

**Ordinance Governing**  
**Bachelor of Dental Surgery**  
**I,II,III & IV B.D.S. Degree Courses**  
(New DCI Regulation-2007)  
**Revised Scheme (RS)**  
**2017 - 18**



**KLE**  
ACADEMY OF HIGHER  
EDUCATION AND RESEARCH  
Deemed-be-University u/s 3 of the UGC Act, 1956

**Accredited 'A' Grade by NAAC (2<sup>nd</sup> Cycle)**  
**Placed in 'A' Category by Government of India (MHRD)**

**KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH**  
**(Deemed-to-be-University)**

*[Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956 vide Government of India Notification  
No. F.9 -19/2000-U.3 (A)]*

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## VISION

To Be An Outstanding KAHER Of Excellence Ever In Pursuit Of Newer Horizons To Build Self-Reliant Global Citizens Through Assured Quality Educational Programmes.

## MISSION

- To promote sustainable development of Higher Education consistent with statutory and regulatory requirements.
- To plan and continuously provide necessary infrastructure, learning resources required for Quality education and innovations.
- To stimulate to extend the frontiers of knowledge, through Faculty Development and Continuing Education Programmes.
- To make research a significant activity involving Staff, Students and Society.
- To promote Industry/Organization, Interaction/Collaborations with Regional / National / International bodies.
- To establish healthy systems for communication among all stakeholders for vision oriented growth.
- To fulfill the National Obligation through Rural Health Missions.

## OBJECTIVES

The objectives are to realize the following at KAHER and its Constituent Institutions :

- To implement effectively programmes through creativity and innovation in teaching, learning and evaluation.
- To make existing programmes more career oriented through effective system of review and redesign of curriculum.
- To impart spirit of inquiry and scientific temperament among students through research oriented activities.
- To enhance reading and learning capabilities among faculty and students and inculcate sense of Life Long Learning.
- To promulgate process for effective continuous, objective oriented student performance evaluation.
- To ordinate periodic performance evaluation of the faculty.
- To incorporate themes to build values, civic responsibilities and sense of National Integrity.
- To ensure that the academic, career and personal counseling are in-built into the system of curriculum delivery.
- To strengthen, develop and implement staff students welfare programmes.
- To adopt and implement principles of participation, transparency and accountability in governance of academic and administrative activities.
- To constantly display sensitivity and respond to changing educational, social and community demands.
- To promote Public - Private Partnership.

# INSIGNIA



*The Emblem of the KAHER is a Philosophical statement in Symbolic.*

## ***The Emblem...***

*A close look at the emblem unveils a pillar, a symbol of the 'KAHER of Excellence' built on strong Values & Principles.*

## ***The Palm & the Seven Stars....***

*The Palm is the palm of the teacher - the hand that acts, promises and guides the students to reach for the Seven Stars...*

*The Seven Stars signify the 'Saptarishi Dnyanamandal', the Great Bear - a constellation made of seven stars in the sky, each signifying a particular Knowledge Domain. Our culture says: The true objective of human birth is to Master these Knowledge Domains.*

*The Seven Stars also represent the Saptarishis, the founders of KLE Society whose selfless service and intense desire for 'Dnyana Dasoha' laid the foundation for creating the knowledge kingdom called KLE Society.*

*Hence another significance of the raised Palm is our tribute to these great Souls for making this KAHER a possibility.*

## ***Empowering Professionals...***

*'Empowering Professionals', the inscription at the base of the Emblem conveys that our Organization with its strength, maturity & wisdom will forever strive to empower the student community to become globally competent professionals. It has been a guiding force for many student generations in the past, and will continue to inspire many forthcoming generations.*



## KLE Academy of Higher Education & Research

(Formerly known as KLE UNIVERSITY)

[Established under Section 3 of the UGC Act, 1956 vide Government of India Notification No. F. 9-19/2000-U.3(A)]

Accredited 'A' Grade by NAAC (2nd Cycle)

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Ref. No. KLEU/AC/14-15/D-841-B

Date : 11<sup>th</sup> June 2014

### NOTIFICATION

Sub : **Ordinance governing the syllabus/curriculum for B.D.S. Degree Course as per new DCI Regulations.**

Ref : Minutes of the meeting of the Academic Council of the University held on 9<sup>th</sup> June 2014.

In exercise of the powers conferred under Rule A-04 (i) of the Memorandum of Association of the University, the Academic Council of the University in its meeting held on 9<sup>th</sup> June 2014 has approved the Ordinance governing the syllabus / curriculum for **B.D.S. (I to IV years) Degree Course as per new DCI Regulations.**

The Ordinance shall be effective for the students to be admitted to **B.D.S. Degree Course as per new DCI Regulations** under the Faculty of Dentistry in the constituent college of the University viz. KLE VK Institute of Dental Sciences, Belgaum from the academic session 2017-18 onwards.

By Order,

REGISTRAR

To,

The Dean,  
Faculty of Dentistry,  
KLE VK Institute of Dental Sciences, BELGAUM.

Copy to :

- 1) The Secretary, University Grants Commission, New Delhi.
- 2) The PA to Hon. Chancellor, KLE University, Belgaum.
- 3) The Special Officer to Hon. Vice-Chancellor, KLE University, Belgaum.
- 4) All Officers of the University, Academic Affairs / Examination Branch.

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## **SECTION I**

### **GOALS OF EDUCATION AND TRAINING IN DENTAL SCIENCES**

The Dental curriculum shall be oriented towards educating students of B.D.S. Course to:

1. Take up the responsibilities of Dental surgeon and be capable of functioning independently in both urban and rural environment.
2. Provide educational experience that allows hands-on-experience both in hospital as well as in community setting.
3. Make maximum efforts to encourage integrated teaching and de-emphasize compartmentalisation of disciplines so as to achieve horizontal and vertical integration in different phases.
4. Offer educational experience that emphasizes health rather than only disease.
5. Teach common problems of health and disease and National programmes.
6. Use learner-oriented methods, which would encourage clarity of expression, independence of judgment, scientific habits, problem solving abilities, self initiated and self-directed learning.
7. Use of active methods of learning such as group discussions, seminars, role play, field visits, demonstrations, peer interactions etc., which would enable students to develop personality, communication skills and other qualities which are necessary.

Regular periodic assessment is done throughout the course. Examinations are designed with a view to assess not merely the knowledge but also practical and clinical skills, habits and values which are necessary for a graduate to carry out professional day to day work competently.

Towards achieving these goals, Institute of Dental Sciences should:

- ❖ Evolve institutional objectives, which would be in consonance with the National goals and health policy. The institutional objectives should describe the attributes of their product.
- ❖ Shift the role of Dental teachers from merely imparting knowledge to that of a facilitator and motivator of student learning.
- ❖ Establish a Dental Education Unit for faculty development, preparation of learning resource materials and for improving evaluation methods.

## **SECTION 2**

### **AIMS AND OBJECTIVES OF BDS COURSE**

#### **AIMS :**

The dental graduates during training in the institutions should acquire adequate knowledge, necessary skills and reasonable attitudes which are required for carrying out all activities appropriate to general dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues. The graduate also should understand the concept of community oral health education and be able to participate in the rural health care delivery programmes existing in the country.

#### **Objectives**

The objectives are dealt under three headings (a) Knowledge and understanding (b) Skills and (c) Attitudes.

##### **(a) Knowledge and understanding:**

The graduate should acquire the following during the period of training :

1. Adequate knowledge of the scientific foundations on which Dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and be able to evaluate and analyse scientifically various established facts and data.
2. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general state of health and also bearing on physical and social well being of the patient.
3. Adequate knowledge of clinical disciplines and methods which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive diagnostic and therapeutic aspects of Dentistry.
4. Adequate clinical experience required for general dental practice.
5. Adequate knowledge of the constitution, biological function and behaviour of persons in health and sickness as well as the influence of the natural and social environment on the state of health in so far as it affects Dentistry.

##### **(b) Skills:**

A graduate should be able to demonstrate the following skills necessary for practice of Dentistry

1. Able to diagnose and manage various common dental problems encountered in general Dental practice keeping in mind the expectations and the right of the society to receive the best treatment available wherever possible.
2. Acquire the skill to prevent and manage complications if encountered while carrying out various surgical and other procedures.
3. Possess skill to carry out certain investigative procedures and ability to interpret laboratory findings.
4. Promote oral health and help prevent oral diseases when ever possible.
5. Competent in the control of pain and anxiety during dental treatment.

**(c) Attitudes:**

A graduate should develop during the training period the following attitudes:

1. Willing to apply the current knowledge of Dentistry in the best interest of the patients and the community.
2. Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
3. Seek to improve awareness and provide possible solutions for oral health problems and needs of the community.
4. Willingness to participate in the Department of Dental Education (DDE) programmes to update the knowledge and professional skill from time to time.
5. To participate in the implementation of the National Oral Health Programmes.

### **SECTION 3**

## **REGULATIONS RELATING TO B.D.S. COURSE**

### **I. ELIGIBILITY FOR ADMISSION**

**Eligibility Requirements for admission to BDS Course:** Only those candidates who would satisfy or are likely to satisfy the relevant eligibility requirements for admission to a course will be considered eligible to appear for National Eligibility Entrance Test (NEET) & subsequently for admission to that course.

#### **Qualifications:**

- i. Requisite qualifications for admission to BDS Course: The candidate seeking admission to this course should have passed the Higher Secondary Certificate Examination PUC II / HSC or the Indian School Certificate Examination (ISCE) or any other examination equivalent to 10 + 2 / HSC examination of any recognized board / University from any school / college situated in India / abroad after 12 years of study.
- ii. For admission to BDS Course: The candidate should have passed in the subjects of Physics, Chemistry, Biology & English individually & must have obtained at least 50% marks in Physics, Chemistry & Biology taken together in the qualifying examinations i.e. PUC II / 10+2 / HSC or equivalent. The candidate should also have scored 50% marks in English language. The candidate should also have secured marks as per the guidelines of National Testing Agency and NEET for admission to BDS course.
- iii. Candidates who are likely to appear or who have appeared for qualifying examination i.e. PUC II / 10+2 / HSC or equivalent but whose results have not been declared will also be considered eligible to appear for NEET, as per NTA regulation, provided they have offered the above mentioned subjects at the said examination.

### **II. AGE REQUIREMENT**

The candidate shall have completed the age of 17 years at the time of admission or will complete this age on 31<sup>st</sup> December of the year in which he/she seeks admission.

### **III. DURATION OF THE COURSE**

The BDS course shall be of five academic years including compulsory rotating Internship.

### **IV. ATTENDANCE REQUIREMENT, PROGRESS AND CONDUCT**

Attendance requirement shall be as follows:

- a. Every candidate shall have attendance of 75% in theory classes and 75% in Practical / Clinical in each subject in each year.
- b. In case of subject in which the instructional programme extends more than one academic year and where there is no University Examination in the subject during that year (i.e. non- exam going subjects), the attendance requirement shall not be less than 75% in Lectures and 75% in Practical / Clinical classes collectively. At the time of appearing for the professional examination in the subject the candidate should satisfy the condition as above.
- c. Candidate who is declared failed, shall put up an addition of a minimum of 75% attendance in the failed subjects.

#### V. TEACHING HOURS

Minimum teaching hours for each subject in Theory and Practical are as shown in the table – 1

**Table 1 : Subjects and Hours of Instruction : I BDS**

Sl. No.	Subjects	Lecture Hours	Practical Hours	Total Hours
1.	General Human Anatomy including Embryology, Osteology and Histology.	100	175	275
2.	General Human Physiology, Biochemistry, Nutrition and Dietetics.	120 70	60 60	180 130
3.	Dental Anatomy Embryology and Oral Histology	105	250	355
4.	Dental Materials.	20	40	60
5.	Preclinical Prosthodontics & Crown & Bridge	-	100	100
6.	Environmental Studies	50	-	50
7.	Law – Indian Constitution	25	-	25
8.	Kannada	100	-	100

**Table 2 : Subjects and Hours of Instruction : II BDS**

Sl. No.	Subjects	Lecture Hours	Practical Hours	Total Hours
1.	General and Dental Pharmacology & therapeutics	70	20	90
2.	General Pathology	55	55	110
3.	Microbiology	65	50	115
4.	Dental Materials	60	200	260
5.	Oral Pathology and Microbiology	25	50	75
6.	Pre Clinical Prosthodontics & Crown & Bridge	25	200	225
7.	Pre Clinical Conservative Dentistry	25	200	225

**Table 3 : Subjects and Hours of Instruction : III BDS**

Sl. No.	Subjects	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
1.	General Medicine	60	-	90	150
2.	General Surgery	60	-	90	150
3.	Oral Pathology and Microbiology	120	80		200
4.	Oral Medicine and Radiology	20	-	70	90
5.	Paedodontics and Preventive Dentistry	20	-	70	90
6.	Orthodontics and Dentofacial Orthopaedics	20	-	70	90
7.	Periodontology	30	-	70	100
8.	Oral & Maxillofacial Surgery	20	-	70	90
9.	Conservative Dentistry and Endodontics	30	-	70	100
10.	Prosthodontics and Crown & Bridge	30	-	70	100

**Table 4 : Subjects and Hours of Instruction : IV BDS**

Sl. No.	Subjects	Lecture Hours	Clinical Hours	Total Hours
1.	Oral Medicine and Radiology	45	130	175
2.	Paedodontics and Preventive Dentistry	45	130	175
3.	Orthodontics and Dentofacial Orthopaedics	30	100	130
4.	Periodontology	50	130	180
5.	Oral & Maxillofacial Surgery	55	200	255
6.	Conservative Dentistry and Endodontics	80	300	380
7.	Prosthodontics and Crown & Bridge	80	300	380
8.	Public Health Dentistry	60	200	260

**VI. SCHEME OF EXAMINATION**

The scheme of examination of B.D.S. course shall be divided into 4 professional examinations, viz., I.B.D.S. Examination at the end of first academic year, II B.D.S. at the end of second academic year, III B.D.S. at the end of third academic year, IV B.D.S at the end of fourth academic year. University examinations shall be held twice a year.

A candidate who satisfies the requirement of attendance, progress, and conduct as stipulated by the KAHER shall be eligible to appear in the University examination. Certificate to the above effect should be produced from the Head of the Institution along with the online application for examination and the prescribed fees.

**Internal Assessment Examination**

The internal assessment includes written / clinical / practical tests. It will also include other items such as maintenance of records, participation in seminars and group discussions, clinical case study, proficiency in carrying out practical or clinical skill or participation in projects and assignments even during vacation. These will be evaluated objectively and recorded.

A minimum of 3 internal assessments will be held in an academic year. The average of all the three will be sent to the university as the final internal assessment marks. A minimum of 35% of the internal assessment marks should be obtained to be eligible to appear for the final university examination.

**For the following subjects Institutional Examination will be conducted.**

- i. Environmental Studies.
- ii. Law - Indian Constitution.

The Institution will conduct theory examination of 100 marks for each subject at the end of the course.

- iii. Communication Skills
- iv. Early Clinical Exposure
- v. Value Education & Personality Development

**Distribution of subjects for University Examination**

**I B.D.S. Examination**

- 1. General Human Anatomy including Embryology and Histology.
- 2. General Human Physiology and Biochemistry, Nutrition and Dietetics.
- 3. Dental Anatomy, Embryology and Oral Histology.
- 4. Communication Skills
- 5. Early Clinical Exposure
- 6. Value Education & Personality Development

**II B.D.S. Examination**

- 1. General and Dental Pharmacology and Therapeutics
- 2. General Pathology and Microbiology
- 3. Dental Materials
- 4. Pre Clinical Prosthodontics - Only Practical and Viva Voce
- 5. Pre Clinical Conservative Dentistry – Only Practical and Viva Voce
- 6. Communication Skills
- 7. Early Clinical Exposure

**III B.D.S. Examination**

- 1. General Medicine
- 2. General Surgery
- 3. Oral Pathology and Oral Microbiology



#### **IV B.D.S. Examination**

1. Oral Medicine and Radiology
2. Pediatric and Preventive Dentistry
3. Orthodontics and Dentofacial Orthopaedics
4. Periodontology
5. Oral and Maxillofacial Surgery
6. Conservative Dentistry and Endodontics
7. Prosthodontics and Crown and Bridge
8. Public Health Dentistry

#### **DISTRIBUTION OF MARKS IN UNIVERSITY EXAMINATION AND INTERNAL ASSESSMENT**

##### **THEORY : 100 Marks**

Theory Examination : 70 Marks

Theory Internal Assessment : 10 Marks

Viva Voce : 20 Marks

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**100 Marks**

##### **PRACTICAL : 100 Marks**

Practical Examination : 90 Marks

Practical Internal Assessment : 10 Marks

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**:100 Marks**

#### **PRACTICAL AND VIVA VOCE ONLY IN UNIVERSITY EXAMINATION**

Pre-clinical Prosthodontics – (II BDS )

Pre-clinical Conservative Dentistry – (II BDS)

Internal Assessment 020 Marks

Practical 060 Marks

Viva Voce 020 Marks

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**100 Marks**

#### **VI. ELIGIBILITY TO APPEAR IN UNIVERSITY EXAMINATION**

A student should have a minimum 75% attendance in theory and practical / clinical separately and a minimum aggregate of 35% of internal assessment marks in theory and practical / clinical separately in each subject to be eligible to appear for the university examination.

A candidate who has failed in any **one** subject in I BDS year or in II BDS year or in III BDS university examination shall be permitted to go to next higher BDS class and will be allowed to appear in that subject in subsequent university examinations within 6 months. However, he/she has to pass the university examination in that subject before he/she is allowed to take next higher BDS university examination.

## VII. CRITERIA FOR PASS IN THE UNIVERSITY EXAMINATION

- I. For declaration of pass in a subject, a candidate should secure minimum 50% marks in the university examination both in theory and practical/clinical examinations separately, as stipulated below :
  - a. For Pass in theory, a candidate should secure minimum 50 % aggregate marks in university theory examination. This include marks obtained in university written examination, viva voce examination and internal assessment (theory) combined together which shall be fifty marks out of one hundred marks (50 / 100 marks).
  - b. For Pass in practical, a candidate should secure minimum 50% aggregate marks in university practical examination. This include marks obtained in university practical examination, and internal assessment (practical/clinical) combined together which shall be fifty marks out of one hundred marks (50 / 100 marks).
  - c. The total marks in Pre-Clinical Prosthodontics & Crown & Bridge University Examination shall be out of 100 marks (practical 60, viva voce 20 and Internal Assessment 10 marks). As there is no theory examination in this subject, the viva-voce marks are considered as a component of the practical examination. The pass criteria for these two subjects is 50 out of 100 marks (i.e. 50/100 marks) in the university examination.
  - d. **Grace marks** for passing BDS shall be as per bylaws of the KAHER.
  - e. Successful candidates who obtain 65% to 75% of the total marks shall be declared to have passed the examination in First Class. Other successful candidates will be placed in Second Class. A candidate who obtains 75% marks and above is eligible for distinction. Only those candidates who pass the whole examination in the first attempt will be eligible for distinction or class.

## VIII. INTERNSHIP

Every candidate is required after passing the final BDS examination to undergo one year paid rotating Internship in a recognized Dental College including a minimum of three months postings in rural areas arranged by Department of Preventive and Community Dentistry.

## IX. MISCELLANEOUS

Migration/ Transfer of Students

1. Migration from one dental college to other is not a right of a student. However, migration of students from one dental college to another dental college in India may

be considered by the Dental Council of India only in exceptional cases or extreme compassionate grounds\*, provided following criteria are fulfilled. Routine migrations on other grounds shall not be allowed.

2. Both the colleges, i.e. one at which the student is studying at present and one to which migration is sought to, are recognised by the Dental Council of India.
3. The applicant candidate should have passed first professional BDS examination.
4. The applicant candidate submits his/her application for migration, complete in all respects, to all authorities concerned within a period of one month of passing (declaration of results) the First BDS examination.
5. The applicant candidate must submit an affidavit stating he/she will pursue 12 months of prescribed study before appearing at Second BDS examination at the transferee dental college, which should be duly certified by the Registrar of the concerned university in which he/she is seeking transfer. The transfer will be applicable only after receipt of the affidavit.
6. Migration should not be allowed more than 5% of the intake of any recognised institution for that particular academic session.

Note 1:

- i. Migration during clinical course of study shall not be allowed on any ground.
- ii. All applications for migration shall be referred to Dental Council of India by college authorities. No institution/ university shall allow migrations directly without the approval of the council.
- iii. Council reserves the right, not to entertain any application which is not under the prescribed compassionate grounds and also to take independent decisions where applicant has been allowed to migrate without referring the same to the Council.

Note 2: \* Compassionate grounds criteria:

- i. Death of a supporting guardian.
- ii. Illness of the candidate causing disability.
- iii. Disturbed conditions as declared by Government in the Dental College area.

#### B. Re-admission of candidates who discontinued the course

A candidate who discontinues the course is eligible for re-admission subject to the following conditions:

1. Provision for re-admission is only once during the entire course.

2. He/she should seek readmission within three years from the date of discontinuation of the course.
3. He/she should pay the prescribed fees for the year for which he/she seeks admission and cannot claim readmission on the strength of fees paid earlier.
4. If the candidate discontinues after University Examination, he/she should reappear for the subjects in which he/she failed before seeking admission to the next higher class by paying examination fees etc. He/she should put in two terms of attendance in the class for which he/she seeks readmission before appearing for the University Examination.

**SECTION 4**  
**I BDS**  
**4.1. GENERAL HUMAN ANATOMY INCLUDING**  
**EMBRYOLOGY AND HISTOLOGY**

**GOAL:**

The students should gain the knowledge and insight into, the functional anatomy of the normal human head and neck, functional histology and appreciation of the genetic basis of inheritance and disease and the embryological development of clinically important structures, so that relevant anatomical and scientific foundations are laid down for the clinical years of the BDS course.

**OBJECTIVES :**

**a) KNOWLEDGE**

At the end of the I BDS course the student is expected to :

1. Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
2. Know the anatomical basis of disease and injury.
3. Know the microscopic structure of the various tissues, a pre-requisite for understanding of the disease processes.
4. Know the nervous system to locate the site of lesions according to the sensory and / or motor deficits encountered.
5. Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.
6. Know the sectional anatomy of head and neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
7. Know the anatomy of cardio-pulmonary resuscitation.

**b) SKILLS**

At the end of the I BDS course the student is expected to :

1. Locate various structures of the body and to mark the topography of the living anatomy.
2. Identify various tissues under microscope.

3. Identify the features in radiographs and modern imaging techniques.
4. Detect various congenital abnormalities.

## **COURSE CONTENTS**

### **Theory : 100 Hours**

#### **I. Introduction : 10 Hours**

Scope and subdivisions of Anatomy, definition and interpretation of anatomical terms, planes, anatomical positions, elements of anatomy including fascia, muscles, blood vessels, nerves, joints, lymph nodes and lymph vessels.

#### **II. Gross Anatomy of Head and Neck : 30 Hours**

- a. Scalp: Layers, blood supply, nerve supply, lymphatic drainage and applied aspects.
- b. Face: Muscles, blood supply, nerve supply, lymphatic drainage. Lacrimal apparatus and applied anatomy.
- c. Neck :
  - i. Cervical fascia.
  - ii. Posterior triangle.
  - iii. Suboccipital triangle.
  - iv. Anterior triangle – submental, digastric, carotid and muscular.
  - v. Midline structures of neck.
- d. Cranial cavity: meninges; dural folds and sinuses; hypophysis cerebri.
- e. Orbit : nerves, vessels, extrinsic muscles of eyeball.
- f. Parotid region : parotid gland.
- g. Temporal and infra - temporal fossae : muscles of mastication, maxillary artery, maxillary nerve and mandibular nerve.
- h. Temporo- mandibular joint.
- i. Submandibular region : submandibular salivary gland.
- j. Thyroid and parathyroid glands.
- k. Vessels of head and neck : carotid, subclavian arteries, internal jugular vein.
- l. Mouth : tongue and palate.
- m. Pharynx.

- n. Larynx.
- o. Cervical part of trachea and oesophagus.
- p. Nasal cavity and paranasal air sinuses.
- q. Lymphatic drainage of head and neck.
- r. Joints of neck : atlanto-occipital and atlanto-axial.

### **III. Osteology of Head and Neck : 18 Hours**

Adult Skull :

- Exterior : norma.
- Interior : cranial fossae,
- Individual bones : mandible, maxilla, frontal, parietal, occipital, temporal, zygomatic, ethmoid, sphenoid, vomer, palatine and nasal bones.

Foetal skull.

Cervical vertebrae.

Hyoid bone.

### **IV. Neuroanatomy : 10 Hours**

- a. Detailed description of cranial nerves : V, VII, IX, X (in the region of head and neck) XI, XII including their nuclei of origin, intra and extra cranial courses.
- b. Cervical spinal nerves and cervical plexus.
- c. Autonomic nervous system of head and neck.

