara analysis
9	Bjork analysis
10	Coben's analysis
11	Harvold's analysis
12	Soft tissue analysis – Holdaway and Burstone

IX. BASICS OF CLINICAL PHOTOGRAPHY INCLUDING DIGITAL PHOTOGRAPHY.

X. LIGHT WIRE BENDING EXERCISES FOR THE BEGG TECHNIQUE

Sl. No.	Exercise
1	Wire bending technique on 0.016' wire circle "Z" Omega
2	Bonwill-Hawley diagram
3	Making a standard arch wire
4	Inter maxillary hooks – Boot leg and Inter Maxillary type
5	Upper and Lower arch wire
6	Bendinga double back arch wire
7	Bayonet bends (vertical and horizontal offsets)
8	Stage – III arch wire
9	Torquing auxillary (upper)
10	Reverse Torquing (lower)
11	Uprighting spring

XI. TYPHODONT EXERCISES (BEGG OR P.E.A. METHOD)

Sl. No.	Exercise
1	Teeth setting in class II division I malocclusion with maxillary anterior Proclination and mandibular anterior crowding
2	Band pinching, welding brackets and buccal tubes to the bands
3	Stage – I
4	Stage – II
5	Pre-Stage – III
6	Stage - III

B. Clinical Works:

Once the basic pre-clinical work is completed the students can take up clinical cases and the clinical training is for the two and half years.

Each Postgraduate student should start with a minimum of 50 cases of his/her own. Additionally he/she should handle a minimum of 20 transferred cases.

The type of cases can be as follows:

1. Removable active appliances - 5 cases.
2. Class-I malocclusion with Crowding
3. Class I Malocclusion with bi-maxillary protrusion.
4. Class-II division – 1.
5. Class – II division – 2.
6. Class – III (Orthopeadic, Surgical, Orthodontic cases)
7. Inter disciplinary cases.
8. Removable functional appliance cases like activator,Bionator, functional regulator, twin block and new developments.
9. Fixed functional appliances – Herbst appliance, jasper jumper etc. – 5 cases.
10. Dento-facial orthopaedic appliances like head gears, rapid maxillary expansion niti expander et. – 5 cases.
11. Appliance for arch development such as molar distabilization – m 5 cases.
12. Fixed mechano therapy cases (Begg, PEA, Tip edge, Edgewise)

Retention procedures of above treated cases.

Other work to be done during FIRST YEAR

1.**Seminars:** One Seminar per week to be conducted in the department. A minimum of five seminars should be presented by each student each year.

2. **Journal club :** One Journal club per week to be conducted in the department. A minimum of five seminars should be presented by each student each year.

3. **Protocol for dissertation to be submitted on or before the end of six months from the date of admission.**

4. **Under graduate classes:** Around 4 – 5 classes should be handled by each post-graduate student.

5. **Field survey :** To be conducted and submit the report.

6. **Inter-departmental meetings :** should be held once in a month.

7. **Case discussions.**

8. **Field visits : To attend dental camps and to educate the masses.**

9. **Basic subjects classes.**

10. **Internal assessment or Term paper.**

SECOND YEAR :

The clinical cases taken up should be followed under the guidance. More case discussions and cases to be taken up. Other routine work as follows:

1. **Seminars:** One Seminar per week to be conducted in the department. Each student should present a minimum of five seminars each year.
2. **Journal Club :** One Journal club per week to be conducted in the department. Each student should present a minimum of five seminars each year.
3. **Library assignment** to be submitted on or before the end of six months.
4. **Undergraduate classes :** Each post-graduate student should handle around 4-5 classes.
5. **Inter-departmental meetings:** should be held once in a month.

6. **Case discussions.**
7. **Field visits :** To attend dental camps and to educate the masses.
8. **Internal assessment or term paper.**
9. **Dissertation work :** On getting the approval from the university work for the dissertation to be started.

THIRD YEAR :

The clinical cases taken up should be followed under the guidance. More case discussions and cases to be taken up. Other routine work as follows:

1. **Seminars:** One Seminar per week to be conducted in the department. Each student should present a minimum of five seminars each year.
2. **Journal Club :** One Journal club per week to be conducted in the department. A minimum of seminars should be presented by each student each year.
3. **Undergraduate classes :** Each post-graduate student should handle around 4-5 classes.
4. 4. **Inter-departmental meetings:** should be held once in a month.
5. **The completed dissertation should be submitted six months before the final examination.**
6. **Case discussions.**
7. **Field visits :** To attend dental camps and to educate the masses.
8. Finishing and presenting the cases taken up.
9. **Preparation of finished cases and presenting the cases** (to be presented for the examination)
10. **Mock Examination.**

Dissertation

a. The protocol for dissertation should be submitted on or before the end of six months from the date of admission as per calendar of events to the Controller of Examinations, Santosh University, through the Guide and Principal of Santosh Dental College & Hospital, Ghaziabad.
b. The completed dissertation should be submitted 6 months before the final examination as per calendar of events to the Controller of Examinations, Santosh University, through the Guide and Dean of Santosh Dental College & Hospital, Ghaziabad.

c. The dissertation should not be just a repetition of a previously undertaken study but it should try to explore some new aspects.
d. Approval of dissertation is essential before a candidate appears for the University examination.

3. MONITORING LEARNING PROGRESS

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring should be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

4. UNIVERSITY EXAMINATION

Distribution of topics for each paper

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 Maloclusion, Dentofacial Anomalies, Diagnostic procedures and Treatment Planning in Orthodontics, Practice Management in Orthodontic

PAPER II : Clinical Orthodontics

PAPER III : Descriptive and Analysing Type Question

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

Distribution of Marks & Question Pattern
A. Theory : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each) [300 marks]:-

(i) Paper-I:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:
2 out of 3 essay questions (50 x 2 = 100 Marks)

B. Practical and Clinical Examination :

Part – II
Practical and Clinical Examinations 200 Marks

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 4, the programme can be extended to 3rd day.

Exercise No.: 1 – Functional case .. .. 50 Marks
Selection of case for functional appliance and recording of construction bite. Fabrication and delivery of the appliance the next day.

Exercise No.: 2 – Multiband exercise .. . 50 Marks

1. III stage with auxiliary springs

OR

2. Bonding of SWA brackets and construction of suitable arch wire.

Exercise No.: 3 – Display of records of the treated cases 75 Marks (Minimum of 5 cases - 5 x 15 marks)

Exercise No.: 4 - Long case discussions .... 25 Marks

No.	Exercise	Marks Allotted	Approximate Time
1	Functional Appliance	50	1 hour + 1 hour
2	III stage mechanics / Bonding and arch wire Fabrication	50	1 hour 30 minutes
3	Display of case records (a minimum of 5 cases to be presented with all the cases)	75	1 hour
4	Long cases	25	2 hours

C. Viva Voce Examination

Part I – Viva Voce – 100 Marks
PART – II – 100 MARKS

(i) Viva Voce Examination : 80 Marks.

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.

(ii) Pedagogy : 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 topics for 8-10 minutes.

6. MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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MDS BRANCH VI -ORAL & MAXILLOFACIAL PATHOLOGY AND MICROBIOLOGY

1. OBJECTIVES :

The training programme in Oral and Maxillofacial Pathology and Microbiology is structured to achieve the following objectives –

- Knowledge & Skills.
- Attitude.
- Communicative skills and ability.

Knowledge & Skills:

- A post graduate dental surgeon in oral pathology is to be trained in both general and special pathology dealing with the nature of oral diseases, their causes, processes and effects.

- An oral pathologist is expected to perform routine histopathological evaluation of specimens relating to oral and perioral tissues, to carry out routine diagnostic procedures including hematological, cytological, microbiological and immunological investigation and a brief orientation to ultra microscopy and molecular biological techniques.

- He should able to perform routine and special techniques used for histopathology and immunohistochemistry.

- He/she is expected to have an understanding of current research methodology, collection and interpretation of data, ability to carry out research projects on clinical and/ or epidemiological aspects, a working knowledge on current databases, automated data retrieval systems, referencing and skill in writing scientific papers.

- He/she is expected to present scientific data pertaining to the field, in conferences both as poster and verbal presentations and to take part in-group discussions.

- He/ she should have basic knowledge of Forensic Odontology pertaining to examination of dental evidence, evaluation and presentation of dental finding.

Attitude :

- Develop attitude to adopt ethical principles in all aspect of pathological practice and irrespective of the social status, cost, creed or religion of the patient.
- Willing to share the knowledge and clinical experience with professional colleagues.
- Willing to adopt new techniques of diagnosis & laboratory investigations developed from time to time based on scientific research which are in the best interests of the patient.
- Respect patient right and privileges, including patients right to information and right to seek a second opinion.
- Develop attitude to seek opinion from an allied medical and dental specialists as and when required.

Communication Skills :

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

2. COURSE CONTENTS

First Year

P.G. orientation course including general approach to PG curriculum, library and main dissertation, journal club topic selection, presentation, seminars, clinco-pathological needs, teaching methodology and use of audio visual aids.

Orientation on Biostatistics and discussions on research methodology by eminent researchers.

PART – I – PAPER - I

a) APPLIED ANATOMY AND GENERAL HISTOLOGY

Confined to those aspects of Anatomy which demonstrate the fundamental principles and processes with clinical application.

General knowledge of regional, applied, radiological and histological anatomy of the human body.

Knowledge of the composition-gross and minute structures, development and function of dental and related tissues and such aspects of embryology as have special dental significance. Recent advances in relation to these matters.

Anatomy of head, neck, face, brain and spinal cord including histology and embryology.

Light and electron microscopic features of epithelial tissues and glands, bone, hematopoietic system, lymphatic system, muscle, neural tissues, endocrinal system.

b) ORAL ANATOMY AND DENTAL HISTOLOGY

Cell structure and function (Ultra –structural and molecular aspects), intercellular junction, cell cycle and division, cell cycle regulators, cell to cell and cell to extra cellular matrix interactions.

Detail molecular aspects of DNA, RNA and intracellular organelles, transcription and translation and molecular biology techniques.

1. Development and growth of the face, teeth and jaws.
2. Form and relations of human teeth -
   a) The form and relations of permanent teeth.
   b) Tooth sockets.
   c) Deciduous teeth.

d) Dental arches.
e) Occlusion.
f) Supporting structures of teeth.

3. Early development of the teeth -
   a) Early development of the tooth germs.
   b) Function of the enamel organ.
   c) Tooth eruption.

4. Establishment of the deciduous and permanent dentition -
   a) Shedding deciduous teeth.
   b) Chronology of eruption of teeth.

5. Developmental, macroscopic and microscopic appearance of dental tissue.
   a) Development of face and oral cavity.
   b) Development and growth of teeth.
   c) Enamel.
   d) Dentin.
   e) Pulp.
   f) Cementum.
   g) Periodontal ligament.
   h) Maxilla and mandible (Alveolar Process).
   i) Oral mucous membrane.
   j) Salivary glands.
   k) Tooth eruption.
   l) Shedding of deciduous teeth.
   m) Temporomandibular joint.
   n) Maxillary sinus.
   o) Histochemistry of oral tissues.
   p) Preparation of specimens for histologic study.

6. Age changes in teeth and jaws.

c) PHYSIOLOGY

Sound knowledge of the body, the general principles of nutrition and metabolism. The mechanism whereby normal growth structure of the skeleton and the composition of the body fluids are regulated. Candidate should be familiar with those techniques, which are commonly employed in clinical investigations.

Food and nutrition, digestion, proteins, fats and carbohydrates, vitamins and minerals, water, fluid and electrolyte balance. Blood composition, functions, blood volume, coagulation, hemorrhage, blood groups and transfusion. Circulation, heart sounds, pulse and blood pressure. Capillary circulation, shock lymph, and lymphatics. Formation of urine, abnormal constituents, glycosuria and ketonuria. Control of respiration, asphyxia, hypoxia, artificial respiration. General principles of endocrine functions, hypophysis, thyroid, adrenals, regulation of blood sugar. Reproduction, pregnancy and lactation. Physiology of pain, neuro-hormones, certain cranial nerves and autonomous nervous system.

Saliva, Mastication, deglutition, salivary apparatus, pain, taste, wound healing. Calcium metabolism. Theories of mineralization. Metals and trace elements. Effect of hormones and vitamins (Influence on growth, development and structure of oral soft and hard tissues and para-oral tissues).

metabolism. The mechanism whereby normal growth structure of the skeleton and the composition of the body fluids are regulated. Candidate should be familiar with those techniques, which are commonly employed in clinical investigations.

Food and nutrition, digestion, proteins, fats and carbohydrates, vitamins and minerals, water, fluid and electrolyte balance. Blood composition, functions, blood volume, coagulation, hamorrhage, blood groups and transfusion. Circulation, heart sounds, pulse and blood pressure. Capillary circulation, shock lymph, and lymphatics. Formation of urine, abnormal constituents, glycosuria and ketonuria. Control of respiration, asphyxia, hypoxia, artificial respiration. General principles of endocrine functions, hypophysis, thyroid, adrenals, regulation of blood sugar. Reproduction,

pregnancy and lactation. Physiology of pain, neuro-hormones, certain cranial nerves and autonomous nervous system.

Saliva, Mastication, deglutition, salivary apparatus, pain, taste, wound healing. Calcium metabolism. Theories of mineralization. Metals and trace elements. Effect of hormones and vitamins (Influence on growth, development and structure of oral soft and hard tissues and para-oral tissues).

d) BIOCHEMISTRY

Physical chemistry as related to medicine, solutions and strength of solutions. Hydrogen ion concentration. Acids and bases-Buffers, colloidal state, Osmotic pressure, ion exchangers and thermodynamic considerations.

Carbohydrates : Mono-Saccharides, Di-Saccharides and Poly- Saccharides-their chemical nature and metabolism.

Lipids:Characters of simple and compound lipids. Their absorption and metabolism. Steriods.

Proteins : Characters of peptides and amino acids-metabolism- essential amino acids.

Enzymes : Properties and role of metabolism and factors that modify them.

Biological oxidation, reduction and other chemical degradation.

Water electrolyte balance- Energy exchange, Caloric values, B.M.R- caloric requirements of a man.

e) PATHOLOGY AND MICROBIOLOGY

General knowledge of the causation, character and sequelae of inflammation, degeneration, regeneration and repair. Hypertrophy, atrophy and hyperplasia, thrombosis, embolism, infarction, ischemia, edema and neoplasia. Principles of blood transfusion and action of radiation on the body.

Familiarity with the general characteristics of bacteria, fungus, viruses and protozoa infections in general and detailed knowledge of those which are important in dental surgery. Routes and spread of wound infection and cross infection and uses of antibiotics. Sterilization, disinfection and antiseptics. Physiology and growth of micro-organisms. Basic principles of immunity, antigen and antibody reactions. Cell mediated immunity and humoral immunity. Immunology of hypersensitivity. Immunological basis of the autoimmune phenomena. Immunodeficency with relevance to opportunistic infections. Basic principles of transplantation and tumor immunity.

f) PHARMACOLOGY

1. Introduction :
   Mechanism of drug action, absorption, distribution, fate and exertion of drugs. Factors modifying drug action, bio-assay of drugs.

2. Drugs :
   a. Anesthetics-History and theory of anesthesia. Stages of anesthesia. Pre-anesthetic medications. General anesthetics. Ether, chloroform, ethylchloride, trichloro-ethylene, nitrous oxide, ethylene and cyclopropane.
   b. Depressants-hypnotics and sedatives. Barbiturates-long acting, short acting and ultra short acting. Chloral hydrate, paraldehyde and bromides.
   c. Analgesics-NSAID's, Morphine and opium alkaloids, salicylates, Acetanilide, Aminopyrine and antipyrine.
   d. Stimulants-strychnine, picrotoxine, Metrazal, Coramine, Camphor, Xanthine, Caffiene, Theopyhlline and theobromine.
   e. Local anesthetics-Structure, Mode of action, Dosage and toxicity of procaine, Chincocaine, Lignocaine (lidocaine).

3. Drugs acting on the autonomic nervous system. General considerations, parasympathomimetic drugs, sympathomimetic drugs and autonomic blocking agents.
4. Cardiovascular drug-Digitalis, cardiac glycosides, Qunidine and nitrites.

5. Drugs affecting urine formation: Diuretics and antidiuretics.
6. Antiseptics and germicides, Antifungal, Antivirals and Anti helminthic drugs.
7. Antimicrobial chemotherapy :
   Antibiotics-Penicillins, Streptomycin, Chloramphenicol, Tetracyclines, Neomycin, Bacitracin, Erythromycin, Cephalosporins, Fluoroquinoles and sulfa drugs.
8. Drugs of endocrine origin :
   Thyroid, Parathyroid, Adrenal cortica hormones, Insulin, Sex hormones, Anterior pituitary hormones.
9. Vitamins :
   Water soluble and fat soluble.
10. Drugs acting on blood and blood forming organs :
    Iron and iron salts. Liver extracts, Hematinic principles, Coagulants and Anticoagulants and Fibrinolytics and Antifibrinolytics.

11. Minerals :
    Calcium, Iron, Phosphorus and trace elements-metabolism, Deficiency and therapeutic uses.
12. Antihistamins and anti-allergic drugs.
13. Psychosomatic drugs:
    Tranquilzers, Anti-depressants and Anti-epileptics.
14. Drugs used in cancer (Antineoplastics) :
    Adriamycin, Cytoxan, Nitrogen mustard derivatives and Antimetabolites.

15. Diagnostic drugs :
    Drugs used in diagnosis of diseases. Radio opaque dyes. Mode of administration, toxicity, excretion and clinical uses.

g) GENETICS, GROWTH AND DEVELOPEMENT

Molecular genetics :

- DNA, RNA structure and function, DNA replication, regulation of gene expression.
- Genes, genetic code, transcription, translation and assembly.
- Chromosomes, structure, cell division and karyotyping
- Mutations, mutagens and DNA repair mechanisms.

- Mode of inheritance, transmission, expression and penetrance.
- Polymerase chain reaction, blotting, hybridization, recombinant DNA technology, DNA sequencing and cloning.

Applied genetics :

- Genes related to the development of teeth and oro-facial structures.
- Genetic factors in tumorigenesis.
- Genetic application in forensic science.
- Genotoxicity tests.
- Gene therapy.

Academic Activities

- Preparation of ground and decalcification sections of teeth and bone.
- Oral cytological smear preparation
  Microbial smear- Gram stain, AFB stain
- Blood investigations
  TC, DC, Hb%, bleeding time, clotting time and ESR.
- Urine analysis
- Oral histology records.
- Submission of title for dissertation at the end of three months.
- Submission of write-up : introduction, aims and objectives, review of literature and materials and methods within six months.
- Selection of topic and commencement of library dissertation.
- Postings in oral diagnosis, oral surgery department – to record and submit case histories with photographs and histopathology.
- Orientation to dermatological and malignant diseases in the concerned departments.
- Presentation of clinico-pathological cases, seminars, journal clubs.
- To attend dental camps.
- Submission of first year log-book.
- At the end of first year, examinations to be conducted by the department.