### **V. Embryology: 12 Hours**

- a. Gametogenesis : spermatogenesis and oogenesis, fertilization, implantation, germ layer formation, fetal membranes and placenta.
- b. Development of branchial apparatus, pharyngeal arches, pouches and clefts.
- c. Development of face, jaws, oral cavity, tooth, tongue, palate, nasal cavity, paranasal air sinuses, salivary glands, thyroid gland, hypophysis cerebri, temporo-mandibular joint.

### **VI. Histology : 16 Hours**

- a. Introduction to cytology and histology
- b. Basic tissues : epithelium - simple and compound
- c. Connective tissue : cells, fibres-collagen, elastic and reticular.
- d. Cartilage-hyaline, elastic, white fibro cartilages.

- e. Spongy and compact bones : transverse and longitudinal section.
- f. Muscular tissue: skeletal, cardiac and smooth.
- g. Nervous tissue : peripheral nerve and ganglia.
- h. Blood vessels : artery and vein.
- i. Glands-serous, mucous and mixed salivary glands.
- j. Lymphoid tissue : lymph node, palatine tonsil, thymus and spleen.
- k. Skin-hairy and non hairy.
- l. Endocrine glands : pituitary, thyroid, parathyroid, suprarenal and pancreas
- m. Lip, tongue and esophagus
- n. Trachea and lung

## **VII. Medical Genetics: 4 Hours**

Mitosis, Meiosis, Chromosomes, Chromosomal aberrations, Genes and modes of inheritance.

### **Practicals : 175 Hours**

#### **MUST KNOW :**

#### **Dissection Topics:**

1. Scalp.
2. Face including deeper dissection.
3. Posterior triangle of neck.
4. Anterior triangles of neck.
  - a. Median region.
  - b. Diastric triangle.
  - c. Carotid triangle.
5. Deep dissection of neck :
  - a. Thyroid gland.
  - b. Great vessels of neck.
6. Parotid region.
  - a. Muscles of masticati
  - b. Mandibular nerve and its branches.



- c. Maxillary artery.
- d. Temporo-mandibular joint.
- 7. Sub-mandibular region : submandibular gland, hyoglossus and its relations.
- 8. Mouth, palate and pharynx.
- 9. Nasal cavity and paranasal air sinuses.
- 10. Tongue.
- 11. Larynx.

### **Surface Anatomy :**

Superior sagittal sinus, middle meningeal artery, pterion, facial artery, parotid gland and duct, facial nerve on face, common carotid, external and internal carotid arteries, palatine tonsil, vocal cords, thyroid gland, spinal accessory nerve.

### **Radiological Anatomy :**

Anteroposterior and lateral views of head and neck, interpretation of normal radiological anatomy.

### **Histology Slides :** for Practical examination as spotters and for discussion.

1. Epithelium : simple squamous (mesentery), cuboidal (thyroid), columnar (gallbladder), ciliated columnar, pseudo-stratified ciliated columnar (trachea), stratified squamous keratinised (skin), stratified squamous non-keratinised (oesophagus), transitional (urinary bladder).
2. Areolar tissue.
3. Collagen fibres.
4. Elastic fibres.
5. Cartilage : hyaline, elastic and white fibro.
6. Bone : transverse and longitudinal section.
7. Muscles : skeletal (transverse and longitudinal section), cardiac and smooth.
8. Blood vessels : large sized and medium sized artery, large and medium sized vein.
9. Peripheral nerve and ganglia.
10. Salivary glands : serous, mucous and mixed.
11. Lymph node.
12. Palatine tonsil.
13. Thymus.

14. Spleen.
15. Skin : hairy and non hairy.
16. Lip.
17. Tooth.
18. Tongue.
19. Trachea.
20. Oesophagus.
21. Lung.
22. Endocrine glands : thyroid, parathyroid, pituitary and suprarenal.
23. Pancreas.

**DESIRABLE TO KNOW (for demonstration) :**

1. Ear-external, middle and internal.
2. Spinal cord.
3. Brain Stem.
4. Cerebellum.
5. Cerebral hemispheres : Important gyri and sulci of superolateral, medial and inferior surface; functional areas – sensory, motor, auditory, visual, gustatory and speech areas, blood supply of brain.
6. Cranial nerves in general with functions other than V, VII, IX, X, XI, XII.
7. Organs of thorax and abdomen.
8. Extremities : upper and lower limbs.
9. Histology of
  - a. Stomach : fundus and pylorus.
  - b. Small intestine : duodenum, jejunum and ileum.
  - c. Large intestine : colon and appendix.
  - d. Liver and gall bladder.
  - e. Kidney, ureter and urinary bladder.
  - f. Ovary and testis.

## SCHEME OF EXAMINATION

### A. Theory : 70 Marks

**Duration of paper – 3 Hours**

Contents	No. of Questions and Marks	Total Marks
<b>1. Multiple Choice Questions</b>	M.C.Q. 20 x 1 Mark	20
<b>2. Long Essays</b> Gross Anatomy of Head and Neck – Scalp, Face, Triangles of Neck, Dural folds and Venous sinuses, contents of the Orbit excluding Eye ball, Parotid Gland, Infratemporal fossa, Temporo-mandibular joint, Submandibular region, Thyroid gland, Pharynx, Tongue, Nasal Cavity and paranasal air sinuses. Cranial nerves – V, VII, IX and XII, Development of Branchial apparatus, Face, Systemic Embryology and Systemic Histology.	2 x 10 Marks	20
<b>3. Short Answers</b> Gross Anatomy of Head and Neck – Scalp, Face, Cervical fascia, Midline structures of the neck, Vertebral Joints of Neck, Contents of the Orbit excluding Eyeball, Vessels of Head and Neck, Infratemporal fossa, Mouth, Palate, Pharynx, Nasal Cavity, larynx, Cervical Part of Trachea and Oesophagus, Lymphatic drainage of Head and Neck. Cranial nerves – V, VII, IX, XI and XII. Cervical Plexus. General and Systemic embryology, histology and osteology of Head and Neck, Medical Genetics.	10 x 3 Marks	30
<b>Grand Total</b>		<b>70</b>

## B. Practicals : 90 Marks

### Gross Anatomy:

- |   |          |          |
|---|----------|----------|
| a) Ten Spotters carrying 3 marks each         | 10 x 3 = | 30 marks |
| b) Discussion on ONE given dissected specimen |          | 15 marks |
| c) Surface Anatomy                            |          | 10 marks |

### Histology:

- |   |          |          |
|---|----------|----------|
| a) Identification of 10 Slides of 1 mark each |          | 10 marks |
| b) Discussion on TWO given slides.            | 2 x 10 = | 20 marks |

Records :		05 marks
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<b>Total :</b>	<b>90 marks</b>
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## C) Viva Voce : 20 Marks

- |                                   |          |
|-----------------------------------|----------|
| a) Osteology of Head and Neck     | 05 marks |
| b) Soft parts from Head and Neck. | 05 marks |
| c) Embryology Models.             | 05 marks |
| d) Radiological Anatomy.          | 05 marks |

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<b>Total :</b>	<b>20 marks</b>
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## D) Internal Assessment:

Theory	: 10 Marks
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Practicals	: 10 Marks
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Theory Examination	70 marks
Theory Internal Assessment	10 marks
Viva Voce	20 marks
<b>Total :</b>	<b>100 marks</b>

Practical Examination	90 marks
Practical Internal Assessment	10 marks
<b>Total :</b>	<b>100 marks</b>

**Recommended Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>	<b>Yr. of Publ.</b>	<b>Publisher</b>
1.	Cunningham's Manual of Practical Anatomy(Vol.1)	Romanes G.J.	15 <sup>th</sup>	2004	Oxford Medical Publications, Oxford.
2.	Cunningham's Manual of Practical Anatomy(Vol.3)	Romanes G.J.	15 <sup>th</sup>	2004	Oxford Medical Publications, Oxford.
3.	Essentials of Human Anatomy (Vol.2) Head and Neck	Dutta A. K.	4 <sup>th</sup>	2005	Current books International, Kolkata
4.	Human Embryology	Inderbir Singh	7 <sup>th</sup>	2001	Macmillan India Ltd. Chennai
5.	Langman's Medical Embryology	Sadler T.W.	9 <sup>th</sup>	2004	Lippincott Williams and Wilkins, Baltimore
6.	Text Book of Human Histology	Inderbir Singh	5 <sup>th</sup>	2006	Jaypee Brothers Medical Publishers, Delhi

**Reference Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>	<b>Yr. of Publ.</b>	<b>Publisher</b>
1.	Gray's Anatomy	Susan Standring	39 <sup>th</sup>	2005	Elsevier Churchill Livingstone, Edinburgh
2.	Last's Anatomy Regional and Applied	Chummy S.Sinnatamby	10 <sup>th</sup>	1999	Churchill Livingstone, Edinburgh
3.	Grant's Method of Anatomy	John V. Basmajian	11 <sup>th</sup>	1997	B.I.Waverly, New Delhi.
4.	Lee Mc.Gregor's Synopsis of Surgical Anatomy	Decker G.A.G.	12 <sup>th</sup>	1999	K.M.Varghese, Bombay
5.	Emery's Elements of Medical Genetics	Mueller R.F.	11 <sup>th</sup>	2001	Churchill Livingstone, Edinburgh

## **4.2 GENERAL HUMAN PHYSIOLOGY AND BIOCHEMISTRY, NUTRITION AND DIETICS**

### **GENERAL HUMAN PHYSIOLOGY**

#### **GOAL :**

The broad goal of teaching physiology to undergraduate students is to provide comprehensive knowledge of the normal functions of the organ systems of the body and to facilitate an understanding of the physiological basis of health and disease.

#### **OBJECTIVES :**

##### **a) KNOWLEDGE**

At the end of the I BDS course, the student should be able to :

1. Explain the normal functioning of all the organ systems and their interactions for well co-ordinated total body function.
2. Assess the relative contribution of each organ system towards the maintenance of the milieu interior.
3. List the physiological principles underlying the pathogenesis and treatment of disease.
4. Acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

##### **b) SKILLS**

At the end of the I BDS course, the student should be able to :

1. Conduct experiments designed for the study of physiological phenomena.
2. Interpret experimental and investigative data.
3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

# **COURSE CONTENTS**

**Theory : 120 Hours**

## **I. General Physiology : 6 Hours**

- a. Homeostasis: Basic concept, Feed back mechanisms.
- b. Structure of cell membrane, transport across cell membrane.
- c. Membrane potentials.
- d. Functions of skin.

## **II. Blood : 20 Hours**

Composition and functions of blood.

Specific gravity, Packed cell volume, factors affecting and methods of determination.

Plasma proteins : Types, concentration, functions and variations.

Erythrocyte : Morphology, functions and variations. Erythropoiesis and factors affecting erythropoiesis.

ESR : Methods of estimation, factors affecting, variations and significance.

Haemoglobin : Normal concentration, method of determination and variation in concentration.

Blood Indices : MCV, MCH, MCHC - definition, normal values, variation.

Anemia : Definition, classification, life span of RBC's destruction of RBC's , formation and fate of bile pigments, Jaundice - types.

Leucocytes: Classification, number, percentage, distribution morphology, properties, functions and variation. Role of lymphocytes in immunity, leucopoiesis life span and fate of leucocytes.

Thrombocytes : Morphology, number, variations, function and thrombopoiesis.

Haemostasis : Role of vasoconstriction, platelet plug formation in haemostasis, coagulation factors, intrinsic and extrinsic pathways of coagulation, clot retraction. Tests of haemostatic function, platelet count, clotting time, bleeding time, prothrombin time - normal values, method and variations. Anticoagulants - mechanism of action. Bleeding disorders.

Blood groups: ABO and Rh system, method of determination, importance, indications and dangers of blood transfusion, blood substitutes.

Blood volume: Normal values, variations.



Body fluids : Distribution of total body water, intracellular and extracellular compartments, major anions and cations in intra and extra cellular fluid.

Tissue fluids and lymph : Formation of tissue fluid, composition, circulation and functions of lymph, Oedema and its causes.

Functions of reticulo endothelial system.

### **III. Muscle and nerve physiology : 10 Hours**

- a. Classification of nerves.
- b. Muscles :
  - Structure of skeletal muscle
  - Molecular mechanism of muscle contraction
  - Properties of skeletal muscle
  - Structure and properties of cardiac and smooth muscles.
  - Neuromuscular transmission.

### **IV. Digestive system : 10 Hours**

- a. Introduction to digestion : General structure of G.I. tract, Innervation.
- b. Salivary glands: Structure. Composition, regulation, secretion and functions of saliva.
- c. Stomach: Composition and functions of gastric juice, mechanism and regulation of gastric secretion.
- d. Exocrine Pancreas : Structure. Composition, functions and regulation of pancreatic secretion.
- e. Liver : Structure. Composition, functions and regulation of bile secretion.
- f. Gall bladder : Structure and functions.
- g. Small intestine : Composition, functions and regulation of secretion of intestinal juice.
- h. Large intestine : Functions.
- i. Motor functions of GIT: Mastication, deglutition, gastric filling and emptying. Movements of small and large intestine, and defecation.

### **V. Excretory system : 8 Hours**

- a. Structure and functions of kidney and functional unit of kidney and functions of different parts.
- b. Juxta glomerular apparatus and renal blood flow.

- c. Formation of Urine : Glomerular filtration rate - definition, determination, normal values and influencing factors.
- d. Tubular reabsorption : Reabsorption of sodium, glucose, water and other substances.
- e. Tubular secretion : Secretion of urea, hydrogen and other substances.
- f. Mechanism of concentration and dilution of urine
- g. Role of kidney in the regulation of pH of the blood.
- h. Micturition : Anatomy of innervations of urinary bladder. Mechanism of micturition and its abnormalities.

## **VI. Endocrinology: 14 Hours**

- a. General endocrinology : Enumeration of endocrine glands and hormones. General functions of endocrine system. Chemistry, mechanism, transport, metabolism and regulation of secretion of hormones.
- b. Hormones of anterior and posterior pituitary : Actions, regulation, secretion and disorders.
- c. Thyroid : Synthesis, secretion and transport, actions, regulation, and disorders of hormones. Thyroid function tests.
- d. Adrenal Cortex and Medulla : Synthesis, secretion, action, metabolism, regulation of secretion of hormones and disorders.
- e. Other hormones : Angiotensin, action of insulin and diabetes mellitus.

## **VII. Reproductive system : 6 Hours**

- a. Sex differentiation, physiological anatomy of male and female sex organs
- b. Female reproductive system : Menstrual cycle, functions of ovary, action of oestrogen and progesterone, Control of secretion of ovarian hormones, Tests of ovulation, Fertilization, Implantation, Maternal changes during pregnancy, Pregnancy tests and Parturition.
- c. Lactation, composition of milk, factors controlling lactation, milk ejection reflex.
- d. Male reproductive system : Spermatogenesis, semen and contraception.

## **VIII. Cardio vascular system : 20 Hours**

- a. Functional anatomy and innervation of heart. Properties of cardiac muscle.
- b. Origin and propagation of cardiac impulse and heart block.
- c. Electrocardiogram (ECG) : Normal ECG. Changes in ECG in myocardial

infarction.

- d. Cardiac cycle : Phases. Pressure changes in atria, ventricles and aorta.
- e. Volume changes in ventricles. Jugular venous pulse, arterial pulse.
- f. Heart sounds: Murmurs.
- g. Heart rate: Normal value, variation and regulation.
- h. Cardiac output: Definition, normal values, one method of determination, variations factors affecting heart rate and stroke volume.
- i. Arterial blood pressure: Definition, normal values and variations, determinants, regulation and measurement of blood pressure.
- j. Coronary circulation
- k. Cardio vascular homeostasis : Exercise and posture.

#### **IX. Respiratory system : 10 Hours**

- a. Functional anatomy of respiratory passage and lungs.
- b. Physiology of Respiration: External and internal respiration.
- c. Respiratory movements: Muscles of respiration, Mechanism of inflation and deflation of lungs.
- d. Intra pleural and intra pulmonary pressures and their changes during the phases of respiration.
- e. Mechanics of breathing : Surfactant, compliance and work of breathing.
- f. Spirometry: Lung volumes and capacities definition, normal values, significance, factors affecting vital capacity, variations in vital capacity, forced expiratory volume (FEV) and its variations.
- g. Pulmonary ventilation : Alveolar ventilation and Dead Space – ventilation
- h. Composition of inspired, alveolar and expired air.
- i. Exchange of gases : Diffusing capacity and factors affecting it.
- j. Transport of oxygen and carbon dioxide in the blood
- k. Regulation of respiration : Neural and chemical.
- l. Hypoxia, cyanosis, dyspnoea and periodic breathing.
- m. Artificial respiration and pulmonary function tests (PFT).

## **X. Central nervous system : 16 Hours**

- a. Organization and functions of central nervous system.
- b. Structure and functions of spinal cord.
- c. Synapse receptors, reflexes, sensations and tracts.
- d. Physiology of pain.
- e. Functions of cerebellum, thalamus, hypothalamus and cerebral cortex.
- f. Formation and functions of cerebro spinal fluid (CSF).
- g. Autonomic nervous system (ANS) : Sympathetic and parasympathetic systems.
- h. Body temperature regulation.

## **XI. Special senses: 6 Hours.**

### **Fundamental knowledge of taste and smell**

- Vision :** Functions of the different parts of the eye and refractive errors.
- Audition :** Functions of outer, middle and inner ear.  
Deafness : Types and tests.
- Taste :** Taste buds.  
Primary taste sensations.  
Taste pathway.
- Smell :** Receptors.  
Olfactory pathway.

### **Practicals : 60 Hours.**

#### **MUST KNOW**

	<b>Hours</b>
1. Study of microscope and its uses.	04
2. Collection of blood and study of haemocytometer.	02
3. Haemoglobinometry.	02
4. Determination of RBC count.	08
5. Determination of WBC count.	04
6. Determination of Blood Groups.	04
7. Leishman's staining and differential leukocyte count.	10
8. Calculation of blood indices.	02

9. Determination of bleeding time.	02
10. Determination of clotting time.	02
11. Blood pressure recording with effect of posture and exercise	04
12. Auscultation of Heart and Breath sounds.	02
13. Clinical examination of pulse.	02

**Total 48 Hours**

**DESIRABLE TO KNOW (for demonstration) :**

1. Determination of Erythrocyte sedimentation rate (ESR) and Packed cell volume (PCV).	02
2. Determination of Specific gravity of blood and Fragility test for RBC.	02
3. Clinical examination of Respiratory system and Cardiovascular system.	02
4. Determination of vital capacity and timed vital capacity.	02
5. Artificial respiration.	02
6. Demonstration of deep and superficial reflexes.	02
7. Skeletal muscle experiments Study of laboratory appliances in experimental physiology, Frog's gastrocnemius-sciatic nerve preparation, Simple muscle twitch, Effects of two successive stimuli, Effects of increasing strength of stimulus, Effects of temperature, Genesis of fatigue and tetanus, Effect of after load and free load on muscle contraction, calculation of work done.	
8. Electrocardiography : Recoding of normal ECG	

**Total 12 Hours**

## SCHEME OF EXAMINATION

**A.) Theory: 35 Marks.**

**Duration of paper : 1 Hour 30 Mins.**

Type of Questions	No. of Questions and marks	Total Mark
<b>1. Multiple Choice Questions</b>	M.C.Q. 10 x 1 marks	10
<b>2. Long Essay</b> Questions preferably from Blood. Gastrointestinal system. Cardiovascular system. Respiratory system. Endocrines. Central nervous system.	1 X 10 marks	10
<b>3. Short Answer</b> Questions could be from all the chapters.	5X3 marks	15
	<b>Total</b>	<b>35 Marks</b>

**B) Practicals : 45 Marks.**

**I ) Major Experiments :**

**20 marks**

Any one of the Major Experiments:

R.B.C. Count.

W.B.C. Count.

Differential Count.

Blood Pressure Recording.

**II ) Minor Experiments :**

**10 marks**

Any one of the Minor Experiments:

Determination of Blood Group

Determination of Bleeding and Clotting time

Haemoglobin Estimation

Calculation of absolute Haematological

Indices- MCH, MCV, MCHC

**III ) Clinical Exercises:**

**10 marks**

**IV) Record Books**

**05 marks**

**Total :**

**45 Marks**

**C) Viva Voce : 10 Marks**

**D) Internal Assessment: (Physiology and Biochemistry)\***

**Theory Examination            5 Marks**

**Practical Examination        5 Marks**

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**\* Average IA marks of Physiology and Biochemistry will be calculated for 10 Marks for final Internal Assessment in Theory and Practical each.**

**Recommended books:**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1.	Text book of Physiology	Arthur C. Guyton	11 <sup>th</sup>	2006	Prism pub. Bangalore
2.	Principal of Anatomy and Physiology	Tortora	8 <sup>th</sup>	2004	Harper Collins
3.	Concise Medical Physiology`	Choudhari	4 <sup>Th</sup>	2002	New Central Books, Calcutta.
4.	Human Physiology	Chaterjee	11 <sup>th</sup>	1992	Medical Allied Agency
5.	Human Physiology for BDS students	A.K. Jain	3 <sup>rd</sup>	2005	Avichal Pub. Co.

**Reference books:**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1.	Essentials of Medical Physiology	Sembulingam K., Prema Sembulingam	2 <sup>nd</sup>	2003	Jaypee Brothers Medical Publishers.
2.	Review of Medical Physiology	Willinam Ganong	22 <sup>nd</sup>	2005	Appliton and Lange
3.	Manual of practical physiology for BDS	Jain A. K.	-	-	-
4.	Practical Physiology	Ranade	4 <sup>th</sup>	-	-
5.	.A Text of practical Physiology	Ghai C. L.	-	-	-
6.	Hutchison's: Clinical Methods	-	20 <sup>th</sup>	-	-

# **BIOCHEMISTRY AND NUTRITION**

## **GOAL :**

©The broad goal of teaching biochemistry to the undergraduate students is to make them understand the scientific basis of the life processes at the molecular level and to orient them towards the application of the knowledge acquired in solving clinical problems.

## **OBJECTIVES :**

### **a) KNOWLEDGE**

At the end of the I BDS course the student is expected to :

1. Describe the molecular and functional organization of the cell and to study its subcellular components.
2. Delineate structure, function and inter-relationships of bio-molecules and consequences of deviation from normal.
3. Summarize the fundamental aspects of enzymology and clinical applications wherein regulation of enzymatic activity is altered.
4. Describe digestion and assimilation of nutrients and consequences of malnutrition.
5. Integrate the various aspects of metabolism and their regulatory pathways.
6. Explain the biochemical basis of inherited disorders with their associated sequelae.
7. Describe the mechanisms involved in maintenance of body fluid and pH homeostasis.
8. Summarize the molecular concept of body defenses and their application in medicine.
9. Familiarize with the principles of various conventional and specialized laboratory investigations and instrumentation analysis and interpretation of a given data.
10. Suggest experiments to support theoretical concepts and clinical diagnosis.

### **b) SKILLS**

At the end of the I BDS course the student is expected to :

1. Make use of conventional techniques to perform biochemical analysis relevant to clinical diagnosis.
2. Analyze and interpret investigative data.
3. Demonstrate the skills of solving the clinical problems and decision-making.



# **COURSE CONTENTS**

**Theory : 70 Hours.**

**I. Introduction to biochemistry and its scope in Dentistry : 1 Hour.**

**II. Carbohydrates : 4 Hours.**

Definition and classification.

Isomerism of Sugars.

Physiologically important mono, di and polysaccharides

Glycogen, starch, cellulose.

Mucopolysaccharides" hyaluronic acid, chondroitin sulphate, Karatan sulphate and heparin.

**III. Carbohydrate Metabolism: 8 Hours.**

- a. Digestion and absorption of carbohydrates.
- b. Glycolysis, Cori's cycle and Citric acid cycle.
- c. Energetics of glucose oxidation.
- d. Glycogenesis and glycogenolysis.
- e. Hexose monophosphate shunt.
- f. Regulation of blood glucose.

**IV. Amino Acids: 2 Hours.**

- a. Classification based on structure and nutritional importance.
- b. Optical activity.
- c. Isoelectric pH
- d. Physiologically active peptides.

**V. Proteins : 3 Hours.**

- a. Definition, classification, structure and functions.
- b. Denaturation.
- c. Plasma Proteins and their separation by Electrophoresis.
- d. Immunoglobulins.
- e. Haemoglobin and its abnormal forms.

**VI. Protein Metabolism: 5 Hours.**

- a. Digestion and absorption of Amino acids.
- b. Synthesis of Proteins.

- c. Deamination, transamination and Decarboxylation of Amino acids.
- d. Production and fate of ammonia.
- e. Urea cycle pathway.
- f. Methionine and Phenylalanine metabolism.
- g. Phenylketonuria, Albinism and Alkaptonuria.

## **VII. Lipids : 4 Hours.**

- a. Definition, classification and functions.
- b. Fatty acids, neutral fats, phospholipids, cholesterol and lipoproteins.

## **VIII. Lipid Metabolism: 6 Hours.**

- a. Digestion and absorption of lipids.
- b. Beta oxidation of fatty acids and its energetics.
- c. Ketone body formation and utilization.
- d. Ketoacidosis.