SECOND YEAR

PART – II – PAPER – I

Oral and Dental Pathology :

- Developmental disorders of Oral and Para-oral structures.
- Benign and Malignant Tumors of the Oral cavity.
- Odontogenic cysts and Tumor.
- Pathology of salivary gland.
- Regressive alteration of teeth.
- Bacterial, fungal, viral and protozoal infections of oral cavity.
- Dental caries.
- Diseases of pulp and periapical region.
- Spread of Oral infection.
- Healing of Oral wounds.
- Physical and chemical injuries of Oral cavity.
- Oral aspects of Metabolic diseases.
- Diseases of Bones and Joints.
- Diseases of Skin and mucous membranes.
- Diseases of Periodontium.
- Diseases of Blood and Blood forming organs.
- Diseases of Nerves and muscles.
- Orofacial Pain.
- Immunological diseases of Oral cavity including Tumor immunology.
- Molecular Pathology.

Part- II – Paper – II

Histological staining techniques :

- Principles of staining.
- Various stains used in histopathology and their applications.
- Enzyme histochemistry.
- Principles, Techniques and applications of Immuno-fluorescence.

- Principles, technique and applications of Immunohistochemistry.
- Electron microscopy – Types, principles and uses.

Recent Molecular Techniques :

Basic Principle, Techniques and applications of

- Polymerase chain reaction.
- Blots.
- Hybridization.
- Recombinant DNA technology.
- Micro array.
- DNA sequencing and
- Cell culture and Cloning.

Laboratory Procedures

Stains :

Microbial -

- Bacterial : Gram stain, AFB.
- Fungal : PAS, Gomory's Silver methenamine stain.

Tissue stains -

- H&E
- PAP
- PAS
- Alcian Blue
- Mucicarmine
- Masson Fontana
- Toludiene blue
- Van Gieson
- Masson's Trichrome
- Congo red

Academic activities :

- Participation in Journal club, seminars, clinicopathological discussion.
- Following records to be submitted -
  - Second year log book.
  - Specimens grossed.
  - Histopathology of Oral lesions.
  - Slides reported.
  - Record of all laboratory procedures done.
- Library dissertation.
- Main dissertation.
- Lectures and Practical demonstrations for II year undergraduates in Oral and dental Anatomy, Oral Physiology, Histology and Embryology, under supervision.
- At the end of second year, examinations to be conducted by the department.

PART- II – PAPER - III
THIRD YEAR

- Forensic Odontology.
- Giant cell lesions.
- Clear cell lesions.
- Round cell lesions.
- Spindle cell lesions.
- Pigmented lesions.
- Fibro-ossseous lesion.
- Mechanism of formation and expansion of cysts of orofacial region.
- Mechanism of growth and metastasis of tumors.
- Lab diagnosis of
  - Bacterial infection.
  - Viral infection.
  - Fungal infection.
- Hamartias/ Hamartomas.
- Phakomatoses.
- Vascular tumors of orofacial regions.

- Genodermatoses.
- Tumor markers.
- Histogenesis of salivary gland tumors.
- Tumor angiogenesis.
- Molecular basics of oral squamous cell carcinoma.
- Concept of premalignancy.
- Matrix remodeling in pathological condition.
- Etiopathogenesis of developmental defects of teeth.
- Viral oncogenesis.
- Lesions associated with impacted and missing tooth.
- Syndrome affecting orofacial regions.
- Hereditary oral defects.
- Techniques to assess the prognosis of neoplastic lesions.
- Vesiculobullous lesions.
- Lymphoreticular malignancy.
- Haemopoietic malignancy.
- Micronutrients.
- Oral aspects of metabolic disorders.
- Hormones and Oromaxillofacial lesions.
- Matrix metalloproteinases.
- Current concepts in
    - HIV related Oral Diseases.
    - OSF.
- Epithelium – Connective tissue interaction.
- Dental Caries.
- Stem cell research.
- Emphasis on recent advances in oral pathology

Academic Activities :

- Receiving and Grossing Biopsy Specimens.
- Reading and Reporting of current (running cases) histopathology slides.
- Reading and reporting of teaching histopathology slides.

- Lectures and Practical demonstrations for III year undergraduates, under supervision.
- Presenting Seminars.
- Discussion of peer reviewed articles from Oral Pathology related International journals in the journal club.
- Write up of scientific articles for journals. Submission of one manuscript to reputed journal is mandatory.
- Submission of following records :-
    - Third year log book.
    - Specimens grossed.
    - Slides reported.
    - Articles reviewed in journal club during the entire course.

At the end of the third year, the student should have actively participated in the Oral Pathology national conferences and national PG conventions. They are also encouraged to attend CME/ CDE programs and workshops and State / National conferences and meetings of allied specialties.

Monitoring Learning Progress :

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. Periodical assessment once in six months of the postgraduate student's – conduct and academic; submission of internal assessment to the university at the end of each academic year.

At the end of third year, examination will be conducted by the University.

3. TEACHING AND LEARNING ACTIVITIES :-

All the candidates registered for M.D.S. course shall pursue the course for a period of three years as full – time students. During this period each student shall take part actively in learning and teaching activities designed by the Institution / University.

The following teaching and learning activities in Oral Pathology & Microbiology are as follows :

a) **Lectures :** There shall be didactic lectures both in the speciality and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics.

b) **Journal Club :** The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. The trainee should make presentations from the allotted journal of selected articles at least 5 times in a year.

c) **Seminars :** The seminars shall be held at least twice a week in the department, all trainees associated with postgraduate teachers are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5 – seminar presentation in each year.

d) **Symposium :** It is recommended to hold symposium on topics covering multiple disciplines one in each academic year.

e) **Workshops :** It is recommended to hold workshops on topics covering multiple disciplines one in each academic year.

f) **Clinical Postings :** Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.

g) **Clinico Pathological Conference :** The Clinico pathological conferences should be held once in a month involving the faculties of oral biology, oral medicine and radiology, oral pathology, oral surgery, periodontology, endodontia and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo – pathological interpretations and participation in the discussions.

h) **Interdepartmental Meetings :** To bring in more integration among various specialities there shall be interdepartmental meetings chaired by the Dean with all heads of postgraduate departments at least once a month.

i) **Teaching Skills :** All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions.

j) **Evaluation Skills :** All the trainees shall be encouraged to take part evaluating the skills and knowledge in clinical laboratory practice including theory by formulating question banks and model answers.

k) **Continuing Dental Education Programs :** Each postgraduate department shall organize these programs on regular basis involving the other institutions. The trainees shall also be encouraged to attend such programs conducted elsewhere.

l) **Conferences / Workshops / Advanced Courses :** The trainees shall be encouraged not only to attend conference / workshops / advance courses but also to present at least two scientific papers at State / National specialty meeting during their training period.

m) **Rotation and Posting in Other Departments :** To bring in more integration between the specialty and allied fields each post graduate department shall workout a program to rotate the trainees in related disciplines and Craniofacial and maxillofacial ward.

4. UNIVERSITY EXAMINATION:

PART-I

PAPER-I : Applied Basic Sciences: Applied Anatomy, Physiology (General and Oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (Oral And Dental Histology), Biostatistics and Research Methodology

PART-II

PAPER-I: Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology

PAPER-II: Laboratory Techniques and Diagnosis and Oral Oncology

PAPER-III: Descriptive and Analysing Type Question

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

5. DISTRIBUTION OF MARKS &QUESTION PATTERN

A. Theory : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each):- (300 Marks)

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:

2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL EXAMINATION : 200 Marks.

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 4, the programme can be extended to 3rd day.

First Day :

1. Case Presentation
   a. Long case – 20 marks.
   b. Short case – 10 marks.
2. Clinical Hematology (Any two investigations) – 20 marks.
   Hb%, bleeding time, clotting time, Total WBC count, Differential WBC count.
3. Smear preparation – 20 marks.
   Cytology or microbial smear and staining.
4. Paraffin sectioning and H & E Staining – 30 marks.

Second day :

Histopathology slide discussion – 100 marks.

C. VIVA VOCE EXAMINATION

Part – I

VIVA VOCE EXAMINATION **- 100 MARKS.**

Part – II

i. Viva-Voce examination: 80 Marks
ii. Pedagogy Exercise : 20 Marks

All examiners will conduct viva-voice 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.

7. MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

* * * * *

MDS BRANCH – VII : - PUBLIC HEALTH DENTISTRY

1. OBJECTIVES:

At the end of 3 years of training the candidate should be able to:

Knowledge:

a. Applied basic sciences knowledge regarding etiology, diagnosis and management of the prevention, promotion and treatment of all the oral conditions at the individual and community level.
b. Identify social, economic, environmental and emotional determinants in a given individual patient or a community for the purpose of planning and execution of Community Oral Health Program.
c. Ability to conduct Oral Health Surveys in order to identify all the oral health problems affecting the community and find solutions using multi – disciplinary approach.
d. Ability to act as a consultant in community Oral Health, teach, guide and take part in research (both basic and clinical), present and publish the outcome at various scientific conferences and journals, both national and international level.

Skills:

The candidate should be able to

1. Take history, conduct clinical examination including all diagnostic procedures to arrive at diagnosis at the individual level and conduct survey of the community at state and national level of all conditions related to oral health to arrive at community diagnosis.
2. Plan and perform all necessary treatment, prevention and promotion of Oral Health at the individual and community level.
3. Plan appropriate Community Oral Health Program, conduct the program and evaluate, at the community level.
4. Ability to make use of knowledge of epidemiology to identify causes and plan appropriate preventive and control measures.

5. Develop appropriate person power at various levels and their effective utilization.
6. Conduct survey and use appropriate methods to impart Oral Health Education.
7. Develop ways of helping the community towards easy payment plan, and followed by evaluation for their oral health care needs.
8. Develop the planning, implementation, evaluation and administrative skills to carry out successful community Oral Health Programs.

Values:

1. Adopt ethical principles in all aspects of Community Oral Health Activities.
2. To apply ethical and moral standards while carrying out epidemiological researches.
3. Develop communication skills, in particular to explain the causes and prevention of oral diseases to the patient.
4. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed and promote teamwork approach.
5. Respect patient's rights and privileges including patients right to information and right to seek a second opinion.

2. COURSE CONTENTS:

A) Applied Basic Sciences:

Applied Anatomy and Histology:

a) Applied Anatomy in relation to:

- Development of face
- Bronchial arches
- Muscles of facial expression
- Muscles of mastication
- TMJ
- Salivary gland
- Tongue
- Hard and soft palate
- Infratemporal fossa

- Paranasal air sinuses
- Pharynx and larynx
- Cranial and spinal nerves- with emphasis on trigeminal, facial, glossopharyngeal and hypoglossal nerve
- Osteology of maxilla and mandible
- Blood supply, venous and lymphatic drainage of head and neck
- Lymph nodes of head and neck
- Structure and relations of alveolar process and edentulous mouth
- Genetics-fundamentals

b) Oral Histology:

- Development of dentition, Innervations of dentin and pulp
- Periodontium-development, histology, blood supply, nerve supply and lymphatic drainage
- Oral mucous membrane
- Pulp-periodontal complex

Applied Physiology and Biochemistry:

- Cell
- Mastication and deglutition
- Food and nutrition
- Metabolism of carbohydrates, proteins and fats
- Vitamins and minerals
- Saliva and Oral health
- Fluid and electrolyte balance
- Pain pathway and mechanism-types, properties
- Blood composition and functions, clotting mechanism and erythropoiesis, Blood groups and transfusions, Pulse and blood pressure,
- Dynamics of blood flow
- Cardiovascular homeostasis-heart sounds
- Respiratory system: Normal physiology and variations in health and diseases, Asphyxia and artificial respiration
- Endocrinology: thyroid, parathyroid, adrenals, pituitary, sex hormones and pregnancy, Endocrine regulation of blood sugar.

Applied Pathology:

- Pathogenic mechanism of molecular level
- Cellular changes following injury
- Inflammation and chemical mediators
- Oedema, thrombosis and embolism
- Hemorrhage and shock
- Neoplasia and metastasis
- Blood disorders
- Histopathology and pathogenesis of dental caries, periodontal disease, oral mucosal lesions, and malignancies
- HIV
- Propagation of dental infection

Microbiology:

- Microbial flora of oral cavity
- Bacteriology of dental caries and periodontal disease
- Methods of sterilization
- Infection control in dental office / camps
- Virology of HIV, herpes, hepatitis
- Parasitology
- Basic immunology – basic concepts of immune system in human body
    - Cellular and humoral immunity
    - Antigen and antibody system
    - Hypersensitivity
    - Autoimmune diseases

Oral Pathology:

- Detailed description of diseases affecting the oral mucosa, teeth, supporting tissues and jaws.

Physical and Social Anthropology:

Anthropology is a part of Social Sciences, which also constitutes behavioral sciences i.e., Psychology and Sociology. Behavioral Sciences has been mentioned in Public Health.

- Introduction and definition
- Appreciation of the biological basis of health and disease
- Evolution of human race, various studies of different races by anthropological methods

Applied Pharmacology:

- Definition, scope and relations to other branches of medicine, mode of action, bioassay, standardization, pharmacodyanamics, pharmcokinetics.
- Chemotherapy of bacterial infections and viral infections – sulphonamides and antibiotics.
- Local anesthesia
- Analgesics and anti-inflammatory drugs
- Hypnotics, tranquilizers and antipyretics
- Important hormones-ACTH, cortisone, insulin and oral antidiabetics.
- Drug addiction and tolerance
- Important pharmacological agents in connection with autonomic nervous system-adrenaline, noradrenaline, atropine
- Brief mention of antihypertensive drugs
- Emergency drugs in dental practice
- Vitamins and haemopoietic drugs
- Effect of drugs on oral health

Research Methodology and Biostatistics:

Health Informatics– basic understanding of computers and its components, operating software (Windows), Microsoft office, preparation of teaching materials like slides, project, multimedia knowledge. Operative skills in analyzing the data.

Research Methodology – definitions, types of research, designing written protocol for research, objectivity in methodology, quantification, records and analysis.
Biostatistics – introduction, applications, uses and limitations of bio – statistics in Public Health dentistry, collection of data, presentation of data, measures of central tendency, measures of dispersion, methods of summarizing, parametric and non

parametric tests of significance, correlation and regression, multivariate analysis, sampling and sampling techniques – types, errors, bias, trial and calibration

B) **Public Health**

Public Health:

- Definition, concepts and philosophy of dental health
- History of public health in India and at international level
- Terminologies used in public health

Health:

- Definition, concepts and philosophy of health
- Health indicators
- Health determinants
- Community and its characteristics and relation to health

Disease:

- Definition, concepts
- Multifactorial causation, natural history, risk factors
- Disease control and eradication, evaluation and causation, infection of specific diseases
- Vaccines and immunization

General Epidemiology:

- Definition and aims, general principles
- Multifactorial causation, natural history, risk factors
- Methods in epidemiology, descriptive, analytical, experimental and classic epidemiology of specific diseases, uses of epidemiology
- Duties of epidemiologist
- General idea of method of investigating chronic diseases, mostly non-infectious nature, epidemic, endemic, and pandemic.
- Ethical conversation in any study requirement
- New knowledge regarding ethical subjects
- Screening of diseases and standard procedures used

Environmental Health:

- Impact of important components of the environment of health

- Principles and methods of identification, evaluation and control of such health hazards
- Pollution of air, water, soil, noise, food
- Water purification, international standards of water
- Domestic and industrial toxins, ionizing radiation
- Occupational hazards
- Waster disposal- various methods and sanitation

Public Health Education:

- Definition, aims, principles of health education
- Health education, methods, models, contents, planning health education programs

Public Health Practice and Administration System in India.

Ethics and Jurisprudence:

- Basic principles of law
- Contract laws- dentist – patient relationships & Legal forms of practice
- Dental malpractice
- Person identification through dentistry
- Legal protection for practicing dentist
- Consumer protection act

Nutrition in Public Health:

- Study of science of nutrition and its application to human problem
- Nutritional surveys and their evaluations
- Influence of nutrition and diet on general health and oral health, dental caries, periodontal disease and oral cancers
- Dietary constituents and cariogenecity
- Guidelines for nutrition

Behavioral Sciences:

- Definition and introduction
- Sociology: social class, social group, family types, communities and social relationships, culture, its effect on oral health.

- Psychology: definition, development of child psychology, anxiety, fear and phobia, intelligence, learning, motivation, personalities, fear, dentist-patient relationship, modeling and experience

Hospital Administration:

- Departmental maintenance, organizational structures
- Types of practices
- Biomedical waste management

Health Care Delivery System:

- International oral health care delivery systems – Review
- Central and state system in general and oral health care delivery system if any
- National and health policy
- National health programmes
- Health Planning and Evaluation
- Primary health care – concepts, oral health in PHC and its implications
- National and international health organizations
- Dentists Act 1928, Dental council of India, Ethics, Indian Dental Association
- Role of W.H.O. and Voluntary organizations in Health Care for the Community

Oral Biology and Genetics:

- A detailed study of cell structure
- Introduction to Genetics, Gene structure, DNA, RNA
- Genetic counseling, gene typing
- Genetic approaches in the study of oral disorders
- Genetic Engineering - Answer to current health problems

Demography & Family Planning:

Demographic trends, family planning methods, milestones in population control in India.

Health Economics:

Health benefit analysis and Cost effective analysis

C) Dental Public Health:

- History
- Definition and concepts of dental public health
- Differences between clinical and community dentistry
- Critical review of current practice
- Dental problems of specific population groups such as chronically ill, handicapped and institutionalized group

Epidemiology of Oral Diseases and Conditions:

- Dental caries, gingival, periodontal disease malocclusion, dental Fluorosis, oral cancer, TMJ disorders and other oral health related problems.