## **IX. Nucleic acids: 10 Hours.**

- a. Composition and structure.
- b. Types of Deoxyribonucleic acid (DNA) and Ribonucleic acid (RNA).
- c. Nucleosides, nucleotides and their importance

## **X. Enzymes: 6 Hours.**

- a. Definition, classification, properties of enzymes, coenzymes and cofactors & chemical nature.
- b. Enzyme specificity and mechanism of action.
- c. Holoenzyme and proenzyme.
- d. Isoenzyme.
- e. Factors influencing enzyme activity.
- f. Enzyme inhibition –types and examples.
- g. Diagnostic enzymes

## **XI. Vitamins: 8 Hours.**

- a. Definition, classification, chemistry, sources, requirement and functions.
- b. Metabolic role and deficiency signs of vitamin A, D, E, K, C., Thiamin, Riboflavin, Niacin, Pyridoxine, Folic Acid and Cyanocobalamin.

**XII. Mineral metabolism: 5 Hours.**

Distribution, sources, functions, requirements, absorption, metabolic effects and deficiency of Calcium, Phosphorus, Iron, Iodine and Fluorine.

**XIII. Nutrition and Dietetics: 5 Hours.**

Dietary factors, Basal Metabolic Rate (BMR), Biological value of protein, R,Q, SDA, Essential amino acids, Dietary fibre, Essential fatty acids & Balanced diet.

**XIV. pH and its biological importance: 2 Hours.**

- a. Acids, bases and buffers.
- b. Acid base balance, Acidosis and alkalosis.

**XV. Liver Function Tests: 3 Hours.**

- a. Liver function tests.
- b. Importance of alkaline phosphatase.
- c. Galactose tolerance test.

**XVI. Renal Function Tests: 1 Hour.**

Urea and Creatinine clearance test.

**XVII. Blood Constituents: 1 Hour.**

Normal and abnormal variations of Calcium, Phosphorous, Creatinine, Alkaline and Acid phosphatase, Urea, Cholesterol, Bilirubin, Uric acid and Transaminases.

**Practicals : 60 Hours****MUST KNOW**

1	Reactions of monosaccharides " glucose & fructose.	3 hrs
2	Reactions of disaccharides " lactose, maltose and sucrose.	3 hrs
3	Preparation of osazones from glucose, fructose, lactose & maltose.	3 hrs
4	Reactions of polysaccharides " Starch.	3 hrs
5	Identification of an unknown carbohydrate.	3 hrs
6	Colour reactions of proteins " albumin.	3 hrs
7	Colour reactions of proteins " casein.	3 hrs
8	Precipitation reactions of albumin.	3 hrs
9	Precipitation reactions of " casein.	3 hrs
10	Identification of an unknown protein.	3 hrs
11	Reactions of urea, uric acid and creatinine.	3 hrs
12	Identification physiologically important substances.	3 hrs
13	Composition of saliva and digestion of starch by salivary amylase.	3 hrs
14	Qualitative analysis of gastric juice "normal and abnormal contents	2 hrs

15	Urine analysis “ normal constituents	2 hrs
16	Urine analysis “ abnormal or pathological constituents.	2 hrs
17	Determination of creatinine concentration in urine, calculation of creatinine clearance.	2 hrs
18	Estimation of Blood glucose.	2 hrs
19	Estimation of Blood urea.	2 hrs
20	Estimation of Total Protein in serum.	2 hrs

**DESIRABLE TO KNOW (for demonstration) :**

1	Colorimeter.	1 hr
2	Electrophoresis & Chromatography.	1 hr
3	Estimation of Serum calcium and phosphorus.	1 hr
4	Estimation of Bilirubin.	1 hr
5	Preparation of haemin crystals.	1 hr
6	Discussion of clinical charts “ Glucose Tolerance Test (GTT).	1 hr
7	a. Spotting of specimens “ Haemin, Osazone “ Microscopy, Ryle’s tube, Folin “ Wu tube.	1 hr
	b. Urinometer.	
	c. Tests “ Biuret reaction, Millon’s reaction, Jaffe’s reaction, Barfoed’s reaction.	

## SCHEME OF EXAMINATION

**A) Theory : 35 Marks.**

**Duration of paper – 1 Hour 30 minutes.**

Contents	No. of Questions and Marks	Total Marks
<b>1. Multiple Choice Questions</b>	10 X 1 mark	10
<b>2. Long Essay</b> Questions preferably from : Chemistry of Carbohydrates, proteins, lipids and amino acids. Metabolism of carbohydrates, protein, lipids, nucleic acids and minerals. Fat soluble and water soluble vitamins. Enzymes.	1 X 10 marks	10
<b>3. Short Answers</b> Questions preferably from : All the above chapters. Organ function tests, Minerals, Detoxification, Nutrition and Blood Constituents.	5X3 = 15 marks	15
	<b>Total</b>	<b>35</b>

**B) Practicals : 45 Marks**

- |  |          |
|--|----------|
| a. One Procedure for quantitative estimation : | 20 Marks |
| b. One Procedure for qualitative analysis.     | 15 Marks |
| c. 5 spotters.                                 | 05 Marks |
| d. Record books                                | 05 Marks |

**Total : 45 Marks**

**C) Viva Voce : 10 Marks**

**D) Internal Assessment: \***

**Theory Examination : 5 Marks**

**Practical Examination : 5 Marks**

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**\* Average IA marks of Physiology and Biochemistry will be calculated for 10 Marks for final Internal Assessment in Theory and Practical each.**

**Recommended Books :**

Sl. No.	Title	Author	Edition	Yr. of Publ.	Publisher
1.	A Text book of Biochemistry for Dental Students.	Harbans lal	1 <sup>st</sup>	1995	CBS Pub. New Delhi.
2.	Concise Medical Biochemistry.	Pattabhiraman	—	1986	Prithvi Pub. Bangalore.
3.	Fundamentals of Bicochemistry.	A. C. Deb	6 <sup>th</sup>	1998	New Central Book Agency Calcutta.
4.	Text Book of Biochemistry.	AVS Rama Rao	7 <sup>th</sup>	1995	UBSPD with LKS pub. Vishakapatnam.
5.	Textbook of Medical Biochemistry.	S. Ramakrishnan K G. Prasannan R. Rajan	3 <sup>rd</sup>	2001	Orient Longman Hyderabad.

**Reference Books :**

Sl. No.	Title	Author	Edition	Yr. of Publ.	Publisher
1.	Review of Biochemistry.	Harpers	24 <sup>th</sup>	1996	USA Appleton and Lange Publ.
2.	Basic and Applied Dental Biochemistry.	William R.D. & Elliot J. C.	2 <sup>nd</sup>	1990	Singapore. Langman Pub.
3.	Principles of Biochemistry.	Albert Lehninger	2 <sup>nd</sup>	1993	New Delhi CBS pub.

## **4.3. DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY**

### **GOAL:**

The subject of Dental Anatomy, Histology including Embryology and physiology aims at imparting knowledge in understanding the structure, function, genesis, morphology, physiology and histology of normal tissue associated with oral cavity

### **OBJECTIVES:**

#### **a) KNOWLEDGE :**

After a course on Dental Anatomy, Histology including Embryology and Physiology,

- 1) The student is expected to know morphology, histology, physiology and embryology with clinical applications so as to import this understanding for diagnosing oral diseases in future.
- 2) The student should understand the histology basis and physiologic aging process in the dental tissue so as to apply this knowledge in various dental treatment procedures.
- 3) The student must acquire the basic knowledge of microscope and various dental methods of preservation of tissue (hard and soft tissues) different staining technique and their visualization under microscope.

#### **b) SKILLS:**

The student should acquire basic skill in:-

- 1) Identification of deciduous & permanent teeth.
- 2) Age estimation by patterns of teeth eruption from plastic cast of different age group.
- 3) Microscope study of oral tissue.
- 4) Carving of crown and root of permanent teeth in wax

## **COURSE CONTENT**

### **THEORY: 105 Hours**

#### **I. Dental Anatomy -40Hrs**

1. Introduction to Dental Anatomy :**4 Hrs**
  - a. Function of Teeth
  - b. Nomenclature
  - c. Tooth Numbering System
  - d. Chronology of Deciduous and Permanent Teeth
  - e. Definitions and Terms used in Dental Morphology
2. Morphology of Deciduous & Permanent Teeth :**7Hrs**
3. Clinical significance of morphology of Deciduous Teeth :**2Hrs**
4. Clinical significance of morphology of Permanent Teeth : **15Hrs**
5. Anatomy of the Pulp :**2Hrs**
6. Difference between Deciduous and Permanent Teeth :**2Hrs**
7. Occlusion :**5 Hrs**
  - a. Development of occlusion
  - b. Dental Arch form
  - c. Compensating curves of dental arches
  - d. Angulations of individual teeth in relation to various planes
  - e. Functional form of the teeth
  - f. Facial relation of each tooth
  - g. Occlusal contact and intercuspal relation of all teeth during centric occlusion
  - h. Occlusal contact and intercuspal relation of all teeth during functional movements
  - i. Neurobehavioral aspect of occlusion
  - j. Clinical significance of normal occlusion



8. Temporomandibular Joint :**2 Hrs**
  - a. Gross anatomy and articulation
  - b. Muscles of mastication
  - c. Histology
  - d. Clinical Consideration with emphasis on Myofascial pain dysfunction syndrome
9. Dental Anthropology and Comparative Dental Anatomy : **1 Hr**

## **II. Oral Embryology: 10Hrs**

1. \*Brief review of development of face with applied aspects (Self learning topic)
2. Development of teeth and the supporting tissues: **10 Hrs**
  - a. Blood supply, nerve supply and lymphatic drainage of teeth
  - b. Applied aspect of disorders in development of teeth.

## **III. Oral Histology: 50 Hours**

### **1. Oral mucous membrane :8hrs**

- a. Development of Oral Mucosa
- b. Definition and General consideration.
- c. Functions and classifications
- d. Structure of Oral Mucosa & its components
- e. Microscopic appearance of Gingiva, palate, lip, alveolar mucosa, tongue, cheek, vestibule and floor of mouth.
- f. Gingival sulcus and dentogingival junctions
- g. Clinical consideration and age changes.
- h. Cytokeratin

### **2. Eruption and shedding of deciduous and permanent teeth: 4 hrs.**

- a. Factor affecting and mechanism of eruption and shedding.
- b. Clinical consideration in eruption and shedding
- c. Movements of eruption and shedding
- d. Histology of eruption and shedding

**3. Enamel :7 Hrs**

- a. Development of enamel – Amelogenesis & life cycle of ameloblasts
- b. Properties of enamel
- c. Structure of enamel
- d. Clinical consideration and age changes.

**4. Dentin :5 Hrs**

- a. Development of Dentin - Dentinogenesis
- b. Properties of Dentin
- c. Structure & Types of Dentin
- d. Theories of Dentin sensitivity
- e. Clinical consideration and age changes

**5. Cementum :4Hrs**

- a. Development of cementum – Cementogenesis
- b. Properties of cementum
- c. Structure of cementum
- d. Functions
- e. Clinical consideration and age changes
- f. Differences between bone & cementum

**6. Pulp: 4Hrs**

- a. Development of Pulp
- b. Anatomy, structure , functions of pulp
- c. Clinical consideration and age changes

**7. Periodontal ligament :4 Hrs**

- a. Development
- b. Cells and fibers / Structure of PDL
- c. Functions
- d. Clinical consideration and age changes

**8. Bone : 4Hrs**

- a. Development and structure of alveolar bone
- b. Properties
- c. Classification & composition
- d. Development of bone
- e. Histology of bone & bone remodeling
- f. Clinical Consideration & age changes

**9. Salivary Glands :6Hrs**

- a. Development of salivary gland
- b. Structure
- c. Saliva – Composition and formation
- d. Classification , function, clinical consideration and age changes

**10. Maxillary Sinus : 3Hrs**

- a. Structure
- b. Anatomy & Histology
- c. Functions
- d. Clinical considerations

**11. Histochemistry of Oral Tissues:1 Hr**

- a. Preparation of specimens for Histologic study
- b. Paraffin embedding , ground sections, Frozen sections
- c. Routine H / E staining
- d. Fixation & Processing

**IV. Oral Physiology : 5 Hours**

**1. Saliva :2 Hrs**

- a. Composition, formation, mechanism of secretion
- b. Clinical consideration and functions.

**2. \*Physiology of taste (Self learning topic)**

3. \*Innervation of taste buds and taste pathway (Self learning topic)
4. Mastication : **1Hr**
  - a. Mastication muscles, masticatory reflexes
  - b. Blood supply, nerve supply, lymphatic drainage
  - c. Neural control of mastication, clinical significance
5. Deglutition : **1Hr**
  - a. Mechanism, neural control
  - b. Clinical significance
6. \* Calcium, phosphorous and metabolism and its clinical consideration (Self learning topic)
7. Theories of mineralization : **1Hr**
  - a. Mechanism, theories and their drawbacks
  - b. Clinical consideration – Calculus formation

## **PRACTICAL: 250 Hours**

### **1. Dental Morphology :150Hours**

- a. Carving in the wax block : **10Hrs**  
Shapes: Rectangle, Pyramid, Half dumbbell, Full dumbbell, Cube
- b. Carving on wax block : **100 Hrs**  
Individual permanent teeth of both the arches upto 1<sup>st</sup> molar
- c. Identification of individual teeth from extracted teeth : **20hrs**
- d. Identification of dentition and morphological features using study models and casts: **20Hrs**

### **2. Dental histology: 100Hrs**

#### **i. Processing of hard and soft tissues for microscopic study: 1hr**

- \* Ground section, deceleration section and routine staining procedures
- \* Basic histochemical staining patterns of oral tissues

**ii. Histology slides**

**a. Development of tooth: 12Hrs**

Bud stage of tooth development

Cap stage of tooth development

Early bell stage of tooth development

Late bell stage tooth development

**b. Enamel : 12Hrs**

Enamel rod

Hunter-Schreger Bands

Tufts, Lamellae, Spindles

Incremental lines of Retzius,

Neonatal line

Gnarled Enamel

**c. Dentin : 12Hrs**

Dentino – Enamel junction

Dentinal Tubules

Tomes granular layer

Interglobular Dentin

Dead tracts

Transverse section of Dentin

**d. Cementum : 8 Hrs**

Cellular cementum

Acellular cementum

Cemento –enamel junction

Sharpey's fibers

Hypercementosis

**e. Pulp: 8Hrs**

Zones of Pulp

Pulp stones

**f. Periodontal Ligament : 12Hrs**

Principal fibers of Periodontal ligament,

Cementicles

**g. Bone: 5 Hrs**

Decalcified section of Bone

Ground section of bone

**h. Salivary gland: 12 Hrs**

Mucous gland

Serous glands

Mixed gland

**i. Maxillary Sinus : 3hrs**

Lining of Maxillary sinus

**j. Oral mucous membrane 15 Hrs**

Keratinized and Non-Keratinised mucosa,

Buccal mucosa and Gingiva,

Soft palate and Hard palate

Vermillion border of lip

Tongue- Circumvallate Papillae, Fungiform Papillae, Filiform Papillae

Dentogingival Junction

## SCHEME OF EXMINATION

### A. THEORY 100 Marks

<b>University written exam</b>	<b>:</b>	<b>70 Marks</b>
<b>Viva Voce</b>	<b>:</b>	<b>20 Marks</b>
<b>Internal Assessment</b>	<b>:</b>	<b>10 Marks</b>

### Distribution of Topic and Type of Question

Contents	No. of Questions and Marks	Total Marks
<b>1 MCQ (Full portion)</b>	MCQ 20x1 Marks	20
<b>2) Long Essay.</b> Dental Histology/ Dental Anatomy a )-One Long Essay from Oral /Histology Topics. Development of teeth, Enamel, Dentin Cementum , Periodontal Ligament , Oral mucous membrane, Salivary Gland s, Eruption and shedding, Bone. b )-One long Essay Dental from Anatomy <b>(Topics: Morphology of permanent and deciduous teeth )</b>	2x10 Marks	20
<b>3) Short Answers</b> a.Dental Morphology- b.Oral Histology – c.Dental Anatomy - d.Oral Physiology- All the sub topics under above mentioned headings	10 x 3 Marks	30
	<b>Total</b>	<b>70</b>

**B. Practical : 100 Marks****University exam : 90 Marks****Internal Assessment : 10 Marks**

<b>Contents</b>	<b>Marks</b>	<b>Time</b>
A. Carving	25	1 Hour
B. Spotters and Ground section slides - 6 Nos Tooth Identification - 3 Nos Cast for Identification, dental formula and age assessment - 2 Nos	$6 \times 5 = 30$ $3 \times 5 = 15$ $2 \times 5 = 10$	1 Hour
C. Records ⇒ Histology ⇒ Morphology ⇒ Carving	10	
<b>Total</b>	<b>90</b>	

**Recommended Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>
1	Orban's Oral Histology and Embryology	Orban's	Mosby
2	Dental Anatomy, Physiology and Occlusion	Wheeler's	Elsevier



**Reference Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>
1	Oral Histology-Development, Structure and Function	Tencate A.R.	Mosby
2.	Manual of Oral Histology and Oral Pathology : Color Atlas	Maji Jose	CBS
3.	Carving of Teeth	Biviji A.T.	Bhalani
4.	Color atlas of Oral Histology and Morphology	Berkowitz	Wolfe
5.	Applied Physiology of the Mouth	Lavelle	Butter Worth & Co.
6.	Dental anatomy histology and development	Bhalaji S.I	Arya

## **4.4 DENTAL MATERIALS**

### **GOAL :**

Goal is to emphasize on the basic properties of Dental materials and to provide certain criteria for selection, which will enable to discriminate between facts and propaganda with regards to claims of manufacturers. It also enables the students to apply these materials for clinical practice and keep the students updated with further research, as the knowledge of dental materials is fundamental to the dental education.

### **OBJECTIVES :**

#### **a) KNOWLEDGE**

At the end of the I BDS course the student is expected to :

1. Understand the evolution and development of science of dental material.
2. Explain purpose of course in dental materials to personnels concerned with dentistry.
3. Know the physical, chemical and biomechanical properties of various materials used in dentistry.
4. Lay down the standards or specifications of various materials to guide manufacturers as well as to help professionals.
5. Search for newer and better materials, which may answer our requirements with greater satisfaction.
6. Understand and evaluate the claims made by manufacturers of dental materials.
7. Know the biohazards of various dental materials used.

#### **b) SKILLS**

At the end of the I BDS course the student is expected to :

1. Acquire skills to manipulate various dental materials used in dentistry.
2. Possess skills to apply dental materials for clinical use.
3. Know the merits and demerits of dental materials.

# **COURSE CONTENTS**

**Theory : 20 Hours.**

## **I. Introduction :**

**2 Hours**

- a. Brief History of the development of the science of Dental Materials.
- b. Aim of studying the science of Dental Materials.
- c. Scope and requirements of Dental materials.
- d. Spectrum of materials – Clinical and laboratory applications (Classification of materials).

## **II. Structure and behaviour of matter :**

**3 Hours**

- a. Basic principles – Physical, mechanical, chemical, biological, rheological and thermal properties of various dental materials and esthetics.
- b. Enamel, dentine and bone.
- c. Polymers.
- d. Metals and alloys.
- e. Dental porcelain.
- f. Composites.
- g. Standardisation and assessment of dental materials.

## **III. Impression materials and duplicating materials :**

**4 Hours**

- a. Requirements and classification.
- b. Desirable properties, composition, setting properties, advantages, disadvantages, indications and manipulation of inelastic and elastic materials. (Tray compound, impression compound, Low fusing compound, Impression plaster, Zinc oxide Eugenol impression paste, Non Eugenol paste, Alginate, Agar and Elastomeric impression materials etc.)
- c. Comparative studies between all. Pressure indicating paste. Tray adhesives.

## **IV. Gypsum products :**

**3 Hours**

Gypsum products (Detail), die, cast and model materials (including brief account of electroformed dies). Setting and hygroscopic expansion. Infection control. Die spacers.

**V. Waxes and base plate materials :****2 Hours**

- a. Properties, manipulation and uses of modelling, casting, boxing, utility, undercut blocking, sticky, impression, carding and preformed wax patterns.
- b. Thermoplastic endodontic materials – Gutta percha.

**VI. Chemistry of synthetic resins used in dentistry :****2 Hours****VII. Denture base resins : 4 Hours.**

- a. Tray materials.
- b. Temporary base materials – contents, properties, manipulation, advantages and disadvantages.
- c. Permanent base materials – types, composition, properties and technical consideration (Flasking, packing, curing, deflasking and processing errors).
- d. Comparative studies between metallic and nonmetallic denture base.
- e. Others-Tissue conditioners, soft and hard liners.
- f. Artificial tooth material.
- g. Articulating paper.
- h. Separating media.

**Practical : 40 Hours.****Gypsum products : 25 Hours.**

1. Manipulation of dental plaster and dental stone.
2. Identify the setting and working time with reference to water proportion and temperature. Speculation time of various gypsum products.
3. Pouring of impressions and making casts.

**Manipulation of waxes : 15 Hours**

**Note: As per DCI this subject has no Theory or Practical Examination in Ist B.D.S.**

**Recommended Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>	<b>Yr. of Publ.</b>	<b>Publisher</b>
1.	Phillips' Science of Dental Materials	Kenneth. J. Anusavice	11 <sup>th</sup>	2003	W.B. Saunders Company.
2.	Notes on Dental Materials	Combe E.C	6 <sup>th</sup>	1992	Churchill Livingstone.
3.	Applied Dental Materials	John. F. Mc. Cabe	8 <sup>th</sup>	1992	Oxford Blackwell Scientific.
4.	Restorative Dental Materials	Craig R.G. Powers J. M.	14 <sup>th</sup>	2018	Harcourt, Elsevier, India Pvt, Ltd.
5.	Dental Materials	Koudi M.S	1st	2007	Elsevier, India Pvt, Ltd.

## **4.5 PRE CLINICAL PROSTHODONTICS & CROWN & BRIDGE**

### **GOAL:**

Goal is to emphasize on basic principles of teeth arrangement as related to natural dentition and to provide certain criteria for teeth selection and arrangement. It also enables the student to utilize these concepts for their clinical and laboratory applications.

### **OBJECTIVES:**

#### **a) KNOWLEDGE**

At the end of the I BDS course the student should be able to:

1. The aim of the course is to present basic principles of teeth arrangement and to provide certain criteria of selection of teeth and arrangement in relation to surrounding oral structures.

#### **b) SKILLS**

At the end of the I BDS course the student is expected to :

1. Acquire basic skills of teeth arrangement in class I molar relationship.
2. Posses skills of teeth selection.

## COURSE CONTENT:

### PRACTICALS : 100 hours

		Hours
1.	Base plate adaptation	15
2.	Fabrication of occlusal rims	20
3.	Mounting of the rims on the articulator	5
4.	Arrangement of teeth in class I relation	40
5.	Processing of dentures	15
6.	Polishing and finishing of dentures	5

### Recommended Books :

Sl. No.	Title	Author	Edition	Yr. of Publ.	Publisher
1.	Prosthodontic treatment of Edentulous patients	Boucher	12 <sup>th</sup>	2004	Mosby
2.	Syllabus of complete denture	Heartwell	5 <sup>th</sup>	1993	Lea & Febiger
3.	Theory and practice of fixed Prosthodontics	Tylman	8 <sup>th</sup>	1993	Ishiyaku Euro
4.	Removable partial denture	Mc Cracken's	11 <sup>th</sup>	2005 South Asian	CBS
5	Sciences of dental materials	Skinner	11 <sup>th</sup>	2012 South Asian	W. B. Saunders Co.
6	Dental materials Properties and manipulation	Craig	14 <sup>th</sup>	2018	Mosby

## **4.6 ENVIRONMENTAL STUDIES**

### **GOAL:**

The students should gain knowledge to understand the multidisciplinary nature of the environment and the awareness of the echo system, which maintains the natural environment.

### **OBJECTIVES :**

#### **a) KNOWLEDGE**

At the end of the I BDS course the student is expected to know :

1. The natural resources like forest, water, mineral, food, energy and land.
2. Functions of the echo system.
3. Bio-diversity and its conservation.
4. Environmental pollution.
5. Social issues.

#### **b) SKILLS**

At the end of the I BDS course the student is expected to :

1. Visit local areas to understand and document environmental assets like river, forest, grassland, hill and mountain.
2. Visit an industrial area or agricultural area to know about local pollutants.
3. Identify common plants, insects and birds in their local areas.
4. Identify rivers, hills and mountains in their local areas.
5. To make use of the knowledge to maintain the surrounding environment.



# **COURSE CONTENTS**

## **Theory and Field work : 50 Hours**

### **1. The multidisciplinary nature of environmental studies : 2 Hours**

- a. Definition, scope and importance
- b. Need for public awareness

### **2. Natural Resources: 8 Hours**

#### **Renewable and non-renewable resources**

Natural resources and associated problems.

- a. Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- b. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- c. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- d. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity case studies.
- e. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
- f. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
  - Role of an individual in conservation of natural resources.
  - Equitable use of resources for sustainable lifestyles.

### **3. Ecosystems : 6 Hours**

- a. Concept of an ecosystem
- b. Structure and function of an ecosystem
  - Producers, consumers and decomposers
  - Energy flow in the ecosystem
  - Ecological succession
  - Food chains, food webs and ecological pyramids
  - Introduction, types, characteristic features, structure and function of the

following ecosystem:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

#### **4. Biodiversity and its conservation :**

**8 Hours**

- Introduction - Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

#### **5. Environmental Pollution :**

**8 Hours**

##### **Definition**

- Causes, effects and control measures of:
  - Air pollution
  - Water pollution
  - Soil pollution
  - Marine pollution
  - Noise pollution
  - Thermal pollution
  - Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.

- c. Role of an individual in prevention of pollution.
- d. Pollution case studies.
- e. Disaster management: floods, earthquake, cyclone and landslides.

## **6. Social Issues and the Environment :**

**7 Hours**

- a. From unsustainable to sustainable development
- b. Urban problems and related to energy
- c. Water conservation, rain water harvesting, watershed management
- d. Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- e. Environmental ethics: Issues and possible solutions
- f. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- g. Wasteland reclamation
- h. Consumerism and waste products
- i. Environmental Protection Act
- j. Air (Prevention and Control of Pollution) Act.
- k. Water (Prevention and control of Pollution) Act.
- l. Wildlife Protection Act.
- m. Forest Conservation Act.
- n. Issues involved in enforcement of environmental legislation.
- o. Public awareness.

## **7. Human Pollution and the Environment :**

**6 Hours**

- a. Population growth, variation among nations.
- b. Population explosion – Family Welfare Programmes.
- c. Environment and human health.
- d. Human Rights
- e. Value Education
- f. HIV/ AIDS

- g. Women and Child Welfare
- h. Role of Information Technology in Environment and Human Healthy.
- i. Case Studies.

### 8. Field Work :

**5 Hours**

- a. Visit to a local area to document environmental assets river / forest / grassland / hill / mountain.
- b. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- c. Study of common plants, insects, birds.
- d. Study of simple ecosystems – pond, river and hill slopes.

Institutional examination at the end of first BDS

### Scheme of Examination

#### A. Theory : 75 Marks.

- ❖ Short Answers      5 X 5 = 05 Marks
- ❖ Essay                      5 X 10 = 50 Marks

#### B. Field Work : 25 Marks

### Recommended Books

Sl. No.	Title	Author	Edition	Year	Publisher
1	Environmental Biology	Sharma P. D.	2 <sup>nd</sup>	2000	Rastogi Publications
2	Environmental Problem & Solutions	Asthana & Asthana	3 <sup>rd</sup>	2001	S. Chan & Company Ltd.
3	Environmental Protection & the Law	Mehta C. S.	1 <sup>st</sup>	2000	Ashish Publishing House
4	Environmental pollution	Tunny Katyal, M. Satake	10 <sup>th</sup>	1998	Anmol Publication

## **4.7 LAW - INDIAN CONSTITUTION**

### **GOAL:**

The students should gain the knowledge and insight into the Indian Constitution so that they are aware of the fundamental rights and freedom bestowed through the democratic governance of our country.

### **OBJECTIVES :**

#### **a) KNOWLEDGE**

At the end of the I BDS course the student is expected to know :

1. Basic knowledge of the Indian Constitution.
2. Democratic institutions created by the Constitution.
3. Special rights created by the Constitution for regional and linguistic minorities.
4. Election commission.
5. Legislative, Executive and Judicial powers and their functions in India.

#### **b) SKILLS**

At the end of the I BDS course the student is expected to make use of knowledge :

1. To perform his / her duties towards the society.
2. Judiciously and with conscious effort for self-development.
3. To utilize state policies in their future practice.

## **COURSE CONTENTS**

### **Theory : 25 Hours**

Unit – I	a.	Meaning of term Constitution	2 Hours
	b.	Making of the Indian Constitution – 1946 – 1949 and role played by Dr. B. R. Ambedkar.	
	c.	Salient Features of the Constitution.	
	d.	Preamble of the Constitution	
Unit II	The democratic institutions created by the Constitution – Bicameral System of Legislature at the Center and in the States, Devolution of Powers to Panchayat Raj Institutions		5 Hours

Unit III	Fundamental Rights and Duties – Their content and significance	5 Hours
Unit IV	Directive Principles of states policies – The need to balance Fundamental Rights with Directive Principles.	1 Hour
Unit V	Special rights created in the constitution for Dalits, Backwards, Women and Children and the Religious and Linguistic Minorities	1 Hour
Unit VI	Doctrine of Separation of Powers – Legislative, Executive and Judicial and their functions in India	4 Hours
Unit VII	The Election Commission and State Public Service Commissions.	2 Hours
Unit VIII	Method of amending the Constitution	1 Hour
Unit IX	Enforcing rights through Writs Certiorari, Mandamus, Quo warranto and Habeas Corpus	2 Hours
Unit X	Constitution and Sustainable Development in India	2 Hours

### **Scheme of Examination**

Institutional Theory Examination at the end of the I BDS Course : 100 Marks

#### **Reference Books :**

Sl. No.	Title	Author	Yr. of	Publisher's Name, Place of Publication
1.	The Constitution of India – A Politico – Legal Study	J. C. Johari	-	Sterling Publication, Pvt. Ltd., New Delhi.
2.	Constitution Law of India	J. N. Pandey	1998	Central Law Agency
3.	The Indian Constitution	Granville Austin	2000	Corner Stone of Nation Oxford, New Delhi

## 4.8 KANNADA

### GOAL:

The students should gain knowledge of the local language (Kannada) so as to communicate and reciprocate with local people in general and patients in particular to impart proper patient care during the course of their study and future.

### OBJECTIVES :

#### a) KNOWLEDGE

At the end of the I BDS course the student is expected to know :

1. The basic of Kannada Language.
2. Communicate and interact in Kannada Language with patients and colleagues.

#### b) SKILLS

At the end of the I BDS course the student is expected to :

1. Identify and write small words and sentences.
2. Acquire communicative skills.
3. To be compassionate towards patient in treatment delivery.

## COURSE CONTENTS

### Theory : 100 Hours

- |  |             |
|--|-------------|
| 1. Interaction (small words & sentences)     | : 15 Hours  |
| 2. Introducing each others                   | : 04 Hours  |
| 3. About Ramayana                            | : 04 Hours  |
| 4. Enquiring about the College               | : 04 Hours. |
| 5. Enquiring about Room                      | : 04 Hours. |
| 6. Vegetable Market                          | : 04 Hours. |
| 7. About Medical College                     | : 04 Hours. |
| 8. In a clot shop                            | : 04 Hours. |
| 9. Planned to for a picnic                   | : 04 Hours. |
| 10. Enquiring about one's family             | : 04 Hours. |
| 11. Conversation between Doctor and Patient. | : 05 Hours. |
| 12. Enquiring about friend's family          | : 05 Hours. |

- |  |             |
|--|-------------|
| 13. Conversation between friends                 | : 05 Hours. |
| 14. Routine activities of a students             | : 05 Hours  |
| 15. About children's education                   | : 05 Hours. |
| 16. Halebidu and Belur                           | : 05 Hours. |
| 17. Discussion about examination and future plan | : 05 Hours  |
| 18. Karnataka : Lesson for reading               | : 05 Hours  |
| 19. Lesson for reading                           | : 05 Hours  |
| 20. Presentation by students                     | : 04 Hours  |

### **Scheme of Examination**

Institutional Theory Examination at the end of the I BDS Course : 100 Marks

#### **Reference Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>	<b>Yr. of Publ.</b>	<b>Publisher's Name, Place of Publication</b>
1.	Kannada Kali	Lingadevaru Halemane	-	2002	Kannada University, Hampi.



# **Enrichment Programme**

## **Communication Skills**

### **PREAMBLE**

*Communication is the key to education, understanding and peace.*

### **Communication**

Oral communication is the process of expressing information or ideas by word of mouth. This book will help you to find out how you can improve your own oral communication abilities while dealing with patients and relatives. Great communication skills are your ticket to success in the clinical work in urban & rural set and academic. But have you ever been overcome by fear or anxiety prior to speaking in front of patients? Knowing when to choose oral communication and polishing your speaking skills can help you at every stage of your career.

‘Communication’ comes from Latin *commûnicâre*, meaning “to share” which is the purposeful activity of information exchange between two or more participants in order to convey or receive the intended meanings through a shared system of signs and semiotic rules.

Communication takes place inside and between three main subject categories: human beings, living organisms in general and communication-enabled devices (for example sensor networks and control systems). Communication in living organisms (studied in the field of biosemiotics) often occurs through visual, auditory, or biochemical means. Human communication is unique for its extensive use of language.

Human language can be defined as a system of symbols (sometimes known as lexemes) and the grammars (rules) by which the symbols are manipulated. The word “language” also refers to common properties of languages. Language learning normally occurs most intensively during human childhood. Most of the thousands of human languages use patterns of sound or gesture for symbols which enable communication with others around them. Languages tend to share certain properties, although there are exceptions. There is no defined line between a language and a dialect. The communication is two way process instead of one way.

The “information communication revolutions”:

1. Written communication first emerged through the use of pictographs. The pictograms were made in stone, hence written communication was not yet mobile.
2. The next step occurred when writing began to appear on paper, papyrus, clay, wax, etc. with common alphabets. Communication became mobile.

3. The final stage is characterized by the transfer of information through controlled waves of electromagnetic radiation (i.e., radio, microwave, infrared) and other electronic signals.

Communication is thus a process by which meaning is assigned and conveyed in an attempt to create shared understanding. This process, which requires a vast repertoire of skills in interpersonal processing, listening, observing, speaking, questioning, analyzing, gestures, and evaluating enables collaboration and cooperation.

Misunderstandings can be anticipated and solved through formulations, questions and answers, paraphrasing, examples, and stories of strategic talk. 'Good Communication is the bridge between confusion and clarity'. Written communication can be clarified by planning follow-up talks on critical written communication as part of the everyday way of doing business. A few minutes spent talking in the present will save valuable time later by avoiding misunderstandings in advance. A frequent method for this purpose is reiterating what one heard in one's own words and asking the other person if that really was what was meant.

'Communication works for those who work at it'.

(compiled from <https://en.wikipedia.org/wiki/Communication>)

## **OBJECTIVES**

1. To formally impart education on communication skills.
2. To enhance the capacity of students in communicating with patients, relatives, colleagues and facilitators.
3. To conduct interactive session and workshop to augment the skills acquired.
4. To develop effective communication skills required in academics, practice of Dentistry and in general.

## **DURATION OF COURSE : 40 Hours**

Course will contain 2 phases

**Phase I** will be conducted during I BDS Course : Total 22 hours.

**Phase II** will be conducted in II BDS : Total 18 hours.

## **ELIGIBILITY**

1. Phase I will be for all I BDS Students.
2. Phase II will be for all II BDS Students.

## **LIST OF MODULES AND COURSE CONTENT**

### **Module I : 6 Hours**

#### **Communications skills**

- Introduction
- Fundamentals of Articulation
- Body Language :
  - i) Types
  - ii) Effects of Body language
  - iii) How to improve body language
    - Importance of Grooming

### **Module II : 8 Hours**

#### **Presentation skills & Public Speaking**

- Introduction
- Crucial Elements
- Requisites for Effective Presentation :
  - i) Controlling anxiety
  - ii) Audience centered
  - iii) Accomplished objective
  - iv) Create interest in audience (fun for audience and self)
  - v) Conduct within time frame
    - Presentation sequence
    - Creating Effective Visual Aids
    - Presentation Techniques
    - Practice

### **Module III : 8 Hours**

#### **Interpersonal skills**

Ability to convey your point and listen and value others speak

- What are Interpersonal Skills
- Why do Interpersonal Skills matter
- 10 key Interpersonal Skills

i) Self confidence ii) Work ethic iii) Relationship Management iv) Receptiveness to feedback  
v) Body language vi) Listening vii) Collaboration viii) Showing Appreciation ix) Positive attitude  
x) Work place etiquette

#### **Module IV : 10 Hours**

##### **Time management**

- Planning : Understanding the difference between urgent and important
- Time management skill

i) Delegate tasks ii) Prioritize work iii) Schedule task iv) Set up deadlines v) Avoid Procrastination  
vi) Avoid stress vii) Avoid multitasking viii) Start Early ix) Take regular breaks x) Learn to say no

- Increase in effectiveness and efficiency

#### **Module V : 8 Hours**

1. Interactive Session and group activity with Resource Person and participants.
2. Oral presentations by the students.
3. Assessment of Log Book by Resource Person.

##### **Note :**

**Phase I will consist of modules I, II and III**

**Phase III will consist of modules IV & V**

##### **Assessment Method**

1. Interactive Sessions will be graded throughout the programme.
2. At the end of Phase I the log book of activities will be assessed and signed off by the Resource Person.
3. At the end of Phase II the log book of activities will be assessed and signed off by the Resource Person and by the Principal.

##### **About the Resource Person**

Resource person is a well-known trainer on communication and soft skills with deep knowledge and wide experience in areas of business communication, oral presentation and public speaking.

## **EARLY CLINICAL EXPOSURE**

(Enrichment programme monitored and conducted by  
Department of Public Health Dentistry)

### **Aim :**

As there is tectonic changes in Dental knowledge, skill, technology, and practice and with changes in the clinical environment, patients expectation, need for accountability of stakeholders, there is need for understanding these basis demand. Early effective approach to the learning and the preparation of learners will be of immense benefit.

### **Objectives :**

- To acquire knowledge about common dental diseases
- To assess knowledge pertaining to oral hygiene aids
- To know the status of dental disease in the community
- Orientation to several aspects of dental practice
- Introduction to clinical skills (history taking, oral examination)
- To learn communication skills, patients perspectives and aspects of professionalism
- To understand oral health and disease
- Orientation to community health education

\*\*\*\*\*

## **I BDS**

### **Program Details :14 hours**

#### **Phase I-Sensitization Lecture**

#### **Phase II– Visit to Dental Health Education Camp**

#### **Phase III - Visit to Primary Health Centre and Satellite Centers**

#### **Phase IV - Visit to Various Specialty Department of KLE VK Institute of Dental Sciences and Interaction with the Staff**

#### **Phase I**

#### **Sensitization Lecture :2Hours**

- Gross introduction on common oral health and disease.

- Introduction on Survey procedures and information about Primary Health Care Centre and Satellite Clinic.

## **Phase II**

### **Visit to Village for Screening and Dental Health Education Camp.**

Students will participate and conduct :

1. Health Education
2. School Oral Health Check Up
3. Door To Door Survey.

## **Phase III**

### **Visit to PHC Center and Satellite Center**

The students will be divided into groups for the visit to :

1. Primary Health Centre at Kiniya
2. Satellite centre at KLE Centenary Charitable Hospital and MRC, Yellur, Belagavi

**Phase IV :** Visit to all speciality Department of KLE VK Institute of Dental Sciences and Interaction with the Staff.

# Certificate course In Value Education and Personality Development

## PREAMBLE

omajnana-timirandhasyajnananjanasalakaya

caksurunmilitamyenatasmaisri-guravenamah

I was born in the darkest ignorance, and my spiritual master opened my eyes with the torch of knowledge. I offer my respectful obeisances unto him.

***Om AsatoMaa Sad-Gamaya |***

***TamasoMaaJyotir-Gamaya |***

***Mrtyor-MaaAmrtamGamaya |***

***Om ShaantihShaantihShaantih***

Lord, Lead us from Unreality (of Transitory Existence) to the Reality (of Self),

Lead us from the Darkness (of Ignorance) to the Light (of Spiritual Knowledge),

Lead us from the Fear of Death to the Knowledge of Immortality.

Om Peace, Peace, Peace.

## INSIGNIA

1.

**The logo :** The radial aura of display of the nibs of the fountain pen denotes true knowledge acquired from the entire universe in developing human mind. The mediating figure in the centre conveys spiritual enlightenment.

**The Colour Green :** Green is the color of nature, fertility, balance, desire to expand and life. Green symbolizes self-respect and well being. It also means learning, growth and harmony. Green also symbolizes the master healer and the life force. Change and transformation is necessary for growth, and so this ability to sustain changes is also a part of the energy of green.

**The Colour Saffron :** Saffron is considered to be a sacred color. It represents courage & sacrifice and denotes renunciation, disinterestedness, religious abstinence, quest for light and salvation. Saffron is the color of happiness and love. The color saffron represents perseverance, spirit of wisdom, energy, heat and playfulness.

The KLE University Logo represents :

**The Emblem :** A close look at the emblem unveils a pillar, a symbol of the 'Academy of Excellence ' built on strong Values and Principles

**The Palm and the Seven Stars :** The Palm is of the teacher – the hand that acts, promises and guides the students to reach for the Seven stars. The Seven Stars signify the 'Saptarishi Dnyanamandal', the Great Bear – a constellation made of seven stars in the sky, each signifying a particular Knowledge Domain. Our culture says : The true objective of human birth is to Master these Knowledge Domains. The Seven Stars also represent the Saptarishis, the founder of KLE Society whose selfless service and intense desire for Dynana Dasoha' laid the foundation for creating the knowledge kingdom called KLE Society.

**Empowering Professionals :** 'Empowering Professionals', the inscription at the base of the Emblem conveys that our Organization with its strength, maturity and wisdom will forever strive to empower the student community to become globally competent professionals. It has been a guiding force for many student generations in the past, and will continue to inspire many forthcoming generations.

### **Goals of the Course**

To impart special training to students to acquire adequate knowledge and develop necessary skills through this course for self-analytical approach towards one's own life. So that they can improve the quality of life by understanding the need of value education so as to have control on mind, which will help the students in personality development through additional training on spirituality and discipline.

### **Aim and Objectives of this course**

#### **Objectives:**

##### **a. Knowledge :**

The students should acquire knowledge

1. Of personal, social, cultural, religion and spiritual values.
2. Of character building and personality development.
3. Of social role and national responsibility.
4. About spirituality and medicine

##### **b. Skills :**

1. The students should be able to demonstrate
2. Adequate skill in the yoga's for self-discipline.
3. Attitude to develop willingness to apply the current knowledge for the best of community & self



4. Maintain high standard of professional ethics and conduct Course offered to I BDS Students in the 2<sup>nd</sup> term of the academic year (Thursday 1: 30 pm onwards)

### **Course Content**

**Total No. of hours : 22**

- |  |                |
|--|----------------|
| <b>1. Introduction</b>                             | <b>2 hours</b> |
| a. Body , mind connection                          |                |
| b. Steps of downfall / easy steps to downfall      |                |
| <b>2. Gate way to destruction</b>                  | <b>2 hours</b> |
| a. Desire      b. anger      c. bewilderment       |                |
| <b>3. An Ideal day &amp; their practice</b>        | <b>2 hours</b> |
| a. Routine Day                                     |                |
| b. Punctuality, discipline , manners               |                |
| c. Sleep & wakeup                                  |                |
| d. Cleanliness                                     |                |
| e. Positive thinking                               |                |
| <b>4. Chemistry of mind, action &amp; speech</b>   | <b>2 hours</b> |
| <b>5. Drop it</b>                                  | <b>2 hours</b> |
| a. Stress & ego                                    |                |
| b. Bitter experience of past living in the present |                |
| <b>6. Goal setting</b>                             | <b>1 hour</b>  |
| <b>7. Getting carried away</b>                     | <b>1 hour</b>  |
| a. Self-control                                    |                |
| <b>8. Charity and Sharing</b>                      | <b>1 hour</b>  |
| <b>9. Importance of Prayer</b>                     | <b>1 hour</b>  |
| a. Self Confidence / Inner Peace                   |                |
| b. Happiness                                       |                |
| c. Universal prayer and its benefits               |                |

- |  |                |
|--|----------------|
| <b>10. Hard work V/S blind faith</b>     | <b>2 hours</b> |
| a. What does god want from us ?          |                |
| b. Total attention                       |                |
| c. Reasons to visit places of worship    |                |
| <b>11. Making use of opportunities</b>   | <b>2 hour</b>  |
| a. Laid back attitude & laziness         |                |
| <b>12. Make a plan</b>                   | <b>2 hour</b>  |
| a. Do not regret the past                |                |
| b. Do not imagine the future             |                |
| <b>13. Fear</b>                          | <b>1 hour</b>  |
| a. Consequences and harmful effects      |                |
| b. Overcoming / conquering fear          |                |
| <b>14. Meditation – A daily practice</b> | <b>1 hour</b>  |

**Assessment methods :**

1. Maintaining and evaluation of Log Book
2. Group activity
3. Reflections

## **II BDS**

### **4.9 GENERAL AND DENTAL PHARMACOLOGY & THERAPEUTICS**

Theory – 70 Hours, Practical – 20 Hours

#### **GOAL:**

The broad goal of teaching under graduate students in pharmacology is to inculcate rational and scientific basis of therapeutics keeping in view of dental curriculum and profession.

#### **OBJECTIVES:**

##### **a) KNOWLEDGE**

At the end of the II BDS course, the student should be able to :

1. Describe the Pharmacokinetics and Pharmacodynamics of essential and commonly used drugs in general and in dentistry in particular.
2. List the indications, contraindications, interactions, and adverse reactions of commonly used drugs with reasons.
3. Tailor the use of appropriate drugs in disease with consideration to its cost, efficacy, and safety for individual and mass therapy needs.
4. Indicate special care in prescribing common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal & hepatic damage and immunocompromised patients.
5. Integrate the rational drug therapy in clinical pharmacology.
6. Indicate the principles underlying the concepts of "Essential drugs".

##### **b) SKILLS**

At the end of the II BDS course, the student should be able to :

1. Rationally prescribe drugs for common dental and medical ailments.
2. To appreciate adverse reactions and drug interactions of commonly used drugs.
3. Observe experiments designed for study of effects of drugs.
4. Critically evaluate drug formulations and be able to interpret the clinical pharmacology of marketed preparations commonly used in dentistry.
5. Integration : Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical department.

# **COURSE CONTENT**

## **THEORY: 70 Hours**

### **I. General Pharmacology: 10 Hours**

- a. Definitions and sources of drugs with examples: 2 hours
- b. Pharmacokinetics with clinical implications. Drug absorption, distribution, metabolism & excretion with examples: 2 hours
- c. Routes of drug administration: oral, sublingual, per rectal, inhalation, intradermal, subcutaneous, Intramuscular, intravenous (advantages and disadvantages with the examples): 2 hours
- d. Pharmacodynamics: Mechanism of action, factors modifying drug actions with emphasis on factors like- age, sex, dose, frequency & route of administration, presence of other drugs, pharmacogenetics and pathological conditions: 2 hours
- e. Therapeutics: Principles of drug therapy, adverse drug reactions and drug interactions. Essential drug concept and Rational drug therapy: 2 hours.

### **II. Autonomic Nervous System : 7 Hours**

Clinically used agents, their brief mechanism of action, clinical uses along with dental uses if any and specific adverse effects of :

- a. Sympathomimetics : 2 hours
- b. Sympatholytics- alpha blockers, Beta-Blockers: 2 hours
- c. Cholinomimetics: 2 hour
- d. Anticholinergics: 1 hour
- e. Skeletal muscle relaxants: 1 hour

### **III. Central Nervous System of: 10 Hours**

Clinically used agents, their brief mechanism of action, clinical uses along with dental uses if any and specific adverse effects of :

- a. Clinically used opioid and non-opioid analgesics: 3 hours
- b. Clinically used local anesthetics: 1 hour
- c. Ethyl alcohol: 1 hour
- d. General anaesthetics and Preanaesthetic medications: 2 hours
- e. Antipsychotics, antidepressants, anxiolytics - (In brief): 1 hour

- f. Sedative & hypnotics: 1 hour
- g. Antiepileptics : 1 hour

#### **IV Cardiovascular System : 7 Hours**

Enumeration/Classification of clinically used agents brief mechanism of action, Clinical uses along with dental uses if any, and specific adverse effects of:

- a. Cardiac glycosides: 1 hour
- b. Antianginal drugs: 2 hour
- c. Diuretics & Antidiuretics: 2 hour
- d. Antihypertensives: 2 hours
- e. Pharmacotherapy of shocks and Plasma expanders: 1 hour
- f. Hypolipidemics : 1 hour

#### **V. Blood: 5 Hours**

Clinically used agents, their brief mechanism of action, clinical uses along with dental uses if any and specific adverse effects of :

- a. Coagulants, styptics , anticoagulants and anti platelet drugs : 2 hours
- b. Hematinics: Iron preparations, Vit. B12, Folic acid, Vit. C: 2 hours
- c. Vit. D and calcium metabolism: 1 hour

#### **VI. Endocrines: 4 Hours** Enumeration/Classification of clinically used agents brief mechanism of action, clinical uses along with dental uses if any and specific adverse effects of :

- a. Pituitary hormones: 1 hour
- a. Drugs used in diabetes mellitus: 1 hour
- b. Corticosteroids & Anabolic steroids: 1 hour
- c. Thyroid & antithyroids : 1 hour

#### **VII. Chemotherapy: 12 Hours**

Enumeration/classification of clinically used agents, their mechanism of action clinical uses along with dental uses if any and specific adverse effects of:

- a. Sulfonamides: 1 hour
- b. Beta-lactum antibiotics: 2 hours
- c. Macrolides and Aminoglycosides: 1 hour

- d. Broad spectrum antibiotics: 1 hour
- e. Antifungal and antiviral agents: 2 hours
- f. Metronidazole and Fluoroquinolones: 1 hour
- g. Anthelmenthics: 1 hour
- h. Drug therapy of Tuberculosis and Leprosy: 2 hours
- i. Antineoplastic drugs in Dental practice : 1 hour

#### **VIII. Other drugs: 5 Hours**

Enumeration of clinically used agents, general uses along with dental uses if any and specific adverse effects of:

- a. Antihistamines, prostaglandins : 1 hour
- b. Drugs used in bronchial asthma and cough: 2 hours
- c. Anti-emetics, drugs used for peptic ulcer, Purgatives & drugs used for diarrhoea: 2 hours

#### **IX. Dental Pharmacology : 5 Hours**

- a. Fluoride pharmacology: 1 hour
- b. Antiseptics, astringents & sialogogues: 1 hour
- c. Obtundents, mummifying agents and disclosing agents. Brief account of drugs toxic to enamel and oral cavity: 1 hour
- d. Emergencies in Dental practice : 2 hours Drug therapy of
  - \* Acute myocardial infarction
  - \* Severe hypertension
  - \* Severe bleeding
  - \* Anaphylactic shock
  - \* Hypoglycemia in a diabetic patient
  - \* Severe dehydration
  - \* Convulsions on a dental chair
  - \* Status asthmatics
- e. Chelating agents : BAL, EDTA and desferrioxamine
- f. Prescription writing for common dental condition encountered in practice eg. Aphthous ulcercers, somatitis, gingivitis, dento- alveolar

abscess, dental caries hypersensitive dentine, xerostomia, acute tooth ache, post operation pain, post extraction pain, oral scurvy etc.