Oral Survey Procedures:

- Planning
- Implementation
- WHO basic oral health methods 1997
- Indices for dental diseases and conditions
- Evaluation

Delivery of Dental Care:

- Dental person power – dental auxiliaries
- Dentist – population ratios,
- Public dental care programs
- School dental health programs- Incremental and comprehensive care
- Private practice and group practice
- Oral health policy – National and international policy

Payment for Dental Care:

- Prepayment
- Post-payment
- Reimbursement plans

- Voluntary agencies
- Health insurance

Evaluation of Quality of Dental Care:

- Problems in public and private oral health care system program
- Evaluation of quality of services, governmental control

Preventive Dentistry:

- Levels of prevention
- Preventive oral health programs screening, health education and motivation
- Prevention of all dental diseases-dental caries, periodontal diseases, oral cancer, malocclusion and Dentofacial anomalies
- Role of dentist in prevention of oral diseases at individual and community level.
- Fluoride
  - History
  - Mechanism of action
  - Metabolism
  - Fluoride toxicity
  - Fluorosis
  - Systemic and topical preparations
  - Advantages and disadvantages of each
  - Update regarding Fluorosis
  - Epidemiological studies
  - Methods of fluoride supplements
  - Defluoridation techniques
  - Antifluoridation lobby
- Plaque control measures-
  - Health Education
  - Personal oral hygiene
  - Tooth brushing technique
  - Dentifrices, mouth rinses
- Pit and fissure sealant, ART, Preventive resin restoration

- Preventive oral health care for medically compromised individual
- Update on recent preventive modalities
- Caries vaccines
- Dietary counseling

Practice Management:

- Definition
- Principles of management of dental practice and types
- Organization and administration of dental practice
- Ethical and legal issues in dental practice
- Current trends
- Infection control in dental practice

Tobacco Counseling:

- Health Consequences
- Tobacco dependence
- Benefits of intervention
- Tobacco cessation
- Role of dentist

Health Man Power Planning:

Structured Training Schedule:

FIRST YEAR

Seminars:

- 5 seminars in basic sciences subject,
- To conduct 10 journal clubs
- Library assignment on assigned topics – 2
- Submission of synopsis for dissertation-within 6 months
- Periodic review of dissertation at two monthly intervals

Clinical Training:

- Clinical assessment of patient
- Learning different criteria and instruments used in various oral indices assessing oral hygiene, periodontal disease, wasting disease, flourosis and malocclusion – 5 cases each
  - Oral Hygiene Index – Greene and Vermillion

- Oral Hygiene Index – Simplified
- DMF – DMF (T), DMF (S)
- def t/s
- Fluorosis Indices – Dean's Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index
- Community Periodontal Index (CPI)
- Plaque Index-Silness and Loe, gingival index – Loe and Silness
- Russels periodontal disease index
- WHO Oral Health Assessment Form – 1997
- Carrying out treatment (under comprehensive oral health care) of 10 patients
- maintaining complete records.

Field Programme:

- Carrying out preventive programs and health education for school children of the adopted school.
- School based preventive programs-
  - Topical Fluoride application-Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes, Fluoride mouth rinses
  - Pit and Fissure Sealant – chemically cured (GIC), light cured
  - Minimal Invasive Treatment-Preventive Resin Restorations (PRR), Atraumatic Restorative Treatment (ART)
  - Organizing and carrying out dental camps in both urban and rural areas.
- Visit to slum, water treatment plant, sewage treatment plant, and Milk dairy, Public Health Institute, Anti- Tobacco Cell, Primary Health Center and submitting reports.
- In additions the postgraduate shall assist and guide the under graduate students in their clinical and field programs.

SECOND YEAR

Seminars:

- Seminars in Public Health and Dental Public Health topics
- Conducting journal clubs

- Short term research project on assigned topics – 2
- Periodic review of dissertation at monthly reviews

Clinical Training-Continuation of the Clinical Training:

- Clinical assessment of patient
- Learning different criteria and instruments used in various oral indices assessing oral hygiene, periodontal disease, wasting disease, flourosis and malocclusion – 5 each
  - Oral Hygiene Index – Greene and Vermillion
  - Oral Hygiene Index – Simplified
  - DMF – DMF (T), DMF (S)
  - def t/s
  - Fluorosis Indices – Dean's Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index
  - Community Periodontal Index (CPI)
  - Plaque Index-Silness and Loe, gingival index – Loe and Silness
  - Russels periodontal disease index
  - WHO Oral Health Assessment Form – 1987
  - Carrying out treatment (under comprehensive oral health care) of 10 patients – maintaining complete records

Field Program – Continuation of Field Program:

- Carrying out school dental health education
- School based preventive programs-
  - Topical Fluoride application-Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes, Fluoride mouth rinses
  - Pit and Fissure Sealant – chemically cured (GIC), light cured
  - Minimal Invasive Treatment-Preventive Resin Restorations (PRR), Atraumatic Restorative Treatment (ART)
  - Organizing and carrying out dental camps in both urban and rural areas.
- Assessing oral health status of various target groups like School children, Expectant mothers Handicapped, Underprivileged, and geriatric

populations. Planning dental manpower and financing dental health care for the above group.

- Application of the following preventive measures in clinic-10 Cases each.
  - Topical Fluoride application – Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes.
  - Pit and Fissure Sealant
- Planning total health care for school children in an adopted school:
  - Periodic surveying of school children
  - Incremental dental care
  - Comprehensive dental care
- Organizing and conducting community oral health surveys for all oral conditions-3 surveys
- In addition the post graduate shall assist and guide the under graduate students in their clinical and field programs
- To take lecture classes (2) for Undergraduate students in order to learn teaching methods (pedagogy) on assigned topic.

THIRD YEAR:

Seminars:

- Seminars on recent advances in Preventive Dentistry and Dental Public Health
- Critical evaluation of scientific articles – 10 articles
- Completion and submission of dissertation

Clinical Training:

- Clinical assessment of patient
- Learning different criteria and instruments used in various oral indices assessing oral hygiene, periodontal disease, wasting disease, flourosis and malocclusion – 5 each
  - Oral Hygiene Index – Greene and Vermillion
  - Oral Hygiene Index – Simplified
  - DMF – DMF (T), DMF (S)
  - def t/s
  - Fluorosis Indices – Dean’s Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index

- Community Periodontal Index (CPI)
- Plaque Index-Silness and Loe, gingival index – Loe and Silness
- Russels periodontal disease index
- WHO Oral Health Assessment Form – 1987
- Carrying out treatment (under comprehensive oral health care) of 10 patients – maintaining complete records

- Carrying out school dental health education
- School based preventive programs-
  - Topical Fluoride application – Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes.
  - Pit and Fissure Sealant
  - Minimal Invasive Techniques – Preventive Resin Restorations (PRR), Atraumatic Restorative Treatment (ART)
- To take lecture classes (2) for Undergraduate students in order to learn teaching methods (pedagogy) on assigned topic
- Exercise on solving community health problems – 10 problems
- Application of the following preventive measures in clinic – 10 cases each.
  - Topical Fluoride application – Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations
  - Pit and Fissure sealants
- Dental – health education training of school teachers, social workers, health workers,
- Posting at dental satellite centers/ nodal centers
- In addition the post graduate shall assist and guide the under graduate students in their clinical and field programs.

Monitoring Learning Process:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Section IV.

3. UNIVERSITY EXAMINATION:

PART-I

PAPER-I : Applied Basic Sciences:Applied Anatomy and Histology, Applied Physiology and Biochemistry, Applied Pathology, Microbiology, Oral Pathology, Physical and Social Anthropology, Applied Pharmacology and Research Methodology and Biostatistics

PART-II

PAPER-I: Public Health
PAPER-II: Dental Public Health
PAPER-III: Descriptive and Analysing Type Question

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

4. DISTRIBUTION OF MARKS &QUESTION PATTERN

A. THEORY: (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each):- (300 Marks)

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:

2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL EXAMINATION : 200 Marks.

1. Clinical examination of at least 2 patients representing the community – includes history, main complaints, examination and recording of the findings, using indices for the assessment of oral health and presentation of the observation including diagnosis, comprehensive treatment planning.
(50 Marks – 1 ½ Hrs)

2. Performing (50 Marks– 1 ½ Hrs)
   a. One of the treatment procedures as per treatment plan. (Restorative, surgical, rehabilitation)
   b. Preventive oral health care procedure.
   c. One of the procedures specified in the curriculum

3. Critical evaluation of a given research article published in an international journal (50 Marks – 1 Hour)

4. Problem solving – a hypothetical oral health situation existing in a community is given with sufficient data. The student as a specialist in community dentistry is expected to suggest practical solutions to the existing oral health situation of the given community.
(50 Marks – 1 ½ Hours)

C. VIVA VOCE EXAMINATION

Part – I

VIVA VOCE EXAMINATION **- 100 MARKS.**

PART – II **- 100 MARKS**

i. Viva-Voce examination: 80 Marks

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.

ii. 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.

5. MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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M.D.S. BRANCH – VIIII : PEDIATRIC & PREVENTIVE DENTISTRY

1. OBJECTIVES:

At the end of 3 years of training the candidate should be able to –

a. Create not only a good oral health in the child but also a good citizen tomorrow.
b. Instill a positive attitude and behavior in children.
c. Understand the principles of prevention and preventive dentistry right from birth to adolescence.
d. Guide and counsel the parents in regards to various treatment modalities including different facets of preventive dentistry.
e. Prevent and intercept developing malocclusion.

1.1 SKILLS

(1) Obtain proper clinical history, methodological examination of the child patient, perform essential diagnostic procedures and interpret them and arrive at a reasonable diagnosis and treat appropriately.
(2) Be competent to treat dental diseases which are occurring in child patient.
(3) Manage to repair and restore the lost / tooth structure to maintain harmony between both hard and soft tissues of the oral cavity.
(4) Manage the disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.
(5) To acquire skills in managing efficiently like threatening condition with emphasis on basic life support measures

1.2 ATTITUDES

(1) Develop an attitude to adopt ethical principles in all aspects of pedodontic practice.
(2) Professional honesty and integrity are to be fostered.
(3) Treatment care is to be delivered irrespective of the social statues, cast, creed and religion of the patients.

(4) Willingness to share the knowledge and clinical experience with professional colleagues.
(5) Willingness to adopt, after a critical assessment, new methods and techniques of Pedodontic management developed from time to time, based on scientific research, which are in the best interest of the child patient.
(6) Respect child patient's rights and privileges, including child patients right to information and right to seek a second opinion.
(7) Develop an attitude to seek opinion from allied medical and dental specialities as and when required.

1.3 COMMUNICATION SKILLS

(1) Develop 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.
(2) Develop the ability to communicate with professional colleagues.
(3) Develop ability to teach undergraduate.

2. COURSE CONTENTS:

(1) Applied Anatomy and genetics.
(2) Applied Physiology.
(3) Applied Pathology.
(4) Nutrition and Dietics
(5) Growth and Development : Prenatal and Postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.
(6) Child Psychology : Development and Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension and its management.

(7) Behavior Management : Non-Pharmacological and Pharmacological methods.

(8) Child Abuse and Dental Neglect.

(9) Conscious Sedation, Deep Sedation and General Anesthesia in Pediatric Dentistry : (Including other Drugs, Synergic and Antagonistic Actions of Various Drugs used in Children)

(10) Preventive Pedodontics: Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant and extensive caries – Recognition, Features and Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet and Nutrition as related to dental caries. Diet counseling.

(11) Dental Plaque : Definition, Initiation, Pathogenesis, Biochemistry and Morphology & Metabolism.

(12) Microbiology and Immunology as related to Oral Diseases in Children: Basic concepts, immune system in human body, Auto Immune diseases, Histopathology, Pathogenesis, Immunology and dental caries, Periodontal diseases, Tumors, Oral Mucosal lesions etc.

(13) Gingival and Periodontal diseases in Children:

- Normal Gingiva and Periodontium in children.
- Gingival and Periodontal diseases – Etiology, Pathogenesis, Prevention and Management.

(14) Pediatric Operative Dentistry:

- Principle of Operative Dentistry along with modifications of materials/past, current and latest including tooth colored materials.
- Modifications required for cavity preparation in primary and yound permanent teeth.
- Various Isolation Techniques.
- Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)
- Stainless steel, Polycarbonate and Resin Crowns / Veneers and fibre post systems.

(15) Pediatric Endodontics:

(a) Primary Dentition : Diagnosis of pulpal diseases and their management – pulp capping, Pulpotomy, Pulpectomy (Material & Methods), Controversies and recent concepts.

(b) Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.

(c) Recent advance in Pediatric diagnosis and Endodontics.

(16) Prosthetic consideration in paediatric Dentistry.

(17) Traumatic Injuries in Children :

(a) Classifications and Importance.

(b) Sequalae and reaction of teeth to trauma.

(c) Management of Traumatized teeth with latest concepts.

(d) Management of jaw fracture in children.

(18) Interceptive Orthodontics :

a) Concepts of occlusion and esthetics : Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusaal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.

b) A comprehensive review of the local and systemic factors in the causation of malocclusion.

c) Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).

d) Biology of tooth movement : A comprehensive review of the principles of teeth movement. Review of contemporary literature.

Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement.

e) Myofunctional appliances : Basic principles, contemporary appliance : Design and Fabrication.

f) Removable appliances : Basic Principles, contemporary appliances : Design & Fabrication.

g) Case selection and diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation, hygiene, Video imaging and advance Cephalometric techniques)

h) Space Management : Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interception orthodontics.

(19) Dental care of Children with special needs :
Definition Etiology, Classification., Behavioral, Clinical features and Management of children with:

a. Physically handicapping conditions.
b. Mentally compromising conditions.
c. Medically compromising conditions.
d. Genetic disorders.

(20) Oral Habits in Children :
(a) Definition, Etiology and Classification.
(b) Clinical features of digit sucking, tongue thrusting, mouth breathing and various other secondary habits.
(c) Management of oral habits in children.

(21) Oral manifestations of Systemic Conditions in Children and their Management.

(22) Management of Minor Oral Surgical Procedures in Children.

(23) Dental Radiology as related to Pediatric Dentistry.

(24) Cariology :
a) Historical background.

b) Definition, Aeitology& Pathogenesis

c) Caries pattern in primary, young permanent and permanent teeth in children.

d) Rampant caries, early childhood caries and extensive caries. Definition, aeitology, Pathogenesis, Clinical features, Complications and Management.

e) Role of diet and nutrition in Dental Caries.

f) Dietary modifications and Diet counseling.

g) Subjective and Objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility and their clinical Applications.

(25) Pediatric Oral Medicine and Clinical Pathology : Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

(26) Congenital Abnormalities in Children : Definition, Classification, Clinical features and Management.

(27) Dental Emergencies in Children and their Management.

(28) Dental Materials used in Pediatric Dentistry.

(29) Preventive Dentistry :

a) Definition

b) Principles and Scope.

c)Types of prevention.

d) Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

(30) Dental Health Education and School Dental Health Programmes.

(31) Dental Health concepts, Effects of civilization and environment, Dental Health deliver System, Public Health measures related to children along with principles of Pediatric Preventive Dentistry.

(32) Fluorides :

(a) Historical background.

(b) Systemic and Topical fluorides.

(c) Mechanism of action

(d) Toxicity and Management.

(e) Defluoridation Techniques.

(33) Medicological aspects in Paediatric Dentistry with emphasis on informed cocept.
(34) Counseling In Paediatric Dentistry.
(35) Case History Recording, Outline of principles of examination, diagnosis and treatment planning.
(36) Epidemiology: Concepts, Methods of recording and evaluation of various oral diseases. Various national and global trends of epidemiology of oral diseases.
(37) Comprehensive Infant Oral Health Care.
(38) Principles of Bio-Statistics and Research Methodology and Understanding of Computers and Photography.
(39) Comprehensive cleft care management with emphasis on counseling, feeding, nasoalvcile bone remodeling, speech rehabilitation.
(40) Setting up of Pedodontics and Preventive Dentistry Clinic.
(41) Emerging concept in Paediatric Dentistry of scope of laser / minimal invasive. Procedures : Pediatric Dentistry.

Preclinical work :*(Duration - First six months of First Year of MDS)*
(One of Each Exercise)

1. Carving of all deciduous teeth.
2. Basic wire bending exercises.
3. Fabrication of -
   (a) Maxillary bite plate / Hawley's.
   (b) Maxillary expansion screw appliance.
   (c) Canine retractor appliances
   (d) All habit breaking appliances -
      (i) Removable type.
      (ii) Fixed type.
      (iii) Partially fixed and removable.
   (e) Two Myofunctional appliance.
   (f) Making of inclined plane appliance.
   (g) Feeding appliances.

4. Basic soldering exercise – I: Making of a lamp post of stainless steel wire pieces of different gauges soldered on either side of heavy gauge main post.
5. Fabrication of space maintainers.
   (a) Removable Type –
   - Unilateral Non-Functional space maintainer.
   - Bilateral Non-functional space maintainer.
   - Bilateral functional space maintainer.

   (b) Space Regainers –
   - Hawley's appliances with Helical space regainer.
   - Removable appliance with Slingshot space regainer.
   - Removable appliance with Dumbell space regainer.

   (c) Fixed Space maintainers –
   - Band and long loop space maintainer.
   - Band and short loop space maintainer.
   - Mayne's space maintainer.
   - Transpalatal arch space maintainer.
   - Nance Palatal holding arch.
   - Nance Palatal holding arch with canine stoppers.
   - Gerber space regainer.
   - Distal shoe appliance –
     a. Active space maintainers.
     b. For guiding the eruption of first permanent molar.
     c. Arch holding device.
     d. Functional space maintainer.

6. Basics for spot welding exercise.

7. Collection of extracted deciduous and permanent teeth.
   a. Sectioning of the teeth at various levels and planes.
   b. Drawing of section and shapes of pulp.
   c. Phantom Head Exercises : Performing ideal cavity preparation for various restorative materials for both Deciduous and permanent teeth.

d. Performing pulpotomy, root canal treatment and Apexification procedure.
    i. Tooth preparation and fabrication of various temporary and permanent restorations on fractured anterior teeth.
    ii. Preparation of teeth for various types of crowns.
    iii. Laminates / veneers.
    iv. Bonding and banding exercise.

8. Performing of behavioral rating and IG tests for children.

9. Computation of –
    a. Caries index and performing various caries activity test.
    b. Oral Hygiene Index.
    c. Periodontal Index.
    d. Fluorris Index.

10. Surgical Exercises :
    (a) Fabrication
    (b) Type of Wiring
    (c) Suturing Technique

11. a. Taking of Periapical, occlusal, bitewing radiograophs of children.
    b. Developing and processing of films, thus obtained.
    c. Tracing of soft tissue dental and skeletal landmarks as observed on Cephalometric, radiographs and drawing of various planes and angles, further interpretation of Cephalometric radiographs is analysis.
    d. Mixed dentition cast analysis.