**PRACTICALS : 20 Hours.**

1. Introduction- equipments used in dispensing pharmacy, prescription parts and model prescription. : 2 hours
2. Demonstration of common dosage forms used in clinical practice: 2 hours
3. Mixtures: simple -(Expectorant/ salicylate) and diffusible mixtures (Bismuth kaolin/ chalk) : 2 hours
4. Emulsions: castor oil: 2 hours
5. Liniments & lotions: 2 hours
6. Ointment : Salicylate ointment: 2 hours
7. Powders : ORS , dusting powder : 2 hours
8. Percentage dilution : 70% alcohol , condy's lotion: 2 hours

**Dental Pharmacy Experiments**

9. Mouth washes – (a) Antiseptic: 1 hour  
(b) Alkaline, astringent : 1 hour
10. Tooth paste - Obtundent paste : 1 hour
11. Tooth powder: 1 hour

**Group discussions**

Prescription writing for common general conditions encountered in clinical practice e.g. Bronchial asthma, hypertension, congestive heart failure, angina pectoris, peptic ulcer, urinary tract infection, typhoid fever, diabetes mellitus, osteoarthritis, anaphylaxis, status asthmaticus, status epilepticus, iron deficiency & megaloblastic anemia etc.

To familiarize the students with

- \* Methodology of prescription writing
- \* Drug combinations of marketed preparations

## SCHEME OF EXAMINATION

**A) Theory: 70 Marks**

**Duration of paper : 3 Hours.**

**Examination component with distribution of marks:**

Topics	Type & No. of questions	Marks
Entire portion	MCQ 20x1	20
General pharmacology, Routes of drug administration, factors modifying drug action Anticholinergics, Beta – Blockers Antihypertensives, Opioid analgesics, NSAIDS, Chemotherapy - Penicillins, Fluoroquinolones, Tetracyclines Fluoride pharmacology,	Long essays 2x10	20
General pharmacology, Sympathomimetics, alpha blockers, Cardiac glycosides, Diuretics, Antianginals, Pharmacotherapy of shock and plasma expanders, Hypolipidemics, Coagulants, Styptics Anticoagulants, Anti platelet drugs, Hematinics, Ethyl alcohol, Sedatives and Hypnotics, General anesthetics, Preanaesthetic medication, local anesthetics, Antipsychotics, Antidepressants, Antihistaminics, Skeletal muscle relaxants, Chemotherapy, Anti diabetics, Corticosteroids, Anti thyroids, Calcium metabolism, Vit. D., Drugs used in bronchial asthma, cough, Purgatives, Anti-diarrheals, Antiemetics, Drugs used for peptic ulcer, Fluoride Pharmacology, Antiseptics, Astringents, Obtundants.	Short essay 10x3	30
	Total	70



**B) Practical : 90 Marks**

- Spotters : 10 Marks
- Dental prescription : 10 Marks
- General prescription : 10 Marks
- Comment on fixed dose combinations : 10 Marks
- Pharmacy exercise :
  - Preparation - General : 25 Marks
  - Preparation - Dental : 25 Marks

**C) Viva Voce : 20 Marks**
**D) Internal Assessment : Theory Examination : 10 Marks**  
**& Practical Examination : 10 Marks**
**THEORY : 100 Marks**

- Theory examination : 70 Marks
- Theory Internal Assessment : 10 Marks
- Viva Voce : 20 Marks

**100 Marks****PRACTICAL : 100 Marks**

- Practical Examination : 90 Marks
- Practical Internal Assessment : 10 Marks

**:100 Marks****Recommended Books :**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1.	Pharmacology and pharmacotherapeutics	R.S. Satoskar, S.D. Bhandarkar, S.S. Ainapure	18 <sup>th</sup>	2003	Mumbai popular Prakashan
2	Essentials of Medical Pharmacology	K.D. Tripathi	5 <sup>th</sup>	2003	Jaypee brother
3	Clinical Pharmacology	Laurence and Bennet	8 <sup>th</sup>	1997	Longman Singapore
4	Basic and Clinical Pharmacology	Katzung	9 <sup>th</sup>	2004	McGraw Hill

**Reference Books :**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1.	The Pharmacological Basis of Therapeutics	Goodman & Gilman's	11 <sup>th</sup>	2005	McGraw Hill
2	Pharmacology	Rang H P & Dale M M	5 <sup>th</sup>	2003	Churchill Livingstone

## **4.10 GENERAL PATHOLOGY**

**Theory – 55 Hours, Practical – 55 Hours**

### **GOAL:**

To apply the scientific study of disease processes, which result in morphological and functional alterations in cells, tissues and organs to the study of pathology and the practice of dentistry.

### **OBJECTIVES:**

#### **a) KNOWLEDGE**

At the end of the II BDS course the student should be able to:

1. Demonstrate and apply basic facts, concepts and theories in the field of Pathology.
2. Recognize and analyse pathological changes at macroscopic and microscopic
3. Levels and explain their observations in terms of disease processes.
4. Integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of Pathology.
5. Demonstrate understanding of the capabilities and limitations of morphological, pathology in its contribution to medicine, dentistry and biological research.
6. Demonstrate ability to consult resource materials outside lectures, laboratory and tutorial classes.

#### **b) SKILLS**

At the end of the II BDS course the student is expected to :

1. To do basic lab investigations.
2. To recognize common lesions in Head & neck region.
3. To identify pathological changes grossly and microscopically.

# **COURSE CONTENT**

## **THEORY : 60 Hours**

### **I Introduction to Pathology : 01 Hour**

- a. Evolution of modern pathology.
- b. Subdivisions in pathology.
- c. Techniques used in the study of pathology.
- d. Terms used in pathology.

### **II. Disturbances of metabolism of cells : 02 Hours**

- a. Intra cellular accumulations : Fatty change, accumulation of lipids, proteins, glycogen and hydropic change.
- b. Hyaline change and mucoid degeneration.
- c. Disorders of Pigmentation and pathologic calcification.

### **III. Cell injury : 04 Hours**

- a. Types : Mechanism, intracellular changes, morphology with examples.
- b. Necrosis : Definitions, types of necrosis with examples and cellular changes (morphology), mechanism.
- c. Apoptosis : Definition example, morphology.
- d. Gangrene- Definition, types with examples, differences between dry and wet gangrene, stressing mainly on cancrum oris.

### **IV. Amyloidosis : 02 Hours**

- a. Definition, pathogenesis and emphasis on localised amyloidosis, special stains for amyloidosis.

### **V. Inflammation and Repair : 05 Hours**

- a. Acute inflammation, chemical mediators of acute inflammation and outcome of acute inflammation.
- b. Chronic inflammation.
- c. Granulomatous inflammation : Definition of Granuloma, types of granuloma with examples.
- d. Patterns and systemic effects of Inflammation.

### **VI. Healing of wound : 02 Hours**

- a. Factors affecting wound healing.
- b. Special emphasis on healing of fracture.

### **VII. Immunity and hypersensitivity : 01 Hour**

- a. Definition, types and mechanisms of immunologic tissue injury with examples.

**VIII. Infection and infestation : 04 Hours**

- a. Bacterial Infection - Pyogenic infections, typhoid fever, Tuberculosis, syphilis, leprosy.
- b. Viral Infection - HIV, HPV, HSV infections.

**IX. Circulatory disturbances : 05 Hours**

- a. Hyperaemia.
- b. Congestion and Haemorrhage.
- c. Shock and oedema.
- d. Thrombosis, embolism and infarction.

**X. Disturbances of nutrition: 02 Hours**

- a. Deficiency of protein, carbohydrate, fat.
- b. Vitamin deficiency : Vitamin A, C, D, K & Vitamin B complex.

**XI. Cellular growth and differentiation : 02 Hours**

- a. Adoptive disorders of growth :  
Atrophy, Hypertrophy, Hyperplasia and Metaplasia.
- b. Dysplasia.

**XII. Neoplasia: 05 Hours**

- a. Definition, classification, characteristics of benign and malignant tumours.
- b. Spread of malignant tumours.
- c. Aetiology and Pathogenesis of neoplasia.
- d. Clinical aspects and laboratory diagnosis of cancer.
- e. Premalignant lesions.
- f. Oncogenes and antioncogenes.

**XIII. Diseases of bone : 02 Hours**

Osteomyelitis, tumours and tumours like lesions of bone.  
(Fibrous dysplasia, osteoma, osteoclastoma, osteosarcoma chondrosarcoma).

**XIV. CVS: 03 Hours**

Hypertension, Atherosclerosis, IHD.

**XV. Diabetes mellitus : 02 Hours**

- a. Aetiopathogenesis, morphological changes in different organs,
- b. Complications and lab investigations.

**XVI. Diseases of Blood: 12 Hours**

- a. Anaemia: Iron Deficiency, *Megaloblastic anemia*, Hemolytic, Aplastic, Pernicious, Sickle cell anaemia and their lab investigations.

- b. Pathologic variations in white cells counts and leukemoid reactions.
- c. Leukemia's and lymphomas with investigations.
- d. Haemorrhagic disorders with their lab investigations.
- e. Blood transfusion and transfusion reactions.

#### **XVII. Urine analysis : 02 Hours**

- a. Physical, chemical and microscopy.

#### **XVIII. Introduction to diseases of Oral Cavity & Salivary glands : 03 Hours**

- a. Inflammatory conditions of oral Cavity.
- b. Dental caries.
- c. Sialadenitis, Pleomorphic adenoma, and Warthin's tumour.
- d. Ameloblastoma.
- e. Squamous cell carcinoma.

#### **PRACTICALS: 60 Hours**

##### **I. Haematology Exercise: 19 Hours**

- a. Haemopoiesis – 2 hours
- b. Anti coagulants, Packed cell volume and calculation of blood indices with their clinical importance. – 2 hours
- c. Hb estimation, Total WBC count, DC, PS- staining and reporting. – 4 hours
- d. Blood Grouping - 1 hour
- e. Bleeding time, Coagulation time and Erythrocyte sedimentation rate with their significance. – 4 hours
- f. Study of Anaemias - Iron deficiency anaemia and dimorphic anaemia - 2 hours.
- g. Study of acute Leukemias - 2 hours
- h. Study of chronic Leukemias - 2 hours

##### **II. Instruments: 2 Hours**

- a. Neubauer's Counting chamber, Haemoglobinometer, W.B.C. Pipette, Wintrobe's tube, Urinometer - 2 hours

##### **III. Clinical Pathology: 4 Hours**

- a. Urine Examination – Physical Examination - 2 hours
- b. Chemical Examination – Sugar, Ketone bodies, albumin & blood - 2 hours

##### **IV. Histopathology Slides: 22 Hours**

- a. Acute appendicitis, Granulation tissue. 2 hours
- b. Actinomycosis, Rhinosporidiosis, Rhinoscleroma. 2 hours

c.	Tubercular Lymphadenitis, Fatty liver.	2 hours
d.	Chronic Venous congestion (CVC) liver, spleen and lung.	2 hours
e.	Amyloidosis- Liver, kidney.	2 hours
f.	Squamous papilloma, Squamous cell carcinoma	2 hours
g.	Capillary and cavernous haemangioma.	2 hours
h.	Lipoma, Neurilemmoma.	2 hours
i.	Basal cell carcinoma, Malignant melanoma	2 hours
j.	Pleomorphic adenoma, Warthins tumour, Adenocarcinoma	2 hours
k.	Osteosarcoma, Osteoclastoma.	2 hours

#### **V. Specimens: 6 Hours**

- a. Acute Appendicitis.
- b. Tuberculous lymph node.
- c. Fatty liver.
- d. Infarction Heart.
- e. Chronic Venous Congestion (C.V.C) Liver.
- f. Squamous papilloma.
- g. Pleomorphic adenoma.
- h. Lipoma.
- i. Squamous cell carcinoma.
- j. Malignant Melanoma.
- k. Lymphoma.
- l. Osteosarcoma.
- m. Osteoclastoma.
- n. Gangrene.

#### **VI. Cytologic techniques : 2 Hours**

- a. Fine Needle Aspiration Cytology and Buccal smear

#### **Revision Classes : 6 Hours**

## SCHEME OF EXAMINATION

**A. THEORY : 35 Marks**

**Duration of paper – 1 Hour 30 mins.**

**Distribution of Topics, Questions & Marks:**

Sl. No	Question Topics	Type and No. of Questions & Marks	Total Marks
	Multiple Choice Questions	MCQ 10 x 1 Mark	10
1	Inflammation Healing of wound & fracture bone Growth disturbances & Neoplasia Anaemias & Leukaemias Hemorrhagic disorders Circulatory disturbances Necrosis, gangrene, Amyloidosis Bone lesions Diseases of oral cavity & salivary glands Infectious diseases	Long Essays 1 x 10 marks	10
2	Inflammation Healing of wound & fracture bone Hemorrhagic disorders Immunity & Hypersensitivity Diabetes mellitus. Anaemias & Leukaemias Necrosis, gangrene, Amyloidosis Growth disturbances & Neoplasia Diabetes mellitus. Bone lesions Diseases of oral cavity & salivary glands Blood transfusion Lymphomas Circulatory disturbances, Infectious diseases	Short Answers 5 x 3 marks	15
		<b>Total</b>	<b>35</b>

**B. PRACTICALS : 45 Marks**

1. Spotters **10 Marks**
- Haematology - 02 Marks
- Histopathology Slides - 03 Marks
- Specimens - 03 Marks
- Instruments - 02 Marks
2. To examine given sample of urine for abnormal constituents - **10 Marks**
3. To do differential count on the given stained peripheral blood smears - **10 Marks**
4. To estimate haemoglobin percentage in the given sample of blood - **10 Marks**
5. Records : **05 Marks**
- Total Marks : 45 Marks**

**C. VIVA VOCE: 10 Marks****D. INTERNAL ASSESSMENT : Theory Examination : 5 Marks & Practical : 5 Marks****THEORY : 50 Marks**

Theory examination : 35 Marks

Theory Internal Assessment : 05 Marks

Viva Voce : 10 Marks

50 Marks

**PRACTICAL : 50 Marks**

Practical Examination : 45 Marks

Practical Internal Assessment : 05 Marks

: 50 Marks



**Recommended Books :**

Sl. No.	Title	Author	Edition	Yr. of Publ.	Publisher
1.	Robbin's pathologic basis of disease	Cotran & Kumar, Robins	7 <sup>th</sup>	2004	Prism & Saunders Bangalore
2.	De. Gruchy Clinical Haematology in Medical Practice	Frank Firskin Colin Chesterman David Penington Bryan Rush	5 <sup>th</sup>	2005	Oxford University Press New Delhi
3.	Pathology for dental students	Harsh Mohan	1 <sup>st</sup>	1994	Jaypee Brothers New Delhi
4.	Medical Laboratory Technology (Methods and Interpretation)	Ramnik Sood	5 <sup>th</sup>	1994	Jaypee Brothers New Delhi
5.	Text book of Medical Laboratory Technology	Godkar	2 <sup>nd</sup>	2003	Bhalani Bombay
6.	Text book of Hematology	Tejinder Singh			Arya Publication

**Reference Books :**

Sl. No.	Title	Author	Edition	Yr. of Publ.	Publisher
1.	Haematology an illustrated colour text	Martin R, Howard Peter J, Hamilton	1 <sup>st</sup>	1997	Churchill Livingston USA
2.	General Pathology Vol. I & II	S.G. Deodhare	6 <sup>th</sup>	2002	Popular Prakashan Bombay
3.	Colour Atlas of Histopathology	R.C. Curran	4 <sup>th</sup> (Revised)	2000	Harvey Miller Oxford University Press

## **4.11 MICROBIOLOGY**

Theory – 65 Hours, Practical – 50 Hours

### **GOAL :**

To introduce the students to the existing world of microbes so as to make the students aware of various branches of microbiology, its importance, significance and contribution to mankind and other fields of medicine.

### **OBJECTIVES :**

#### **a) KNOWLEDGE**

At the end of the II BDS course the student is expected to :

1. Describe relationship between host and parasite.
2. List the pathogenic organisms and describe the pathogenesis of infectious diseases.
3. State methods of transmission, source of infection & vectors of transmission.
4. Describe the immunological reaction of the body.
5. Knowledge of Anti Microbial Drugs.
6. Methods of disinfection and sterilization relevant to dental practice.
7. Recommend laboratory investigations regarding testing of water, air etc.

#### **b) SKILLS**

At the end of the II BDS course the student is expected to :

1. Plan and interpret laboratory investigations for the diagnosis of infectious diseases and also to correlate the clinical symptoms with etiological agent.
2. Identify common infectious agents with the laboratory aid and use of anti microbial susceptibility test to select drugs for treatment.
3. Perform commonly employed bed side tests like making the smear for diagnosis and staining procedures -  
Eg : Peripheral smear for diagnosis of malaria.  
Grams Stain, Ziehl Neelsen's Stain, Alberts Stain.
4. Know correct method of collection, storage and transportation of clinical material for investigation.

# **COURSE CONTENT**

**Theory : 65 Hours.**

## **I. GENERAL BACTERIOLOGY : 06 Hours**

- a. Morphology – Structure, appendages, demonstration.
- b. Physiology - Nutritional requirement, growth curve.
- c. Bacterial genetics – Mechanism of genetic transfer, drug resistance.
- d. Infection – definition, bacterial factors, Host factors, types of infection, carrier, septicaemia, bacteraemia, pyemia, toxemia, epidemic, endemic, pandemic, nosocomial infection.

## **II. IMMUNOLOGY : 13 Hours**

- a. Immunity – Definition, classification, factors, mechanisms, examples
- b. Antigens – definition, types and properties.
- c. Antibodies – structure, functions of diff. types of Immuno globulins.
- d. Immune system – structure, function of T cells, B cells, differences.
- e. Immune response – factors responsible for immune variations, adjuvants, mechanism.
- f. Antigen – Antibody reactions – definition, mechanism, examples, clinical applications of Ag-Ab reactions like agglutination, precipitation, Complement Fixation Test (CFT), Neutralisation, Fluorescent Immune test, Opsonisation, ELISA test etc.
- g. Hypersensitivity – definition, classification, mechanisms.
- h. Autoimmunity – Theories, definition, classification, mechanisms.

## **III. SYSTEMIC BACTERIOLOGY : 25 Hours**

- a. Staphylococci – Classification, morphology, pathogenesis, pathogenicity tests, lesions, lab diagnosis and treatment.
- b. Streptococci – Classification, morphology, cultural characters, pathogenesis, lab diagnosis, sequelae, Dental plaque, Dental caries and its diagnosis.
- c. Pneumococci – Morphology, cultural characters, diff. Between pneumococci and streptococci , Pathogenicity and lab diagnosis.
- d. Meningococci – Causes of bacterial meningitis, Morphology, lab diagnosis of bacterial meningitis including meningococcal meningitis.

- e. *Corynebacterium diphtheriae* – Morphology, cultural characters, toxigenicity, its occurrence, spread, lab diagnosis, prophylaxis.
- f. *Bacillus* species - Morphology, lesions and lab diagnosis.
- g. Clostridia - Classification, pathogenesis, lab diagnosis of gas gangrene, tetanus, prophylaxis and clinical features.
- h. Nonsporing anaerobes – Classification, pathogenesis, lesions, Lab diagnosis in respect to dental infections.
- i. Mycobacteria – *Mycobacterium leprae*, *Mycobacterium tuberculosis*, A typical mycobacteria, morphology, classification, cultural characters, pathogenesis, lab diagnosis, susceptibility test and prophylaxis.
- j. Actinomycosis – Morphology, lesions in respect to orofacial lesions, lab diagnosis.
- k. Spirochaetes – classification, morphology, pathogenesis and lab diagnosis of *Treponema*, *Borrelia*, *Leptospira*.
- l. Normal Bacterial flora of the oral cavity – Enumerating the importance of opportunistic organisms in dental practice.

#### **IV. VIROLOGY : 11 Hours**

- a. General virology – general properties, definition, classification, structure, pathogenesis, cultivation, lab diagnosis, antiviral agents immunology.
- b. Herpes viruses – structure, classifications, lesions and lab diagnosis HSV 1,2, EBV, CMV, Virus Zoster (VZ) virus.
- c. Measles & Mumps viruses – structure, lesions, prophylaxis and lab diagnosis.
- d. Hepatitis viruses – ABCDE; structure, route of entry, lesions, lab diagnosis and prophylaxis.
- e. HIV – classification, structure, pathogenesis, route of entry opportunistic infection in AIDS, lab diagnosis – prophylaxis

#### **V. PARASITOLOGY : 04 Hours**

- a. Introduction to parasitology – classification, general diseases caused by them.
- b. *Entamoeba*, Malaria, *Leishmania* – Morphology, Clinical features, pathogenesis and lab diagnosis.

#### **VI. MYCOLOGY : 04 Hours**

- a. *Candida* – Morphology, lesions, lab diagnosis, diff. species in relation to oral candidiasis.

- b. Rhinosporidiosis.

## **VII. APPLIED MICROBIOLOGY : 02 Hours**

- a. Immunisation schedule, Collection of materials, Experimental animals & hospital infections.

**DESIRABLE TO KNOW** (Theory questions need not be asked from this list)

### **I. GENERAL BACTERIOLOGY:**

- a. Introduction.
- b. Historical aspects.
- c. Classification.

### **II. IMMUNOLOGY:**

- a. Complement – properties and functions.
- b. Immuno deficiency diseases, enumerating the diseases.
- c. Immunology of transplantation, classification and brief description of transplantation.

### **III. BACTERIOLOGY:**

- a. Gonococci- Morphology, lesions, lab diagnosis.
- b. Coliforms- Classification, pathogenesis, infections caused by them and lab diagnosis.
- c. Proteus- Classification, pathogenesis, infections caused by them and lab diagnosis.
- d. Salmonella-pathogenesis, lab diagnosis, prophylaxis.
- e. Shigella- classification, pathogenesis, lab diagnosis.
- f. Vibrio- pathogenesis & lab diagnosis.
- g. Pseudomonas- Importance in hospital infection and drug resistance.

### **IV. VIROLOGY:**

- a. Adeno oncogenic viruses.
- b. Rabies viruses- structure, pathogenesis, clinical features, lab diagnosis, prophylaxis.
- c. Poliomyelitis- Pathogenesis, clinical features, lab diagnosis, prophylaxis.

## **V. PARASITOLOGY:**

- a. Important Helminthic parasites.

## **VI. APPLIED MICROBIOLOGY:**

- a. Immunization schedule- prophylaxis.
- b. Collection of materials- for lab diagnosis.
- c. Experimental animals- Uses of animals in dentistry.

### **NICE TO KNOW :**

Opportunistic fungal infections.

Cryptococcosis.

Enteric fever in detail.

Malaria in detail.

Acute respiratory infections.

Organisms causing diarrhoeas.

### **PRACTICALS : 50 Hours**

#### **MUST KNOW**

##### **Practical Demonstrations :**

- |  |    |
|--|----|
| a. Sterilisation and Disinfection in detail.   | 06 |
| b. Culture media.                              | 04 |
| c. Culture methods & Anaerobic methods.        | 02 |
| d. Identification of bacteria & demonstration. | 02 |
| e. Microscopy.                                 | 02 |

##### **Practicals :**

- |  |    |
|--|----|
| a. Simple stain and Hanging drop<br>( Not for exams) | 07 |
| b. Gram's stain.                                     | 09 |
| c. Albert's stain.                                   | 09 |
| d. Ziehl Neelsen's stain.                            | 09 |

**Total Hours : 50**

**Slides for demonstration:**

Staphylococcus.