12. Library assignment.
13. Synopsis.

Clinical work Requirements:*(Duration -From seven to 36 months of MDS)*

The following is the minimum requirement to be completed before the candidate can be considered eligible to appear in the final MDS Examinations :

No.	Clinical Work	Total	7 to 12 months	13 to 24 months	25 to 36 months
1	Behavior Management of different age groups children with complete records.	17	2	10	5
2	Detailed case evaluation with complete records, treatment planning and presentation of cases with chair side and discussion	17	2	10	5
3	Step-by-step chair side preventive dentistry scheduled for high risk children with gingival and periodontal diseases and Dental Caries	11	1	5	5
4	Practical application of Preventive dentistry concepts in a class of 35-50 children & Dental Health Education and Motivation	7	1	4	2
5	Pediatric Operative Dentistry with application of recent concepts.				
	(a) Management of Dental Caries				
	i. Class I	50	30	10	10
	ii. Class II	100	40	50	10
	iii. Other Restorations	100	20	50	30
	(b) Management of traumatized anterior teeth	15	04	06	05
	(c) Aesthetic Restorations	25	05	10	10

	(d) Pediatric Endodontic Procedures i. Deciduous teeth Pulpotomy/Pulptectomy ii. Permanent Molars iii. Permanent Incisor II. iv. Apexification &Apexogenesis	 150 20 15 20	 30 03 02 02	 50 07 03 08	 70 10 10 10
6	Stainless Steel Crowns	50	10	20	20
7	Other Crowns	05	01	02	02
8	Fixed Space Maintainers Habit breaking appliances	30	08	12	10
9	Removable Space Maintainers Habit breaking appliances	20	05	07	08
10	Functional Appliances	05	01	02	02
11	Preventive measures like fluoride applications and Pit and Fissure Sealants applications with complete follow-up and diet counseling	20	08	08	04
12	Special Assignments : (i) School Dental Health Programme (ii) Camps etc.	 03 02	 01 01	 01 01	 01 -

Note: The figures given against Sl.No.4 to 12 are the minimum number of recommended procedures to be performed.

13	Library usage Functional Appliances
14	Laboratory usage
15	Continuing Dental Health Programme

3. MONITORING LEARNING PROGRESS :

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in

various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

4. UNIVERSITY EXAMINATION

PART-I

Paper I : Applied Basic Sciences : Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics Growth andDevelopment and Dental plaque,Genetics.

Part-II:

Paper-I : Clinical Pedodontics

Paper-II : Preventive and Community Dentistry as applied to pediatric dentistry

Paper-III : Descriptive and analysing type question

Note:_The topics assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics._

5. DISTRIBUTION OF MARKS & QUESTION PATTERN

A. THEORY : (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each):- (300 Marks)

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:
2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:
2 out of 3 essay questions (50 x 2 = 100 Marks)

B. PRACTICAL / CLINICAL EXAMINATION : 200 Marks.

PART-II

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 4, the programme can be extended to 3rd day.

(i) **First Day :**

1. Case Discussion, Pulp Therapy i.e. Pulpectomy on a Primary Molar.

Case discussion	..	20 marks.
Rubber Dam application	..	10 marks
Working length X-ray	..	20 marks
Obturation	..	20marks
		70 Marks

2. Case Discussion, Crown preparation on a Primary Molar for Stainless steel crown and cementation of the same.

Case discussion	10 marks.
Crown preparation	20 marks
Crown Selection & Cementation	20marks
	50 Marks

3. Case Discussion, band adaptation for fixed type of space maintainer and impression making:

Case discussion	20 marks.
Based Adaptation	20 marks
Impressions & Mode	20marks
	60 Marks

(ii) **Second Day :**

Evaluation of Fixed Space Maintainer and Cementation	20 Marks
Total ..	**200 Marks**

C. VIVA VOCE:

Part-I Viva voce **100 marks**

Part-II

(i) Viva Voce Examination : 80 Marks.

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.

(ii) Pedagogy : 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 topics for 8-10 minutes.

6. MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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MDS BRANCH – IX - ORAL MEDICINE AND RADIOLOGY

1. OBJECTIVES:

At the end of 3 years of training the candidate should be able to acquire adequate knowledge of the discipline.

Knowledge:

Theoretical, Clinical and practical knowledge of all oral mucosal lesions, skeletal involvement of maxillofacial region, diagnostic procedures pertaining to them and latest information of imaging modules.

Skills:

Three important skills need to be imparted in maxillofacial diseases

1. Diagnostic skill in recognition of oral diseases with radiographic diagnosis and their management
2. Research skills in handling scientific problems pertaining to oral treatment
3. Clinical and Didactic skills in encouraging younger doctors to attain learning objectives

Attitudes:

The positive mental attitude and the persistence of continued learning need to be inculcated

2. COURSE CONTENTS:

A) Applied Basic Sciences:

Applied Anatomy:

1. Gross anatomy of the face:
   a. Muscles of Facial Expression and Muscles of Mastication
   b. Facial nerve
   c. Facial artery

d. Facial vein
e. Parotid gland and its relations
f. Sub mandibular salivary gland and its relations

2. Neck region:
   a. Triangles of the neck with special reference to Carotid, Digastric triangles and midline structures
   b. Facial spaces
   c. Carotid system of arteries, Vertebral Artery, and Subclavian arteries
   d. Jugular system Internal jugular External jugular
   e. Lymphatic drainage
   f. Cervical plane
   g. Muscles derived from Pharyngeal arches
   h. Infratemporal fossa in detail and temporomandibular joint
   i. Endocrine glands
      - Pituitary
      - Thyroid
      - Parathyroid
   j. Exocrine glands
      - Parotid
      - Thyroid
      - Parathyroid
   k. Sympathetic chain
   l. Cranial nerves- V, VII, IX, XI, & XII
3. Oral Cavity:
   a. Vestibule and oral cavity proper
   b. Tongue and teeth
   c. Palate – soft and hard
4. Nasal Cavity
   a. Nasal septum
   b. Lateral wall of nasal cavity
   c. Paranasal air sinuses

5. Pharynx:
6. Gross salient features of brain and spinal cord with references to attachment of cranial nerves to the brainstem
   Detailed study of the cranial nerve nuclei of V, VII, IX, X, XI, XII
7. Osteology:
   a) Comparative study of fetal and adult skull
   b) Mandible: Development, ossification, age changes and evaluation of mandible in detail

Embryology:

1. Development of face, palate, nasal septum and nasal cavity, paranasal air sinuses
2. Pharyngeal apparatus in detail including the floor of the primitive pharynx
3. Development of tooth in detail and the age changes
4. Development of salivary glands
5. Congenital anomalies of face must be dealt in detail.

Histology:

1. Study of epithelium of oral cavity and the respiratory tract
2. Connective tissue
3. Muscular tissue
4. Nervous tissue
5. Blood vessels
6. Cartilage
7. Bone and tooth
8. Tongue
9. Salivary glands
10. Tonsil, thymus, lymph nodes

Physiology:

1. General Physiology:
   a. Cell
   b. Body Fluid Compartments
   c. Classification
   d. Composition
   e. Cellular transport
   f. RMP and action potential
2. Muscle Nerve Physiology:
   a. Structure of a neuron and properties of nerve fibers
   b. Structure of muscle fibers and properties of muscle fibers
   c. Neuromuscular transmission
   d. Mechanism of muscle contraction
3. Blood:
   a. RBC and Hb
   b. WBC – Structure and functions
   c. Platelets – functions and applied aspects
   d. Plasma proteins
   e. Blood Coagulation with applied aspects
   f. Blood groups
   g. Lymph and applied aspects
4. Respiratory System:
   a. Air passages, composition of air, dead space, mechanics of respiration with pressure and volume changes
   b. Lung volumes and capacities and applied aspects
   c. Oxygen and carbon dioxide transport
   d. Neural regulation of respiration
   e. Chemical regulation of respiration
   f. Hypoxia, effects of increased barometric pressure and decreased barometric pressure
5. Cardio-Vascular System:

a. Cardiac Cycle
b. Regulation of heart rate/ Stroke volume / cardiac output / blood flow
c. Regulation of blood pressure
d. Shock, hypertension, cardiac failure

6. Excretory System:
   a. Renal function tests
7. Gastro – intestinal tract:
   a. Composition, functions and regulation of:
      - Saliva
      - Gastric juice
      - Pancreatic juice
      - Bile and intestinal juice
      - Mastication and deglutition
8. Endocrine System:
   a. Hormones – classification and mechanism of action
   b. Hypothalamic and pituitary hormones
   c. Thyroid hormones
   d. Parathyroid hormones and calcium homeostasis
   e. Pancreatic hormones
   f. Adrenal hormones
9. Central Nervous System:
   a. Ascending tract with special references to pain pathway
10. Special Senses:
    a. Gustation and Olfaction

Biochemistry:

1. Carbohydrates – Disaccharides specifically maltose, lactose, sucrose
   a. Digestion of starch/absorption of glucose
   b. Metabolism of glucose, specifically glycolysis, TCA cycle, gluconeogenesis

c. Blood sugar regulation
d. Glycogen storage regulation
e. Glycogen storage diseases
f. Galactosemia and fructosemia

2. Lipids
   a. Fatty acids- Essential/non essential
   b. Metabolism of fatty acids- oxidation, ketone body formation, utilization ketosis
   c. Outline of cholesterol metabolism- synthesis and products formed from cholesterol

3. Protein
   a. Amino acids- essential/non essential, complete/ incomplete proteins
   b. Transamination/ Deamination (Definition with examples)
   c. Urea cycle
   d. Tyrosine-Hormones synthesized from tyrosine
   e. In born errors of amino acid metabolism
   f. Methionine and transmethylation

4. Nucleic Acids
   a. Purines/Pyrimidines
   b. Purine analogs in medicine
   c. DNA/RNA – Outline of structure
   d. Transcription/translation
   e. Steps of protein synthesis
   f. Inhibitors of protein synthesis
   g. Regulation of gene function

5. Minerals
   a. Calcium/Phosphorus metabolism specifically regulation of serum calcium levels
   b. Iron metabolism
   c. Iodine metabolism

d. Trace elements in nutrition

6. Energy Metabolism
   a. Basal metabolic rate
   b. Specific dynamic action (SDA) of foods

7. Vitamins
   a. Mainly these vitamins and their metabolic role- specifically vitamin A, Vitamin C, Vitamin D, Thiamin, Riboflavin, Niacin, Pyridoxine

Pathology:

1. Inflammation:
   a. Repair and regeneration, necrosis and gangrene
   b. Role of complement system in acute inflammation
   c. Role of arachidonic acid and its metabolites in acute inflammation
   d. Growth factors in acute inflammation
   e. Role of molecular events in cell growth and intercellular signaling cell surface receptors
   f. Role of NSAIDS in inflammation
   g. Cellular changes in radiation injury and its manifestations

2. Homeostasis:
   a. Role of Endothelium in thrombo genesis
   b. Arterial and venous thrombi
   c. Disseminated Intravascular Coagulation
   d. Shock:Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock, circulatory disturbances, ischemic hyperemia, venous congestion, edema, infarction

3. Chromosomal Abnormalities:
   a. Marfan’s syndrome
   b. Ehler’s Danlos Syndrome
   c. Fragile X Syndrome

4. Hypersensitivity:
    a. Anaphylaxis
    b. Type II Hypersensitivity
    c. Type III Hypersensitivity
    d. Cell mediated Reaction and its clinical importance
    e. Systemic Lupus Erythmatosus
    f. Infection and infective granulomas
5. Neoplasia:
    a. Classification of Tumors
    b. Carcinogenesis & Carcinogens – Chemical, Viral and Microbial
    c. Grading and Staging of Cancer, tumor Angiogenesis, Paraneoplastic Syndrome
    d. Spread of tumors
    e. Characteristics of benign and malignant tumors
6. Others:
    a. Sex linked agamaglobulinemia
    b. AIDS
    c. Management of Immune deficiency patients requiring surgical procedures
    d. De George's Syndrome
    e. Ghons complex, post primary pulmonary tuberculosis – pathology and pathogenesis

Pharmacology:

1. Definition of terminologies used
2. Dosage and mode of administration of drugs
3. Action and fate of drugs in the body
4. Drugs acting on CNS
5. Drug addiction, tolerance and hypersensitive reactions
6. General and local anesthetics, hypnotics, antiepileptics and tranquilizers
7. Chemotherapeutics and antibiotics
8. Analgesics and anti – pyretics
9. Anti – tubercular and anti – syphilitic drugs
10. Antiseptics, sialogogues, and anti – sialogogues

11. Haematinics
12. Anti – diabetics
13. Vitamins – A, B Complex, C, D, E & K
14. Steroids

B) Oral and Maxillofacial Radiology:

Study includes Seminars / lectures / Demonstrations

1. History of radiology, structure of x – ray tube, production of x – ray, property of x – rays
2. Biological effects of radiation
3. Films and recording media
4. Processing of image in radiology
5. Design of x –ray department, dark room and use of automatic processing units
6. Localization by radiographic techniques
7. Faults of dental radiographs and concept of ideal radiograph
8. Quality assurance and audit in dental radiology
9. Extra – oral-imaging techniques
10. OPG and other radiologic techniques
11. Advanced imaging techniques like **CBCT,**CT Scan, MRI, Ultrasound
12. Basic Anatomy of sectional imaging with case interpretations of CT / CBCT / MRI
13. Radio nucleotide techniques
14. Contrast radiography in salivary gland, TMJ, and other radiolucent pathologies
15. Radiation protection and ICRP guidelines
16. Art of radiographic report, writing and descriptors preferred in reports
17. Radiograph differential diagnosis of radiolucent, radio opaque and mixed lesions
18. Digital radiology and its various types of advantages

C) Oral Medicine, therapeutics and laboratory investigations:

Study includes seminars / lectures / discussion

1. Methods of clinical diagnosis of oral and systemic diseases as

applicable to oral tissues including modern diagnostic techniques

2. Laboratory investigations including special investigations of oral and oro – facial diseases
3. Teeth in local and systemic diseases, congenital, and hereditary disorders
4. Oral manifestations of systemic diseases
5. Oro – facial pain
6. Psychosomatic aspects of oral diseases
7. Management of medically compromised patients including medical emergencies in the dental chair
8. Congenital and Hereditary disorders involving tissues of oro facial region
9. Systemic diseases due to oral foci of infection
10. Hematological, Dermatological, Metabolic, Nutritional, & Endocrinal conditions with oral manifestations
11. Neuromuscular diseases affecting oro –facial region
12. Salivary gland disorders
13. Tongue in oral and systemic diseases
14. TMJ dysfunction and diseases
15. Concept of immunity as related to oro – facial lesions, including AIDS
16. Cysts, Neoplasms, Odontomes, and fibro – osseous lesions
17. Oral changes in Osteo – dystrophies and chondro – dystrophies
18. Pre malignant and malignant lesions of oro facial region
19. Allergy and other miscellaneous conditions
20. Therapeutics in oral medicine –clinical pharmacology
21. Forensic odontology
22. Computers in oral diagnosis and imaging
23. Evidence based oral care in treatment planning
24. Molecular Biology

Essential Knowledge:

Basic medical subjects, Oral Medicine, Clinical Dentistry, Management of Medical Emergencies, Oral Radiology techniques and Interpretation, Diagnosis of Oro – facial disorders

Procedural and Operative Skills:

1st Year:

1. Examination of Patient - Case history recordings
   - FNAC - 100
   - Biopsy - 50
   - Observe, Assist, & Perform under supervision - 50
2. Intra – oral radiographs:
   - Perform and interpretation -500
3. Full mouth intra oral radiograph tracings - 3
4. Age estimation using radiographs - 10

2nd Year:

1. Dental treatment to medically compromised patients - 2
   - Observe, assist, and perform under supervision
2. Extra oral radiographs, digital radiography - 20
   - Observe, assist and perform under supervision, Interpretation
3. Extra Oral radiographs tracings - 3
4. CBCT Interpretations - 5

Operative skills:

1. Giving intra muscular and intravenous injections
2. Administration of oxygen and life saving drugs to the patients
3. Performing basic CPR and certification by Red Cross or similar authorized organization

3rd Year

All the above

- Performed independently – Case history: Routine cases · 100

- Interesting Cases · 25
- OPG 50

–

- Periapical view · 100
- Bitewing view · 50
- Occlusal view · 50
- Extra – oral radiographs of different views · **25**
- CBCT Interpretations · 10
- Treatment of mucosal lesions with LASER · 3

Monitoring Learning Progress:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring is to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Section IV

4. UNIVERSITY EXAMINATION:

PART-I

PAPER-I**: Applied Basic Sciences:**Applied Basic Sciences:Applied Anatomy, Physiology, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics

PART-II :

Paper-I **:** Oral and Maxillofacial Radiology

Paper-II **:** Oral Medicine, therapeutics and laboratory investigations

Paper-III **:** Essays (descriptive and analyzing type questions

** The topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not*

be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

6. DISTRIBUTION OF MARKS &QUESTION PATTERN

A. THEORY: (Total 400 Marks)

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks each):- (300 Marks)

(i) Paper-I:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II:

2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III:

4 out of 3 essay questions (50 x 2 = 100 Marks)

B. Practical / Clinical Examination : [Part-II only] 200 Marks

Clinical Case Presentation

2 Spotters	2 x 10 = 20 Marks
2 Short Cases	2 x 15 = 30 Marks
1 Long Case	1 x 50 = 50 Marks
	Total = 100 Marks

Radiology Exercise

I. A) One Intra Oral Radiograph : 10 Marks
B) One Occlusal Radiograph : 30 Marks

II. A) Two Extra Oral Radiograph: 2x30 = 60 Marks
Including technique and interpretation

C. VIVA VOCE EXAMINATION

Part – I

VIVA VOCE EXAMINATION **- 100 MARKS.**

Part – II **-100 MARKS**

i. Viva-Voce examination: 80 Marks

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.

ii. 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.

12. MARKS QUALIFYING FOR A PASS:

Part – I

50% of marks in University Theory Examinations	50/100
50% of marks in University Viva-voce Examinations	50/100
50% of marks aggregate in Theory and Viva-voce Examinations	100/200

Part – II

50% of marks in University Theory Examinations	**150/300**
50% of marks in University Practical/Clinical including Viva Examinations	**150/300**
50% of marks aggregate in Theory, Practical/Clinical Including Viva examination	**300/600**

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SANTOSH Deemed to be University

Santosh University Registrar <registrar@santosh.ac.in>

MDS REGULATIONS- 8"X6.5"

1 message

Santosh University Registrar <registrar@santosh.ac.in> Mon, Aug 2, 2021 at 5:55 PM
To: Nitesh Gupta <rupamprintingpress@gmail.com>

Dear Nitesh ji,

Please find the enclosed MDS Regulations with 8" x 6.5" as requested.

Thank you

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Dr. V.P. Gupta
Registrar
Santosh Deemed to be University
No.1, Santosh Nagar
Ghaziabad, NCR Delhi

MDS Revised Regulations Book Version 8x6.5'.pdf
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