Streptococcus

Gonococcus

Pneumococcus

M tuberculosis.

M leprae.

Anthrax

Cl.tetani.

Spirochaetes.

Gram Negative Bacilli.

Candida.

Actinomyces.

**Slides for practical exercises:**

Grams stain - Staphylococci.

- Gram negative bacilli.

- Mixture of any two organisms.

- Gram stain of the oral cavity.

Alberts stain\_ Kleb's Loeffler's Bacilli (KLB) culture slide.

Ziehl-Neelsen's stain- Sputum positive for AFB.

**Media for demonstration:****Uninoculated media:**

Nutrient agar plate.

Blood agar plate.

Chocolate agar plate.

Mac Conkey agar plate.

Glucose citrate broth (Blood culture bottle)

Lowenstein Jenson's Media slope.

Loefflers serum slope.

Sabourauds slope.

Milk agar plate.

Robertson's Cooked Meat broth.

### **INOCULATED MEDIA :**

Nutrient agar with staphylococci.

Blood Agar with Alpha Haemolytic Streptococci.

Blood Agar with Beta Haemolytic Streptococci.

Potassium Tellurite with growth of *C.diphtheriae*.

Milk agar with Staphylococci.

Antibiotic sensitivity plate.

### **INSTRUMENTS:**

VDRL slide.

Tuberculin syringe.

Sterile swab

Seitz filter

MacIntosh fields jar.

Widal rack with tubes.

Microtitre plate

Disposable syringe

Surgical gloves.



## SCHEME OF EXAMINATION

**A) Theory : 50 Marks.**

**Duration of Paper : 1 Hour 30 Mins.**

**Distribution of Topics and Type of Questions:**

Contents	Type of Questions and Marks	Marks
MCQs	10 x 1 marks	10
One Long Essay question from Systematic Bacteriology  One question from General bacteriology One question from Immunology One question from Mycology One question from Parasitology/Oral Microbiology One question from Systematic Bacteriology	Long Essays 1 x 10 marks	10
One question from General bacteriology One question from Immunology One question from Systematic Bacteriology Two questions from Virology	Short Answers 5 x 3 marks	15
	<b>Total</b>	<b>35</b>

**B) Practicals : 45 Marks**

- |                              |                 |
|------------------------------|-----------------|
| i) Spotters                  | <b>15 Marks</b> |
| Slides (6)                   | — 09 Marks      |
| Media                        | — 03 Marks      |
| Instruments                  | — 03 Marks      |
| ii) Gram's Stain             | <b>10 Marks</b> |
| iii) Ziehl - Neelsen's Stain | <b>15 Marks</b> |
| iv) Records                  | <b>05 Marks</b> |

**Total : 45 Marks**

**C) VIVA VOCE : 10 MARKS**

**D) INTERNAL ASSESSMENT : Theory : 5 Marks & Practicals : 5 Marks**

**THEORY : 50 Marks PRACTICAL : 50 Marks**

Theory examination	: 35 Marks	Practical Examination	: 45 Marks
Theory Internal Assessment	: 05 Marks	Practical Internal Assessment	: 05 Marks
Viva Voce	: 10 Marks		
	50 Marks		: 50 Marks

**RECOMMENDED BOOKS :**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1	Text Book of Microbiology	R. Anantha Narayan & C.K. Jayaram Panikar	6 <sup>th</sup>	2000	Orient Longman Madras
2	Medical Microbiology Volume I	Cruickshank	13 <sup>th</sup>	1989	Medical Division Orient Longman group Edinburg
3	Text book of Microbiology for Dental Students	Prof. C. P. Baveja	1 <sup>st</sup> Ed.	2003	Arya Publications
4	Text Book of Microbiology for Dental Students	Dr. Arora	1 <sup>st</sup> Ed.	1999	CBS Publishers & Distributors, 4596/1A "Daryaganj" New Delhi -02.

**Reference books :**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1	Immunology	Donald M Weir	7 <sup>th</sup>	1993	Longman Singapore Pub. Lt. Singapore
2	Medical Parasitology	N.C. Dey and T.K. Dey	10 <sup>th</sup>	1997	New Central Book Agency Pvt. Ltd.Calcutta
3	Notes on Medical Virology	Morag C. Timbury	7 <sup>th</sup> Ed.	1983	Longman Group Ltd. Churchill Livingstone, Singapore
4	Medical Mycology	NcDey HLE Grueber TK Dey	1st Central	2006 Ed.	New Central Book Agency Howrah.
5	A Text Book of Microbiology	P.C. Chakraborty	1st Ed. Reprint	2005	Central Book Agency (P) Ltd Kolkata
6	Essentials of Medical Microbiology	Rajcoh Bhatia Rattanlal Ichhpujam	3 <sup>rd</sup> Ed.	2004	Jaypee Brothers New Delhi

## **4.12 DENTAL MATERIALS**

**Theory – 60 Hours, Practical – 200 Hours**

### **GOAL :**

Goal is to emphasize on the basic properties of Dental materials and to provide certain criteria for selection, which will enable to discriminate between facts and propaganda with regards to claims of manufacturers. It also enables the students to apply these materials for clinical practice and keep the students updated with further research, as the knowledge of dental materials is fundamental to the dental education.

### **OBJECTIVES :**

#### **a) KNOWLEDGE**

At the end of the II BDS course the student is expected to :

1. Understand the evolution and development of science of dental material.
2. Explain purpose of course in dental materials to personnels concerned with dentistry.
3. Know the physical, chemical and biomechanical properties of various materials used in dentistry.
4. Lay down the standards or specifications of various materials to guide manufacturers as well as to help professionals.
5. Search for newer and better materials, which may answer our requirements with greater satisfaction.
6. Understand and evaluate the claims made by manufacturers of dental materials.
7. Know the biohazards of various dental materials used.

#### **b) SKILLS**

At the end of the II BDS course the student is expected to :

1. Acquire skills to manipulate various dental materials used in dentistry.
2. Possess skills to apply dental materials for clinical use.
3. Know the merits and demerits of dental materials.

# **COURSE CONTENTS**

## **THEORY : 60 HOURS**

### **I. Dental Porcelains : 7 Hours.**

Types, composition, role of each ingredient, manipulation, advantages and disadvantages of aluminous porcelain, castable porcelain, metal fused to porcelain and porcelain repair materials.

### **II. Tooth restorative materials : 15 Hours.**

- a. Classification and ideal properties.
- b. Dental cements – classifications, ideal requirements of liners, bases and luting cements.
  - i. Composition, properties, chemistry of setting, manipulation and uses of silicate and silico phosphate cements (in brief), zinc phosphate, zinc polycarboxylate, calcium hydroxide, glass ionomer, modified glass ionomer and resin cement.
  - ii. Comparative properties of mechanical, biological and esthetic properties of all cements.
- c. Dental varnishes.
- d. Restorative resins – Brief history, classification, chemistry of setting, composition, properties, uses, manipulation, advantages and disadvantages.
- e. Acid etching and bonding agents.
- f. Pit and fissure sealants.

### **III. Metals and Alloys : 5 Hours.**

Solidification and microstructure of metals, classification of alloys, relevant physical and mechanical properties, annealing, heat treatment, soldering, welding, fluxes and anti fluxes.

### **IV. Silver amalgam alloys : 7 Hours.**

- a. Brief history, classification, composition, role of each ingredient, setting reaction, properties, manipulation and uses.
- b. Comparative study of all types of silver amalgams.
- c. Mercury Hygiene and Toxicity.

### **V. Casting gold alloys : 2 Hours.**

Classification, corrosion, contents and role of each ingredient and indications of white gold.

### **VII. Dental casting investments (Refractory materials): 4 Hours.**

- a. Classification, composition, manipulation, setting reaction, thermal expansion and technical consideration.
- b. Sprues.

- VIII. Casting procedure and defects (In general) : 4 Hours.
- IX. Base metal casting alloys : 4 Hours.  
Properties, composition and uses of Co-Cr and Ni-Cr.
- X. Materials used in Orthodontia : 5 Hours.
  - a. Luting cements and direct bonding agents.
  - b. Properties and gauges of wires of gold, stainless steel, Co-Cr and titanium alloys, brackets and sensitization.
- XI. Finishing and Polishing materials : 3 Hours.  
Abrasives and polishing agents.
  - a. Clinical.
  - b. Laboratory.
  - c. Dentifrices.
- XII. Dental Implant materials : 2 Hours.  
History, biological properties and different designs.
- XIII. Direct filling Gold : 2 Hours.  
Types, advantages, disadvantages and manipulation.

## **PRACTICAL: 200 HOURS**

Impression materials : 50 Hours.

- 1. Manipulation of Impression compound.
- 2. Manipulation of irreversible hydrocolloid.
- 3. Manipulation of zinc oxide eugenol and making impression and identifying setting time and defects.
- 4. Demonstration of Resin Cement
- 5. Manipulation of Calcium hydroxide

Manipulation and curing of self and heat cure acrylic resin : 20 Hours.

Dental Cements : 50 Hours.

Manipulation and studying of working and setting time of luting, base and restorative dental cements.

Silver Amalgam : 30 Hours.

Trituration, condensation and studying of working time.

Manipulation of Agar : 10 Hours.

Manipulation of Elastomeric impression material : 10 Hours.

Manipulation of Composite Resins : 10 Hours.

Casting machines and casting procedure : 10 Hours.

Porcelain furnace and ceramic build-up : 10 Hours.

## SCHEME OF EXAMINATION

For 2nd Year B.D.S.

A) Theory : 70 Marks

Duration of paper – 3 Hours

CONTENTS	TYPE OF QUESTIONS AND MARKS	MARKS
<b>Multiple Choice Questions</b>	M.C.Q. 20 x 1 Mark	<b>20</b>
<b>Conservative Dentistry topics</b> 1. Bonding . 2. Composite Resins. 3. Dental cements. 4. Silver Amalgam alloys. 5. Direct filling Gold	Long Essays 1 x 10 marks	<b>10</b>
<b>Prosthodontics topics</b> 1. Impression materials. 2. Gypsum products. 3. Denture base resins. 4. Dental Porcelain. 5. Investment materials. 6. Base metal casting alloys. 7. Casting procedures. 8. Waxes & base plate materials. 9. Metals and alloys. 10. Casting gold alloys. 11. Base metal casting alloys.	Long Essays 1 x 10 marks	<b>10</b>
<b>Conservative and Prosthetic topics</b> 1. Structure and behavior of matter 2. Introduction to dental materials 3. Bonding. 4. Composite Resins. 5. Dental cements. 6. Silver Amalgam alloys. 7. Direct filling Gold 8. Waxes & base plate materials. 9. Metals and alloys. 10. Finishing and polishing material. 11. Dental Implant materials. 12. Casting gold alloys. 13. Impression materials. 14. Gypsum products. 15. Denture base resins. 16. Dental Porcelain. 17. Investment materials. 18. Base metal casting alloys. 19. Casting procedures. 20. Materials used in orthodontia	Short Essays 3 x 10 marks	<b>30</b>
<b>Grand total</b>		<b>70</b>

**B) Practicals : 90 Marks**

- a. **15 Spotters carrying 1 mark each :** **15x1 = 15 marks**
- b. **Major exercises :** **20x1 = 20 Marks**
- Manipulation of impression compound and preparation of a plaster cast of U/L arch.
- c. **Minor Exercises (Any one of them)** **20x1 = 20 Marks**
- Manipulation of alginate impression material and preparation of plaster cast of U/L arch.
  - Manipulation of Zinc Oxide Eugenol impression paste, and preparation of cast of U/L arch.
- d. **Major exercises :** **20x1 = 20 Marks**
- Trituration of Silver Amalgam and Condensation into the cavity prepared on extracted natural tooth/ typhodont.
- e. **Minor Exercises ( Any one of them)** **15x1 = 15 marks**
- Zinc Phosphate Cement (Luting and Base consistency).
  - Zinc (Polycarboxylate) Cement (Luting consistency).
  - Zinc Oxide Engenol (ZOE) (Luting and Restorative consistency).
  - Glass Ionomer Cement Type I/II (Luting / Restorative Consistency).
- (Cements which are mixed for Base or Restorative consistency should be filled in the cavity prepared on the extracted natural tooth / typhodont).

**Total = 90 Marks****Internal Assessment****Theory : 10 Marks****Practicals: 10 Marks**

<b>THEORY : 100 MARKS</b>	<b>PRACTIAL : 100 Marks</b>
<b>Theory examination : 70 Marks</b>	<b>Practical Exam : 90 Marks</b>
<b>Viva Voce : 20 Marks</b>	<b>Practical Internal Assessment : 10 Marks</b>
<b>Theory Internal Assessment : 10 Marks</b>	



**RECOMMENDED BOOKS :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edn.</b>	<b>Yr. of Publ.</b>	<b>Publisher</b>
1.	Phillips' Science of Dental Materials	Kenneth. J. Anusavice	11 <sup>th</sup>	2012 South Asian	W.B. Saunders Company.
2.	Notes on Dental Materials	Combe E.C	6 <sup>th</sup>	1992	Churchill Livingstone.
3.	Applied Dental Materials	John. F. Mc. Cabe	8 <sup>th</sup>	1992	Oxford Blackwell Scientific.
4.	Text Book of Dental Materials	Craig. O. Brien	6 <sup>th</sup>	1996	Mosby.
5.	Restorative Dental Materials	Craig R.G. Powers J. M.	11 <sup>th</sup>	2002	Harcourt, India Pvt, Ltd.
6.	Dental Materials	Koudi M.S	1st	2007	Elsevier, India Pvt, Ltd.

## **4.13 ORAL PATHOLOGY & ORAL MICROBIOLOGY**

The Syllabus of Oral pathology and microbiology will be taught in II and III BDS. The University Examination will be held at the end the III Year

### **GOAL :**

A bird's eye view of the different pathological processes involving the oral cavity and oral manifestations of systemic diseases.

### **OBJECTIVES :**

#### **a. Knowledge :-**

At the end of Oral Pathology & Microbiology course, the student shall be able to comprehend

1. The different types of Pathologies, that involve the oral cavity
2. The manifestations of common diseases, their diagnosis & correlation with clinical and pathological processes
3. An understanding of the oral manifestation of systemic diseases should help in correlating with the systemic physical signs & laboratory findings.
4. The student should understand the underlying biological principles governing treatment of oral diseases.
5. The principles of certain basic aspects of Forensic Odontology

#### **b. Skills :**

1. Microscopic study of common lesions affecting oral tissue through microscopic Slide & projection slides.
2. Study of the disease process by surgical specimens
3. Study of teeth anomalies /polymorphisms through tooth specimens & plaster cast
4. Microscopic study of plaque pathogens
5. Study of hematological preparation (blood films) of anaemias & leukemias
6. Basic exercise in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.

## **COURSE CONTENT (To be covered in II yr.)**

### **THEORY: 25 Hours**

- 1. Development Disturbances of Oral and Para oral Structures 10 Hrs**
  - a. Definition of commonly used terms in Genetics
  - b. Development Disturbances of teeth, jaws, & soft tissues of oral paraoral structures (Lip, buccal mucosa, salivary glands, palate), inclusion, Fissural cysts of the oral region
- 2. Dental Caries 4 Hrs**
  - a. Definition, Classification, Etiopathogenesis, theories, microbiology, clinical features, diagnosis, radiology, histopathology, prevention of dental caries & its sequelae, caries activity tests.
- 3. Diseases of Pulp & Periapical tissues 4 Hrs**
  - a. Etiopathogenesis & interrelationship, classification, clinical features, microbiology histopathology & radiological features (as appropriate) of pulp & periapical lesions & osteomyelitis.
  - b. Sequelae of Periapical abscess –summary of space infections, systemic complications & significance
- 4. Diseases of Periodontium 2Hrs**
  - a. Etiopathogenesis, microbiology, clinical features, histo-pathology & radiological features (as appropriate) of gingivitis, gingival enlargements & periodontitis.
- 5. Microbial infections of the Oral Cavity 5 Hrs**

Viral - Herpes Simplex, Varicella zoster, Measles, Mumps & HIV infection and Oral manifestation of AIDS

Bacterial - Scarlet fever, Diphtheria, Tuberculosis, Syphilis, Actinomycoses & its complications - Cancrum Oris, Tetanus, Noma

Fungal infections - Candidiasis, Histoplasmosis

### **PRACTICAL: 50Hrs**

- 1. Identification of normal cells: Fibroblast, Osteoblast, Osteoclast, Blood cells 2 Hrs**
- 2. Routine and Special stains : Haematoxylin and eosin, Mallory , PAS , Von-geison , PAP stain, Masson's Trichrome 7 Hrs**

3. Identification of Specimens of various development anomalies and diseases **18 Hrs**
4. Identification of histopathology of **8 Hrs**
  - a. Dental caries**  
Pit & Fissure Caries  
Smooth surface caries
  - b. Pulp and periapical pathoses** **9 Hrs**  
Pulp Hyperemia  
Periapical Granuloma  
Radicular cyst  
Cholesterol clefts  
Rushton Bodies  
Osteomyelitis
  - c. Microbial infections of Oral soft tissues** **6 Hrs**  
Tuberculous lymph node  
Actinomycosis

#### RECOMMENDED BOOKS:

S.NO	Name of the Book Recommended	Author	Publisher
1	A Text Book of Oral Pathology	Shafer Hine & Levy	Elsevier
2	Manual of oral histology and oral pathology: Color Atlas	Maji-Jose	CBS

S.NO	Name of the Reference Book	Author	Publisher
1	Oral and Maxillofacial Pathology	Neville, Damm Allen	Elsevier
2	Oral Pathology –Clinical Pathologic Correlation	Regezi & Sciubba	Saunders
3	Color atlas of Oral pathology	Cawson	Mosby

## **4.14 PRE CLINICAL PROSTHODONTICS AND CROWN & BRIDGE**

Theory – 25 Hours, Practical – 200 Hours

### **GOAL:**

Goal is to emphasize on basic principles of teeth arrangement as related to natural dentition and to provide certain criteria for teeth selection and arrangement. It also enables the student to utilize these concepts for their clinical and laboratory applications.

### **OBJECTIVES:**

#### **a) KNOWLEDGE**

At the end of the II BDS course the student should be able to:

1. The aim of the course is to present basic principles of teeth arrangement and to provide certain criteria of selection of teeth and arrangement in relation to surrounding oral structures.

#### **b) SKILLS**

At the end of the II BDS course the student is expected to :

1. Acquire basic skills of teeth arrangement in class I, class II, class III molar relationship.
2. Possess skills of teeth selection.

## **COURSE CONTENT**

### **THEORY : 25 hours**

#### **I. Introduction to Prosthodontics - Scope & Definition : 5 Hours**

- a. Masticatory apparatus and function:  
Maxilla & Mandible with & without teeth.  
Muscles of mastication and accessory muscles of mastication.  
Brief anatomy of TMJ.  
Mandibular movements.Functions of teeth.
- b. Various branches of Prosthodontics & Prosthesis:

Scope & limitation. Appliances v/s prosthesis.

Dental prosthesis v/s non-dental prosthesis.

c. Effect of loss of teeth:

On general health.

On masticatory apparatus.

Need to replace lost teeth.

d. Outline of Prosthodontics:

Types of Prosthesis.

Requirements of prosthesis-Physical, biological, esthetic considerations.

**II Introduction to components of Prosthesis : 5 Hours**

a. Complete Denture Prosthesis:

Various surfaces (Border and surface anatomy).

Components – Base and Teeth.

b. Removable Partial Denture:

Classification.

Major and minor Connectors.

Direct retainers.

Rests.

Indirect retainers.

Denture base.

Artificial teeth

c. Fixed Partial Denture:

Classification.

Retainers.

Pontics.

Connectors.

**III. All related definitions and terminologies from glossary : 1 Hour**

Model.

Cast.

Impression.

Occlusal rims.

Temporary denture base.

Permanent denture base.

Occlusion.

Jaw relation – orientation, vertical and centric.

Christensen's phenomenon.

Key of occlusion.

Balanced occlusion.

Abutment, Height of contour, undercut, surveyor.

#### **IV. Introduction to mouth preparation in - brief : 1 Hour**

##### **Complete Dentures**

General considerations.

Pre-prosthetic surgery.

#### **V. Introduction to all steps involved in fabrication of Prosthesis : 1 Hours**

##### **Clinical Steps in brief and laboratory steps in detail : 6 Hours**

##### **I. Impression Making**

Definition and requirements and types of impressions.

Various materials used for different impressions.

Different theories of impression making.

##### **II. Impression Trays**

Definition, classification, materials, advantages and disadvantages.

Selection of trays.

Special trays.

Spacer design.

##### **III. Introduction to jaw relation record**

a. Definition and type.

b. Temporary denture base – Indications, Advantages, Disadvantages, materials used.

- c. Occlusion rims - materials, shape, dimensions.
- d. Clinical procedures of jaw relation recording (in brief).

#### **IV. Articulators and face bow**

- a. Basic outline.
- b. Need for articulators.
- c. Definition, classification, parts, advantages, disadvantages of articulators.
- d. Definitions, classification, parts, advantages, disadvantages and purpose of face bow transfer.
- e. Demonstration of face bow transfer to an articulator on a dummy.

#### **V. Selection of Teeth 1 Hour**

- a. Various guidelines for selection of teeth including dentogenic concept.
- b. Arrangement of teeth in detail with various factors of esthetics, overjet, overbite etc.

#### **VI. Occlusion 1 Hour**

- a. Balanced Occlusion – need and advantages.
- b. Various factors of balanced occlusion.

#### **VII. Try in Procedures 1 Hour**

- a. Anterior try – in.
- b. Posterior try – in.
- c. Waxing, carving, polishing and final try – in

#### **VIII. Processing Procedures 1 Hour**

- a. Flasking.
- b. Dewaxing.
- c. Packing.
- d. Curing.
- e. Finishing and polishing of acrylic dentures.

#### **IX. Casting Procedures 2 Hours**

##### **Preparation of die.**

- a. Wax pattern.
- b. Investing.



- c. Burnout.
- d. Casting.
- e. Finishing and Polishing.

### **PRACTICALS : 200 Hours**

1. Arrangement of teeth in class I molar relation - 10 nos.
2. Arrangement of teeth in class II molar relation - 01 nos.
3. Arrangement of teeth in class III molar relation - 01 nos.
4. Demonstration of Cast partial denture framework and casting procedures.

### **Note :**

Students shall submit one processed denture mounted on an articulator to present on university practical exam along with record book.

## **SCHEME OF EXAMINATION**

### **A. Practical Exercise: (Duration – 3 hrs) : 60 Marks**

Arrangement of teeth in class I relation, Waxing Carving, Polishing.

### **B. Viva – Voce : 20 Marks**

### **C. Internal Assessment : 20 Marks**

**Note :** As per DCI this subject has only Practical examination and no theory examination.

### **RECOMMENDED BOOKS:**

Sl. No.	Title	Author	Edn	Yr. of Publ.	Publisher
1.	Prosthetic treatment of Edentulous patients	Boucher	12 <sup>th</sup>	2004	Mosby
2.	Syllabus of complete denture	Heartwell	5 <sup>th</sup>	1993	Lea & Febiger
3.	Theory and practice of fixed Prosthodontics	Tylman	8 <sup>th</sup>	1993	Ishiyaku Euro South Asian
4.	Removable partial denture	Mc Cracker	11 <sup>th</sup>	2005	CBS
5	Sciences of dental materials	Skinner	12 <sup>th</sup>	2012	W. B. Saunders Co.
6	Dental materials Properties and manipulation	Craig	14 <sup>th</sup>	2018	Mosby

## 4.15 PRE CLINICAL CONSERVATIVE DENTISTRY

Theory – 25 Hours, Practical – 200 Hours

### THEORY : 25 Hours

Sl. No	Topic	Hours
1	Fundamentals of tooth preparation	02
2	Caries – Definition, Etiology, Classification, Theories, Diagnosis, Treatment and Prevention	03
3	Various Chair side Positions	01
4	Instruments(Hand cutting)Classifications, Nomenclature, Design, Formula, Care, Grasp, Rest	02
5	Rotary cutting instruments-Burs, Diamond points, Design and Use	02
6	Isolation –Classification, Different aids used, Rubber dam kit	02
7	Matrices and Retainers	01
8	Wedges and Separators	01
9	Pulp Protection	02
10	Inlay-Definitions(Inlay, Onlay, Crown),Indications, Advantages, Disadvantages, Principles of cavity preparation, Wax pattern fabrication(Direct and Indirect methods)	02
11	Anterior aesthetic restorative materials –Composites, GIC, Compomers, Ceramics	03
12	Management of Deep Carious Lesions-Indirect pulp capping, Direct pulp capping, Pulpotomy	02
13	Introduction to Endodontics-Access cavity preparation and brief introduction of root canal instruments & materials	02

### PRACTICALS : 200 Hours

#### Preparations On Plaster Models : 20 Hours

Cavities	Preparation	Restorations
Class – I	4 With 2 Extensions	Wax
Class – II	4	Wax

**Preparations on Extracted teeth : 40 HOURS**

<b>Cavities</b>	<b>Preparation</b>	<b>Material</b>
Class – I	4 with 2 extension	Silver amalgam
Class – II	4	Silver amalgam
Class V	2	GIC

**Preparations on Typhodont Teeth : 140 Hours**

<b>Cavities</b>	<b>Preparation</b>	<b>Restorations</b>
Class –I	4 With 2 extensions – Amalgam	4
Class – II	6 MO Silver Amalgam 6 DO 2 MOD	6
Class III	3 – Composite Restoration	1
Class V	4 GIC	1
INLAY		
Class –I	1	wax pattern
Class – II	2	wax pattern

**Demonstrations – Extracted Teeth**

1. Cuspal Preparation – Cusp Capping
2. Pulp Capping –Direct and Indirect
3. Pulpotomy—Molar teeth (Extracted)
4. Root Canal Access Cavity opening on Central incisor
5. Light cured composite restoration
6. Glass Ionomer restoration
7. Instrumentation and Obturation of root canal
8. Wax Pattern, Investing, Casting, Polishing, and Cementation of Cast restoration

**Spotters**

Matrices and retainers, Dental Materials, Instruments, Isolation kit, Endodontic Armamentarium.

## **SCHEME OF EXAMINATION**

### **A. University Practicals : 60 Marks**

Practical exercise no 1: 10 marks

Spotters :10 Nos, Marks 01 Each, Time : 02 Minutes Each

Spotters

- a. Hand instruments used to prepare cavity and restorative materials
- b. Identification of Root Canal Instruments

Practical exercise no.2 : 50 Marks

Preparation of Class II Conventional cavity for Silver amalgam in Maxillary or Mandibular I or II Molar Tooth(Typhodont/Natural Tooth)

Cavity preparation    45 Minutes                      : 25 Marks

Lining and Matrix       15 Minutes                      : 10 Marks

Filling and Carving     30 Minutes                      : 15 Marks

### **B. University Viva Voce : 20 Marks**

### **C Internal Assessment : 20 Marks**

**Total (A + B + C) : 100 Marks**

### **TEXTBOOKS RECOMMENDED**

<b>Sl.No</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>
1	Art & Science of Operative Dentistry	Sturdevant	V
2	Principles & Practice of Operative Dentistry	Charbeneau	III
3	Endodontic practice	Louis J .Grossman	XIII
4	Sturdevant's Art & Science of Operative Dentistry	Andre V. Ritter	II South Asia

# **Enrichment Programme**

## **Communication Skills**

### **PREAMBLE**

*Communication is the key to education, understanding and peace.*

### **Communication**

Oral communication is the process of expressing information or ideas by word of mouth. This book will help you to find out how you can improve your own oral communication abilities while dealing with patients and relatives. Great communication skills are your ticket to success in the clinical work in urban & rural set and academic. But have you ever been overcome by fear or anxiety prior to speaking in front of patients? Knowing when to choose oral communication and polishing your speaking skills can help you at every stage of your career.

‘Communication’ comes from Latin *commûnicâre*, meaning “to share” which is the purposeful activity of information exchange between two or more participants in order to convey or receive the intended meanings through a shared system of signs and semiotic rules.

Communication takes place inside and between three main subject categories: human beings, living organisms in general and communication-enabled devices (for example sensor networks and control systems). Communication in living organisms (studied in the field of biosemiotics) often occurs through visual, auditory, or biochemical means. Human communication is unique for its extensive use of language.

Human language can be defined as a system of symbols (sometimes known as lexemes) and the grammars (rules) by which the symbols are manipulated. The word “language” also refers to common properties of languages. Language learning normally occurs most intensively during human childhood. Most of the thousands of human languages use patterns of sound or gesture for symbols which enable communication with others around them. Languages tend to share certain properties, although there are exceptions. There is no defined line between a language and a dialect. The communication is two way process instead of one way.

The “information communication revolutions”:

1. Written communication first emerged through the use of pictographs. The pictograms were made in stone, hence written communication was not yet mobile.
2. The next step occurred when writing began to appear on paper, papyrus, clay, wax, etc. with common alphabets. Communication became mobile.

3. The final stage is characterized by the transfer of information through controlled waves of electromagnetic radiation (i.e., radio, microwave, infrared) and other electronic signals.

Communication is thus a process by which meaning is assigned and conveyed in an attempt to create shared understanding. This process, which requires a vast repertoire of skills in interpersonal processing, listening, observing, speaking, questioning, analyzing, gestures, and evaluating enables collaboration and cooperation.

Misunderstandings can be anticipated and solved through formulations, questions and answers, paraphrasing, examples, and stories of strategic talk. '*Good Communication is the bridge between confusion and clarity*'. Written communication can be clarified by planning follow-up talks on critical written communication as part of the everyday way of doing business. A few minutes spent talking in the present will save valuable time later by avoiding misunderstandings in advance. A frequent method for this purpose is reiterating what one heard in one's own words and asking the other person if that really was what was meant.

'Communication works for those who work at it'.

(compiled from <https://en.wikipedia.org/wiki/Communication>)

## **OBJECTIVES**

1. To formally impart education on communication skills.
2. To enhance the capacity of students in communicating with patients, relatives, colleagues and facilitators.
3. To conduct interactive session and workshop to augment the skills acquired.
4. To develop effective communication skills required in academics, practice of Dentistry and in general.

## **DURATION OF COURSE : 40 Hours**

Course will contain 2 phases

**Phase I** will be conducted during I BDS Course : Total 22 hours.

**Phase II** will be conducted in II BDS : Total 18 hours.

## **ELIGIBILITY**

1. Phase I will be for all I BDS Students.
2. Phase II will be for all II BDS Students.

## **LIST OF MODULES AND COURSE CONTENT**

### **Module I : 6 Hours**

#### **Communications skills**

- Introduction
- Fundamentals of Articulation
- Body Language :
  - i) Types
  - ii) Effects of Body language
  - iii) How to improve body language
    - Importance of Grooming

### **Module II : 8 Hours**

#### **Presentation skills & Public Speaking**

- Introduction
- Crucial Elements
- Requisites for Effective Presentation :
  - i) Controlling anxiety
  - ii) Audience centered
  - iii) Accomplished objective
  - iv) Create interest in audience (fun for audience and self)
  - v) Conduct within time frame
    - Presentation sequence
    - Creating Effective Visual Aids
    - Presentation Techniques
    - Practice

### **Module III : 8 Hours**

#### **Interpersonal skills**

Ability to convey your point and listen and value others speak

- What are Interpersonal Skills
- Why do Interpersonal Skills matter
- 10 key Interpersonal Skills

i) Self confidence ii) Work ethic iii) Relationship Management iv) Receptiveness to feedback  
v) Body language vi) Listening vii) Collaboration viii) Showing Appreciation ix) Positive attitude  
x) Work place etiquette

#### **Module IV : 10 Hours**

##### **Time management**

- Planning : Understanding the difference between urgent and important
- Time management skill

i) Delegate tasks ii) Prioritize work iii) Schedule task iv) Set up deadlines v) Avoid Procrastination  
vi) Avoid stress vii) Avoid multitasking viii) Start Early ix) Take regular breaks  
x) Learn to say no

- Increase in effectiveness and efficiency

#### **Module V : 8 Hours**

1. Interactive Session and group activity with Resource Person and participants.
2. Oral presentations by the students.
3. Assessment of Log Book by Resource Person.

##### **Note :**

**Phase I will consist of modules I, II and III**

**Phase III will consist of modules IV & V**

##### **Assessment Method**

1. Interactive Sessions will be graded throughout the programme.
2. At the end of Phase I the log book of activities will be assessed and signed off by the Resource Person.
3. At the end of Phase II the log book of activities will be assessed and signed off by the Resource Person and by the Principal.

##### **About the Resource Person**

Resource person is a well-known trainer on communication and soft skills with deep knowledge and wide experience in areas of business communication, oral presentation and public speaking.



## **EARLY CLINICAL EXPOSURE**

(Enrichment programme monitored and conducted by  
Department of Public Health Dentistry)

### **Aim :**

As there is tectonic changes in Dental knowledge, skill, technology, and practice and with changes in the clinical environment, patients expectation, need for accountability of stakeholders, there is need for understanding these basis demand. Early effective approach to the learning and the preparation of learners will be of immense benefit.

### **Objectives :**

- To acquire knowledge about common dental diseases
- To assess knowledge pertaining to oral hygiene aids
- To know the status of dental disease in the community
- Orientation to several aspects of dental practice
- Introduction to clinical skills (history taking, oral examination)
- To learn communication skills, patients perspectives and aspects of professionalism
- To understand oral health and disease
- Orientation to community health education

\*\*\*\*\*

## **EARLY CLINICAL EXPOSURE**

### **II BDS**

#### **Phase I – Sensitization Lecture: 2 hours**

1. Research – Cross-sectional studies/Questionnaire studies  
In-vitro studies  
In-vivo studies
2. Paper/Poster  
Presentation - Scientific Convention  
Conferences – IDA
3. Publication – Preparation of article for publication in the Journal

**Phase II –Visit to Dental and other Laboratories :5 hours**

A group of 50 students each in two batches will be taken to :

1. Prosthodontics Laboratories
2. Oral Pathology and Microbiology Laboratories
3. Dr. PrabhakarKore Basic Science Research Centre, Belagavi (BSRC)
4. National Institute of Traditional Medicine, Belagavi (RMRC/NITM)

**Phase III :**

In divided batches students will visit to all departments of Dentistry to observe the ongoing treatment procedures and to have more insight during surgical operation (OT) procedures.

**Evaluation of students participation :**

1. Attendance of students for every phase to be recorded
2. Recording in log book and preparation of summary report
3. Concerned teacher incharge to approve every phase
4. Final approval and completion certificate with grades by the HOD.

### **III BDS**

#### **4.15 GENERAL MEDICINE**

Theory – 60 Hours, Clinical – 90 Hours

##### **Goal :**

The students should be in position to identify common medical disorders that are important for dentistry. He should be able to carry out dental treatment with co-existing medical disorders, he should be in position to identify, treat or refer emergencies in time.

##### **Objectives :**

###### **a. Knowledge**

At the end of the III BDS course the student is expected to ;

1. Know the applied anatomy and physiology of systems
2. Understand the natural history of common medical diseases.
3. Should know relevant investigations to be ordered / sent.
4. Interpretation of investigation's.
5. Broad outline of principles of management
6. Drug interactions and drug induced complications
7. Pre-operative evaluations

###### **b. Skills**

At the end of III BDS expected to acquire

1. Communication skill
  - a. Good history taking
  - b. Counseling the patient about treatment out come and complications
2. Examination
  - a. General Physical examination
  - b. Systemic examination
3. Interpretation skill
  - a. Interpretation of important clinical finding
  - b. Interpretation of history

#### 4. Procedure skill

##### a. Cardiopulmonary resuscitation

Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry e.g. indications and contraindications for anesthesia in oral and dental procedures in different diseases. A dental student should be taught in such a manner that he is able to record the pulse, blood pressure and be capable of suspecting by sight and superficial examination of the patient, diseases of the heart, lungs, kidneys, liver, GI tract, blood, etc. he should be capable of handling medical emergencies encountered in dental practice. Too much details and treatment aspects (therapeutics) should be avoided.

## COURSE CONTENT

### A. Theory : 60 Hours (Medicine : 52 Hours, Psychology : 8 Hours)

- 1 **Aims of medicine :** History taking, physical examination of the medical patient, diagnosis and management of disease and in general prognostication. **2 Hours**
- 2 **Infections :** Enteric fever, Syphilis, Tuberculosis, Diphtheria, Malaria, Viral hepatitis, HIV, Herpes simplex, Herpes zoster, Mumps. Fungal infections of oral cavity – candidiasis. **5 Hours**
- 3 **GIT :** Stomatitis, Gingival hyperplasia, Dysphagia, Acid peptic disease, Jaundice, Acute and chronic hepatitis, Cirrhosis of liver - Ascitis, portal hypertension, Amoebiasis, Tender hepatomegaly, hepatotoxic drugs. **5 Hours**
- 4 **C.V.S :** Acute rheumatic fever, valvular heart disease, hypotension, ischemic heart disease (myocardial infarction), infective endocarditis, common arrhythmias, classification of congenital heart disease. **7 Hours**
- 5 **Respiratory system :** Applied anatomy and physiology of RS, pneumonia, COPD, pulmonary tuberculosis, bronchial asthma, pleural effusion, acute respiratory tract infections, bronchiectasis, lung abscess. **5 Hours**
- 6 **Hematology :** Hematopoiesis, Anaemias, Clotting and bleeding disorders, Acute and chronic myeloid leukemias, agranulocytosis and neutropenia, thrombocytopenia. **6 Hours**
- 7 **Renal system:** Acute Nephritis and ARF, Nephrotic syndrome, UTI. **4 Hours**
- 8 **Nutrition :** Balanced diet, PEM, Vitamin deficiency disease, calcium and phosphate metabolism. **4 Hours**
- 9 **CNS :** Facial Palsy, Facial pain, Trigeminal neuralgia, Epilepsy, Headache including migraine. **5 Hours**
- 10 **Endocrine and Metabolic Diseases :** Diabetes Mellitus, Acromegaly,

hypothyroidism, hyperthyroidism, flurosis.

**5 Hours**

**11 Critical care medicine :** Syncope, Cardiac Pulmonary resuscitation (CPR), Anaphylaxis, Allergy, Angioneurotic edema. **3 Hours**

**12 Miscellaneous :** Adverse drug reactions, drug interactions, preoperative assessment of patients with medical diseases. **1 Hour**

### **Topics - Desirable to know**

- a. Genetic diseases and medical ethics
- b. Infectious mononucleosis, Mumps, Measles, Rubella, leprosy, Organization and functions of the immune system
- c. Diarrhea and dysentery including malabsorption syndromes.
- d. Heart failure, Fallot's tetralogy, ASD, VSD
- e. Lung cancer, sleep apnea, ARDs, respiratory failure
- f. Principles of blood and blood products transfusion, Thromboembolic disease, oncogenesis, hemolytic anemia, lymphomas, DIC, (disseminated intravascular coagulation)
- g. Renal function test, CRF
- h. Osteomalacia, Osteoporosis
- i. Meningitis (acute and chronic), Anticonvulsants
- j. Addison's disease, Cushing's syndrome, parathyroid disease and calcium metabolism. Preoperative assessment of diabetic patients, acute adrenal deficiency
- k. Acute LVF, Cardiogenic Shock, Coma

### **Psychology : 8 Hours**

- 1 Introduction to behavioural sciences : Definition Overlapping of social, behavioural and biological sciences, **1 Hour**
- 2 Pain Behavioural, emotional, autonomic, conscious and unconscious, components of pain Role of anxiety in worsening pain (vicious circle) **1 Hour**
- 3 Interview technique Doctor-patient relation, listening and questioning Pre and post treatment counseling, probing of the fears, anxiety and anger, guilt in cases of extraction, surgery, HIV, cancer etc. **1 Hour**
- 4 Psychiatric disorders Classification of mental illnesses Aetiology – Biopsychological aspects **2 Hours**
- 5 Neurotic disorders and psychosomatic : Definition, classification, aetiology, clinical manifestations (anxiety, depression, phobia, somatoform disorders, conversion reaction, adjustment reaction), stress, coping, alexithymia. **2 Hours**

- 6 Liaison psychiatry Dental care in mental retardation, dementia, Schizophrenia Eating disorders – deficiencies. Psychotropic drugs – side effects and drug interactions

**1 Hour**

(Also see Child Psychology under Paedodontics)

**Topics - Desirable to know**

- 1 Holistic approach to medical care
- 2 Psychosis psychosomatic illnesses, alcoholism and drug dependence, dementia, illness behaviour, socio cultural aspects stressing on personalities (anxious, obsessive)

Management – stress

**Clinical : 90 Hours (Posting in a General Hospital )**

1. Ten complete cases must be written in a record book before the student takes the final examination
2. The student must be able to take history, do general physical examination (including build, nourishment, pulse, BP, temperature, edema, cyanosis, clubbing, jaundice, lymphadenopathy, oral cavity) and be able to examine cardiovascular and respiratory systems, abdomen and the facial nerve and signs of meningeal irritation

## SCHEME OF EXAMINATION

### A. Theory : 100 Marks

#### Distribution of Topics and Type of Questions

Contents	Type of questions and marks	Marks
I. MCQ	MCQ 20x1 Marks	20
II. Long Essays : Topics from serial No. 1 to 11 of the course content	Long Essays 2 x 10 Marks	20
III. Short Answers From all the chapters	Short Answers 10 x 3 Marks	30

### B. Viva voce : 20 Marks

### C. Internal Assessment – Theory : 10 Marks, Practical : 10 Marks

### D. Clinical : 90 Marks

- i. Case History : 20 Marks
- ii. Clinical examination : 30 Marks
- iii. Investigation : 15 Marks
- iv. Diagnosis & D.D. : 15 Marks
- v. Management : 10 Marks

#### **THEORY : 100 Marks**

Theory examination : 70 Marks  
 Theory Internal Assessment : 10 Marks  
 Viva Voce : 20 Marks  
 100 Marks

#### **PRACTICAL : 100 Marks**

Practical Examination : 90 Marks  
 Practical Internal Assessment : 10 Marks  
 :100 Marks

## RECOMMENDED BOOKS

Sl. No.	Title	Author	Edn	Year	Publishers Name and place of Publ	Price
1	Davidson's Principles of Practice of Medicine	Edward Christopher	18 <sup>th</sup>	1991	Churchill livingstone UK	Rs 1168/-
2	Hutchison's Clinical Practice	Swash Michael	21 <sup>st</sup>	2001	Churchill livingstone UK	Rs 595/-
3	Principles of Internal Medicine (for further reading)	Harrison	15 <sup>th</sup>	2001	Mc. Graw Hill US	Rs 1895/-
4	API Textbook of Medicine	Association of Physicians of India		1999	India	Rs 900/-



## **4.17 GENERAL SURGERY**

**Theory – 60 Hours, Clinical – 90 Hours**

### **Goal :**

The broad goal of teaching general surgery to BDS students is to provide comprehensive knowledge of common surgical conditions, to identify pathology and facilitate the overall management of the case especially applied to region of head and neck.

### **Objective :**

#### **a. Knowledge**

At the end of III BDS course, the students should be able to

- i. Acquire adequate knowledge of clinical methods in surgery.
- ii. Examine the patient and identify common surgical conditions which merit reference.

#### **b. Skills :**

At the end of III BDS Course, students is expected to

- i. Diagnose, know the management of common surgical problems encountered in general dental practice keeping in mind the expectations of society to receive the best possible treatment available wherever possible.
- ii. Acquire skill to carry out required surgical investigate procedure, to prevent and provide emergency care to manage complications if encountered.

## **COURSE CONTENT**

**Theory : 60 Hours :** (General Surgery : 55 Hrs Ophthalmology : 3 Hrs ENT : 2 Hrs)

### **General Surgery : 55 Hours**

1. Introduction - History of Surgery **1 Hour**
2. Principles of surgery, Tissue care, Asepsis and anti sepsis, Theatre technique, Sterilization, Suture materials, diathermy, Laser. **2 Hours**
3. Classification of Diseases, General Scheme of Studying a disease – Etio-pathology, Clinical features, Investigations, Diagnosis, Management, Complications and Prognosis **1 Hour**
4. Wounds - Classification, Clinical Assessment, Treatment, Complications and Wound Healing. **1 Hour**

5. Skin grafting **1 Hour**
6. Inflammation and Infection – Definition, Etiology, Pathology and Classification **1 Hour**
7. Acute Infections **2 Hours**
  - Non-specific - Abscess, Cellulites,
  - Specific - Aerobic and Anaerobic  
Carbuncle, Erysipelas, Anthrax, gas gangrene, Tetanus,  
Cancrum Oris and Ludwig's Angina.
8. Chronic Infections **1 Hour**
  - Nonspecific infections,
  - Specific infections like - Tuberculosis, Syphilis, Actinomycosis and Leprosy.
9. AIDS - Definition, clinical features and treatment **1 Hour**
10. Bacteraemia, Septicemia, Pyaemia and Toxaemia
11. Hemorrhage - Classification, emergency management, definitive Treatment and assessment of blood loss. **1 Hour**
12. Bleeding Disorders – Haemophilia, Thrombocytopenia, Purpura Disseminated Intra Vascular Coagulation. **1 Hour**
13. Syncope, Shock, Cardiac Arrest - Causes, clinical features, haemodynamic changes, emergency care, monitoring, definitive treatment, septic shock (warm shock) and Anaphylaxis. **2 Hours**
14. Blood Groups - Blood Transfusion - Complications of transfusion and Management and massive transfusion. **2 Hours**
15. Blood Fractions and their uses. **1 Hour**
16. Ulcers - Definition, classification, etiology, · Specific ulcers – Tuberculous ulcers, Syphilitic ulcer, Marjolin's ulcer, Diabetic ulcer, malignant ulcers of Squamous cell carcinoma, Basal cell carcinoma, malignant melanoma. **2 Hours**
17. Sinus and fistula : Definition, Etiology and types **1 Hour**
18. Gangrene – Causes and management of gas gangrene, dry gangrene, moist gangrene. **1 Hour**
19. Cysts - Definition, Classification, Clinical Features, Complications, Management of common cysts - mucous cyst, sebaceous cyst, dermoid cyst, ranula, cystic hygroma, branchial cyst, thyroglossal cyst. **1 Hour**

20. Tumours – Definition and classification. Common benign and malignant tumours of head and neck region - lipoma, fibroma, neurofibroma, haemangioma, lymphangioma, osteoma, leukoplakia, squamous cell carcinoma, osteosarcoma, fibrosarcoma, Burkitt's Lymphoma Tumors of the jaw - Odontogenic tumors. **4 Hours**
21. Etiology of cancer, spread of cancer, early diagnosis, investigations, modalities of treatment and prognosis. **2 Hours**
22. Biopsy - Indications and Methods **1 Hour**
23. Diseases of lymphatic and lymphnodes – **3 Hours**
  - a) Lymphangitis - Acute and Chronic,
  - b) Lymphoedema
  - c) Lymphadenopathy – Classification
    - i) Inflammatory - Acute and chronic, non-specific and specific tubercular lymphadenitis, cold abscess - collar stud abscess.
    - ii) Malignant Tumours Primary Hodgkin's Disease, Non Hodgkin's Lymphoma, secondary carcinoma
24. Salivary Glands – **2 Hours**
  - Acute and Chronic Infections – Parotid Abscess, Salivary Calculus
  - Sjogren's syndrome
  - Salivary Tumours – Classification, pleomorphic adenoma adenoid cystic carcinoma, adenolymphoma
25. Neck Swellings - Midline and lateral swellings, **2 Hours**
  - Cystic and solid swellings.
  - Classification, differential diagnosis, treatment.
26. Head Injury management **1 Hour**
27. Facio-maxillary injuries – Types and management **2 Hours**
28. Management of severely injured patient – Resuscitation **1 Hour**
29. Fractures and dislocations – Causes, general principles of Management, Healing of fractures and complications **1 Hour**
30. Fractures of Mandible – Classification and management **1 Hour**
31. Osteomyelitis of Mandible **1 Hour**

32. Thyroid Gland - Development, congenital anomalies, classification of goitres, acute and chronic Thyroiditis, Hashimoto's disease, Reidel's Thyroiditis, hyperthyroidism, hypothyroidism. **2 Hours**
33. Parathyroid – Hyperparathyroidism, Tetany **1 Hour**
34. Tracheostomy- Indications, Steps of operation, Post operative care **1 Hour**
35. Diseases of Arteries and veins in general – Varicose veins, Atherosclerosis, Aneurysm, Carotid body tumour **1 Hour**
36. Nervous System – Nerve Injury, Regeneration, Repair, Nerve Grafting.  
Diseases of Nerve - Facial Nerve Palsy, Trigeminal Neuralgia **1 Hour**
37. Burns and scalds
38. Development of face - Cleft lip and palate repair
39. Principles of Anaesthesia **1 Hour**

### **Desirable to Know**

- 1) Brief surgical anatomy of Pharynx, Oesophagus, Paranasal air sinuses. Diseases - related to obstructive ones in pharynx and Oesophagus.
- 2) Introduction to – Oncology, Radiotherapy, Surgery and Genetic Engineering.

### **Ophthalmology (Theory : 3 Hours)**

Topics	Hours
<b>Brief outline of Surgical Anatomy of Eye and Orbit</b>	
- An outline of Ocular and Orbital Involvement in relation to Oral Diseases : Infections, inflammations of the eye like Uveitis, Exophthalmitis, Optic Neuritis. Post – operative infections of the eye due to Dental sepsis. Invasion of tumours of Oral Cavity to the Orbit.	1
<b>Clinical Assessment of Ocular / Orbital Involvement</b>	
- Recognition of common symptoms and signs of ocular and orbital involvement like Ecchymosis of lids, sub-conjunctival haematoma, Conjunctival Chemosis, Proptosis, Diplopia	1
- Management of superficial foreign bodies in the eye. Prevention by protection through eye wash with normal saline. Removal of superficial conjunctival foreign bodies. For corneal or intraocular foreign bodies to refer immediately.	1

- Timely referral to Ophthalmologist for any ocular / orbital problem

**E.N.T. (Theory : 2 Hours)**

Ear : Middle Ear Infection

Nose : Para nasal sinuses infection

2 hours

Throat : Tonsillitis & peritonsillar abscess

**CLINICAL POSTINGS : 90 Hours**

General hospital

b. Physical examination

- Inspection

- Palpitation

- Occultation

c. Recording of case history

d. Case presentation

e. Discussion

## SCHEME OF EXAMINATION

### A. Theory : 100 Marks

### Distribution of Topics and type of Questions :

Contents	Type of Questions and Marks	Marks
I. MCQ	MCQ 20 x 1 Marks	20
<p>II. Long Essay : From the following : -  Principles of surgery, Tissue care, asepsis and antisepsis  theatre technique, sterilization, suture materials, diathermy, laser  Wounds – Classification, clinical assessment, treatment, complications, wound healing  Acute infections – Non-specific, and Specific – Aerobic and Anaerobic abscess, Cellulites, Carbuncle, Erysipelas, Anthrax, Gonorrhea, Gas gangrene, Tetanus, Cancrum oris, Ludwig's angina.  Bacteraemia, septicemia, pyaemia, toxemia  Hemorrhage – Classification, emergency management, definitive treatment, assessment of blood loss  Syncope, shock, cardiac arrest – causes, clinical features, haemodynamic changes, emergency care, monitoring, definitive treatment, septic shock (warm shock), anaphylaxis</p> <p>III. Short Essay : Questions may be asked from all the above topics, other than the once from which the long essays are asked</p>	<p>Long Essays 2 X 10 marks</p> <p>Short Essays 10 X 3 marks</p>	<p>20</p> <p>30</p>
	Total	70

**B. Viva voce : 20 Marks**

**C. Internal Assessment – Theory : 10 Marks, Practical : 10 Marks**

### D. Clinical : 90 Marks

**Long Case : One which includes**

Case History : 15 Marks

Clinical examination : 30 Marks

Suggested investigation : 15 Marks

Diagnosis &amp; DD : 20 Marks

Management : 10 Marks

**THEORY : 100 Marks****PRACTICAL : 100 Marks**

Theory examination : 70 Marks      Practical Examination : 90 Marks

Theory Internal Assessment : 10 Marks      Practical Internal Assessment : 10 Marks

Viva Voce : 20 Marks  
100 Marks : 100 Marks**RECOMMENDED BOOKS**

Sl. No.	Author	Title	Edn	Publisher	Year of Pub	Price
1	Somen Das	A Manual on Clinical surgery	4 <sup>th</sup>	Dr S. Das Calcutta	1996	Rs 430/-
2	Charles V. Mann	Bailey & Love's Short Practice of Surgery	23 <sup>rd</sup>	Oxford Press University	2000	\$ 29.00
3	Hamilton Bailey	Hamilton Bailey Demonstrations of Physical signs in clinical surgery	18 <sup>th</sup>	Butterworth Heinemann UK	1997	\$ 67.50

**References Books**

- Oxford Text book of surgery
- Text book of surgery by Devita
- Surgery by Sebastin
- Surgery by Somalal
- Text book of Surgery by Chatterjee
- Surgical Anatomy by Lee Mc Gregor
- Diseases of Eye by Parson
- Text book of Ophthalmology by Vasudev Anand Rao
- E.N.T. Diseases by Mohammed Muqbool
- E.N.T. Diseases by N. C. Day
- E. N. T. Diseases by K. K. Ramalingam

## **4.18 ORAL PATHOLOGY & ORAL MICROBIOLOGY**

**Theory – 120 Hours, Practicals – 80 Hours**

The Syllabus of Oral pathology and microbiology will be taught in II and III BDS. The University Examination will be held at the end the III Year

### **GOAL:-**

To make the learners aware of different pathologies involving the oral cavity and oral manifestations of systemic diseases.

### **OBJECTIVES:-**

#### **a. Knowledge :**

At the end of Oral Pathology & Microbiology course , the student shall be able to comprehend

1. The different types of Pathologies processes, that involve the oral cavity
2. The manifestations of common diseases, their diagnosis & correlation with clinical pathological processes
3. An understanding of the oral manifestation of systemic diseases should help in correlating with the systemic physical signs & laboratory findings.
4. The student should understand the underling biological principles governing treatment of oral diseases.
5. The principles of certain basic aspects of Forensic Odontology

#### **b. Skills :**

1. Microscopic study of common lesions affecting oral cavity through microscopic Slides .
2. Study of the disease process by surgical specimens
3. Study of teeth anomalies /polymorphisms through tooth specimens & plaster casts
4. Microscopic study of plaque pathogens
5. Study of hematological preparation (blood films) of anaemias & leukemias
6. Basic exercise in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.



## **COURSE CONTENT (To be covered in III yr.)**

### **THEORY : 120Hrs**

- 1. Tumours of the Oral Cavity 25 Hours**
  - a. Benign & Malignant epithelial and mesenchymal tumors, classification Etiopathogenesis, clinical features, histo- Pathology, radiological features & laboratory diagnosis. Teatment & prognosis.
  - b. Reactive lesions : Pyogenic and giant cell granuloma, exostosis, fibrous hyperplasia, traumatic ulcer and traumatic neuroma
- 2. Salivary Gland Diseases 10 Hours**
  - a. Benign & Malignant salivary gland tumors, classification Etiopathogenesis, Clinical features, histo-pathology, radiological features and laboratory diagnosis
  - b. Non neoplastic salivary gland diseases. Inflammatory salivary gland diseases. Lymphoepithelial lesion Cysts of the salivary gland autoimmune disorders, Functional disorders, sialadenosis.
- 3. Odontogenic Tumors 15 Hours**
  - a. Introdution to odontogenic tumors : Development of tooth, Etiopathogenesis of odontogenic tumors
  - b. Classification, clinical features histo –pathology, radiological features laboratory diagnosis, Treatment & prognosis.
- 4. Cysts of Oral & Para oral region 12Hours**
  - a. Definition, classification,
  - b. Etiopathogenesis , clinical features, histo Pathology, radiological features & laboratory diagnosis of development and inflammatory cysts, Pseudo cyst of jaws & soft tissue cysts of oral & Para oral region treatment and prognosis
- 5. Physical and chemical injuries 4 Hours**
- 6. Regressive alterations 3 Hours**
- 7. Diseases of Bone and TMJ 8 Hours**

- a. Etiopathogenesis, clinical features, histo-pathology. Radiological features & laboratory diagnosis of fibrous dysplasia, cherubism, osteogenesis imperfecta, paget 's disease, cleidocranial dysplasia, achondroplasia, Marfan's syndrome and Down's syndrome .
  - b. Ankylosis, summary of different type of arthritis and other developmental malformation traumatic injuries and myofascial pain dysfunction syndrome. Osteopetrosis , Pierre robins syndrome.
- 8. Systemic Diseases involving Oral Cavity 5 Hours**
- Brief review and oral manifestations, diagnosis and significance of common blood, nutritional, hormonal and metabolic diseases of oral cavity
- 9. Mucocutaneous Lesions 10 Hours**
- Etiopathogenesis, clinical features, histopathology of the following common lesion. Lichen Planus , lupus erythematosus, Pemphigus and pemphigoid lesions . Erythema multiforme , psoriasis, scleroderma , ectodermal dysplasia, epidermolysis bullosa and white sponge nevus , Ehler Danlos syndrome
- 10. Diseases of the Nerves 4Hours**
- Facial neuralgias – Trigeminal and Glossopharyngea, sphenopalatine neuralgia, Facial nerve paralysis, Frey's Syndrome, Horner's syndrome
- 11. Biopsy of oral tissues 4 Hours**
- Types of biopsy, cytology, histochemistry and frozen section in diagnosis of oral diseases.
- 12. Forensic Odontology 12 Hours**
- Introduction , definition, aims and scope Age, Sex and ethnic differences in tooth morphology and dental profiling
- Bite marks Analysis
- Palatal rugae pattern, analysis, classification
- Lip prints—classification and analysis
- 13. Healing of oral wounds – Healing of extraction wounds, healing of fractures, healing of biopsy wound, factors affecting wound healing. 3 Hours**
- 14. Allergic & Immunological diseases of oral cavity 5 Hours**

**15. \* Self learning topics**

\*Normal Oral Microflora

\*Defense Mechanisms of the Oral Cavity

**Practical: 80 Hrs**

**1. Identification of histopathology slides of the following lesions**

**a. Odontogenic cyst**

**8 Hours**

Calcify epithelial Odontology cyst

Dentigerous cyst,

Odontogenic keratocyst

**b. Odontogenic tumors**

**12Hours**

Ameloblastoma ( Follicular, Plexiform, Granular Cell , Acanthomatous)

Adenomatoid odontogenic tumor

Clacifying epithelial Odontogenic tumor

Ameloblastic Fibroma

Compound Odontome

**c. Salivary gland tumor and diseases**

**12 Hours**

Pleomorphic Adenoma

Warthin's Tumour

Mucoepidermoid Carcinoma

Adenoid cystic carcinoma

Mucocele

Necrotizing sialometaplasia

**d. Benign lesion of epithelial origin**

**2 Hours**

Papilloma, Nevus

**e. Malignant lesion of epithelial origin**

**8 Hours**

Oral squamous cell carcinoma

Basal cell carcinoma

Verrucous Carcinoma

Maliganant Melanoma

**f. Benign lesions of connective tissue origin**

**18Hours**

Fibroma

Peripheral Giant Cell Granuloma ,

Central Giant Cell Granuloma

Peripheral cemento ossifying fibroma

Central cemento ossifying fibroma

Pyogenic granuloma

Lipoma

Capillary hemangioma

Cavernous hemangioma

Lymphangioma

Cancellous Osteoma

Neurilemmoma

**g. Malignant lesions of connective tissue origin**

**8Hours**

Fibrosarcoma

Osteosarcoma

Burkitts lymphoma

Hodgkins lymphoma

**h. Fibrosseous lesion**

**5 Hours**

Fibrous Dysplasia

**i. Vesicullo bullous lesion**

**7Hours**

Lichen plans

Pemphigus

**Integrated Teaching Will Be Carried Out With Oral Surgery & Oral Medicine For Overview of The Lesions.**

**SCHEME OF EXMINATION**

**A. THEORY 100 Marks**

**University written exam : 70 Marks**

**Viva Voce : 20 Marks**

**Internal Assessment : 10 Marks**

Distribution of Topic and Type of Question.

Contents	Type of Questions and Marks	Marks
MCQ ( Full portion)	MCQ 20 x 1 Marks	20
Long essay Dental Caries, Developmental anamolies, Benign and Malignant tumors , Odontogenic cysts and tumours, Salivary gland tumors, mucocutaneous diseases, Diseases of bone.	Long Essay 2 x 10 Marks	20
Short answer Questions from full syllabus except from the topics, from which the long essays are taken.	Short Answers 10 x 3 Marks	30
	<b>Total</b>	<b>70</b>

**B. PRACTICAL: 100 Marks**

University exam : 90 Marks

Internal Assessment : 10 Marks

**OSPE Pattern For 2<sup>nd</sup> Internals Examination**

Contents	Marks	Time
<b>A. Spotters:</b> i.Histopathology slides : identification , diagrams with labeling – 8 Nos ii.Hard tissue specimen including cast, teeth specimen : identification and salient features -4 Nos iii.Soft tissue specimens : Identification and salient feature -4 Nos	8 x 5 = 40 4 x 5 = 20 4 x 5 = 20	1 Hour
<b>B. Records</b>	10	
<b>Total</b>	<b>90</b>	

**RECOMMENDED BOOKS**

Sl.no	Name of the Books Recommended	Author	Publisher
1	A Text Book of Oral Pathology	Shafer Hine Levy	Elsevier
2	Manual of oral histology and oral pathology : colour atlas	Maji jose	CBS

**REFERENCE BOOKS**

1	Reference Oral and maxillofacial Pathology	Newville, Damma Allen	Elsevier
2	Oral Pathology – Clinical Pathology Correlations	Regezi & Sciubba	Saunders
3	Colour atlas of Oral Pathology	Cawson	Mobsby

## **4.19 ORAL MEDICINE AND RADIOLOGY**

**Theory – 20 Hours, Practicals – 70 Hours**

(Syllabus of Oral Medicine and Radiology to be covered in III BDS)

### **GOALS**

To imbibe necessary skills and attitudes to attain the competence in diagnosis, investigations and appropriate treatment planning of oral and para oral lesions.

### **OBJECTIVES**

By the end of the third year the student should acquire the following skills:

#### **1. Knowledge**

Theoretical, clinical and practical knowledge of all Under knowledge change mucosal to oral and paraoral lesions, diagnostic procedures pertaining to them and latest information of imaging modules.

#### **2. Skills**

Diagnostic skills in recognition of oral lesions and their management.

Proper history taking, thorough clinical examination of the patient, performing essential diagnostic procedures and other relevant tests and interpreting them to arrive at an accurate diagnosis. Acquire adequate skills and competence in conventional and specialized radiographic techniques.

#### **3. Human values, ethical practice and communication abilities.**

## **COURSE CONTENTS**

THEORY : 20 Hours

- |   |                |
|---|----------------|
| <b>1. Introduction to Oral Medicine &amp; Radiology</b> | <b>1 hours</b> |
| Definitions   |                |
| Scope   |                |
| Clinical applications                                   |                |
| <b>2. Occupational Hazards</b>                          | <b>1 hour</b>  |
| <b>3. Teeth:</b>  | <b>1 hour</b>  |
| • Developmental abnormalities                           |                |
| • Causes of destruction of teeth and their sequelae     |                |
| • Discoloration of teeth                                |                |

<b>4.</b>	<b>Stomatitis</b>	<b>1 hour</b>
	<ul style="list-style-type: none"> <li>• Classification</li> <li>• Systemic conditions causing stomatitis</li> <li>• Dental materials causing stomatitis</li> </ul>	
<b>5.</b>	<b>Disease of the tongue</b> – Aglossia, Ankyloglossia, Bifid tongue, Fissured tongue, Scrotal tongue, Macroglossia, Microglossia, Geographic tongue, Median Rhomboid Glossitis, Depapillation of tongue, Hairy tongue, Atrophic tongue, Reactive Lymphoid Hyperplasia, Glossodynia, Glossopyrosis, Ulcers, White and Red patches.	<b>1 hour</b>
	<ul style="list-style-type: none"> <li>• Classification</li> <li>• Clinical Examination of tongue</li> <li>• Local &amp; Systemic conditions and Syndromes affecting the tongue</li> <li>• Differential Diagnosis and treatment</li> </ul>	
<b>6.</b>	<b>Cervicofacial lymphadenopathy</b>	<b>1 hour</b>
	Classification, Etiopathogenesis, differential diagnosis, investigations and dental considerations.	
<b>7.</b>	<b>Radiology</b>	
1	Introduction to Oral Radiology- Definitions, Scope & Limitations.	1 hour
2.	History of Radiology	1 hour
3	Radiation Physics of radiation: <ul style="list-style-type: none"> <li>▪ Nature and types of radiations</li> <li>▪ Source of radiations</li> <li>▪ Production of X-rays &amp; Properties of X-rays</li> <li>▪ Compton effect</li> <li>▪ Coherent effect</li> <li>▪ Photoelectric effect</li> <li>▪ Radiation measuring units</li> </ul>	2 hours
4	Radiation Biology	1hour
5	Radiation Safety and Protection measures	1hour



6	Principles of image production : Projection Geometry	1 hour
7	Radiographic techniques:Intra-Oral:	1 hour
	<ul style="list-style-type: none"> <li>▪ Periapical radiographs (Bisecting and Paralleling techniques)</li> <li>▪ Bite wing radiographs</li> <li>▪ Occlusal radiographs</li> </ul>	
8.	Factors in production of ideal radiographs:	1 hour
	(a)K.V.P. and mA. of X-ray machine (b) Filters (c) Collimations (d) Intensifying screens (e) Grids (f) X-ray films (g) Exposure time (h) Techniques	
9.	Radiographic normal anatomical landmarks	1 hour
10.	Radiographic processing & faults	1 hour
11.	Radiographic appearance of Periodontal & periapical diseases	1 hour

## DISCUSSION

1. Principles of Oral Diagnosis.
2. Introduction
  - Ethics
  - Communication skill
  - Patient and Operator's position
  - Chair position
  - Sterilization in Oral Medicine & Radiology
3. Case history taking
  - Physical examination methodologies – General
  - Extra oral examination
  - Intra oral examination
  - Concepts of Provisional Diagnosis, Differential Diagnosis
  - Clinical Chair side Investigations & Radiological Investigations
  - Hematological, Microbiological, Histopathological Investigations
  - Special Investigation – Biochemical, Sialochemical studies, Serology, Immunological
  - Final diagnosis
  - Formulation of Treatment plan

- Referral for opinions
- 4. Gingiva & Gingivitis
- 5. Periodontium & Periodontitis
- 6. Pulp & Periapical diseases
- 7. Normal radiographic anatomical landmarks
- 8. Principles of Intraoral Radiographic Techniques & Clinical Demo.
- 9. Manual, automatic method of processing & faults
- 10. Principles of Radiographic Interpretation

**PRACTICAL / CLINICALS : 70 Hours**

- Clinical discussion
- Case demonstrations and observations
- Radiology demonstrations and observations
- Case history taking and discussion : 10 cases
- Radiographs making processing and interpreting : 20 Radiographs

## **4.20 PAEDODONTICS AND PREVENTIVE DENTISTRY**

**Theory – 20 Hours, Practicals – 70 Hours**

(Syllabus of Paedodontics and Preventive Dentistry to be covered in III BDS)

### **GOAL**

The dental graduates should acquire adequate knowledge, necessary skills and attitudes towards Pediatric dental practice involving the prevention, diagnosis and treatment of common diseases of the teeth & mouth associated tissues. The graduate should also understand the concept of school community programmes existing in the country.

### **OBJECTIVES**

#### **A. Knowledge**

The graduate should acquire the following during the period of training.

1. Adequate knowledge of the scientific foundations on which pediatric dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and should be able to evaluate and analyze scientifically various established facts and data.
2. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general – state of health and also the bearing on physical and social well – being of the patient.
3. Adequate knowledge of clinical disciplines and methods, which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive, diagnostic and therapeutic aspects of pediatric dentistry.
4. Adequate knowledge of biological function and behaviour of children in health and sickness as well as the influence of the natural psychological and social environment on the state of health.

#### **B. SKILLS**

1. Able to diagnose and manage various common dental problems encountered in general pediatric dental practice, keeping in mind the expectations and the right children and the society to receive the best possible treatment available wherever possible.

2. Acquire skill to prevent and manage complications if encountered while caring out various dental procedures.
3. Possess skill to carry out required investigative procedures and ability to interpret them.
4. Promote oral health and help to prevent oral diseases in children.
5. Competent in control of pain and anxiety during dental treatment.
6. To help and to participate in the implementation of national oral health programmes.

## **COURSE CONTENTS**

### **THEORY : 20 Hours**

- |   |          |
|---|----------|
| <b>1. INTRODUCTION TO PEDODONTICS &amp; PREVENTIVE DENTISTRY.</b>       | 01Hour   |
| – Definition, scope, objectives and importance.                         |          |
| <b>2. GROWTH AND DEVELOPMENT</b>  | 02 Hours |
| – <b>Importance of study of growth and development in Pedodontics.</b>  |          |
| – Prenatal and postnatal factors in growth and development              |          |
| – Theories of growth and development.                                   |          |
| – Development of maxilla and mandible and related age changes.          |          |
| Age Changes of Mandibular foramen.                                      |          |
| <b>3. DENTAL ANATOMY AND HISTOLOGY.</b>                                 | 02 Hours |
| – Development of teeth and associated structures in brief               |          |
| – Eruption and shedding of teeth - theories                             |          |
| – Teething disorders and their management                               |          |
| <b>4. CASE HISTORY RECORDING</b>  | 01 Hour  |
| – Outline of principles of examination, diagnosis & treatment planning. |          |
| <b>5. DENTAL RADIOLOGY RELATED TO PEDODONTICS.</b>                      | 01 Hour  |
| <b>6. DENTAL CARIES INCLUDING EARLY CHILDHOOD CARIES</b>                | 05 Hours |

- Historical background, definition, etiology and pathogenesis.
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries: in brief
- Definition, etiology, clinical features, complications and management in detail
- Role of diet and nutrition in dental caries.
- Dietary modification and diet counseling.
- Caries activity tests, caries prediction, caries susceptibility and their clinical application.

## **7. PREVENTIVE DENTISTRY.**

02 Hours

- Definition.
- Principles & scope .
- Types of prevention.
- Different preventive measures used in Pediatric Dentistry including pit and fissure sealants and caries vaccine.
- Importance of first permanent molar

## **8. FLUORIDES.**

04 Hours

- Historical background.
- Systemic & Topical fluorides.
- Mechanism of action.
- Toxicity & Management
- Defluoridation techniques.

## **9. GINGIVAL& PERIODONTAL DISEASES IN CHILDREN.**

02 Hours

- Normal gingiva & periodontium in children.
- Definition, etiology and pathogenesis
- Prevention and management of gingival and periodontal diseases.

## **B. CLINICALS : 70 Hours**

Following is the recommended clinical quota for under graduate students in the subject of Pedodontics & Preventive Dentistry.

### **CLINICAL EXERCISES**

<b>Sl No.</b>	<b>Treatment</b>	<b>Hours</b>
1	Case History	05
2	Oral Prophylaxes + Fluoride Application	05
3	Restorative procedures	05
4	Extraction	05
	<b>Total</b>	<b>20</b>

## **SCHEME OF EXAMINATION**

As per DCI this subject has no Theory or Practical Examination for III BDS

**One of the End posting exam will be conducted in the form of OSCE/OSPE**

## 4.21 ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

Theory – 20Hours, Practical –70Hours

### Goals :

1. The goal of the Orthodontics program is to provide a basic education in Orthodontics for and improved understanding of the diagnosis and treatment planning of various types of malocclusions and increased skill in their management.
2. To transform the nature of dental education and practice in ways that will dramatically improve the way we serve our students, our patients, and the surrounding community.

### Objectives:

#### A. Knowledge:-

- a) To have a systematic understanding of the dynamic interaction of Biologic processes and Mechanical forces acting on the Stomatognathic system during Orthodontic treatment.
- b) To lay foundation of basic knowledge and assimilate associated orthodontic skills to enable students to Diagnose and manage various Orthodontic problems.

#### B. Skills:-

Clinical practice is limited to collection and analysis of records and correction of mild occlusal problems with removable appliances.

## Syllabus of Orthodontics to be covered in III BDS

Theory : 20 Hours

	Topics	Hours
1.	Introduction. Definition, Historical Background, Aims And Objectives of Orthodontics And Need For Orthodontics Care.	1
2.	Growth and Development: In general	2
	a. Definition	
	b. Growth spurts and Differential growth	
	c. Factors influencing growth and Development	
	d. Methods of measuring growth	

- e. Growth theories (Genetic, Sicher's, Scott's, Moss's, Multifactorial)
- f. Genetic and epigenetic factors in growth
- g. Cephalocaudal gradient in growth.
- 3. Morphologic Development of Craniofacial Structures 2
  - a. Methods of bone growth
  - b. Prenatal growth of craniofacial structures
  - c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.
- 4. Clinical Application Of Growth And development
- 5. Development of Dentition & Normal occlusion 2
  - Functional Development of Dental Arches And occlusion 2
  - a. Factors influencing functional development dental arches and occlusion.
  - b. Forces of occlusion
  - c. Wolfe's law of transformation of bone
  - d. Trajectories of forces
- 6. Malocclusion - In General 1
  - a. Concept of normal occlusion
  - b. Definition of malocclusion
  - c. Description of different types of dental, skeletal and functional malocclusion.
- 7. Classification of Malocclusion 1
  - Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.
- 8. Normal And Abnormal Function of Stomatognathic System 1



9.	Etiology of Malocclusion	2
	a. Definition, importance, classification, local and general etiological factors.	
	b. Etiology of following different types of malocclusion:	
	1) Midline diastema	
	2) Crowding	
	3) Spacing	
	4) Cross-bite: anterior/posterior	
	5) Class III Malocclusion	
	6) Class II Malocclusion	
	7) Deep Bite	
	8) Open Bite	
10.	Computers in Orthodontics	6
11.	Prvative & Interceptive Orthodontics	
12.	Removable / Habit Breaking Orthodontic Appliances	
13.	Soldering & Welding	
14.	Gentics & Orthodontics	
15.	Revision	1

### **Practical: 70 Hours**

<b>Topics</b>	<b>Hours</b>
I).Basic wire bending exercises Gauge 22 or 0.7 mm	15hours
1.Straightening of wires ( 1 no)	
2.Bending of a equilateral triangle	
3. Bending of a square	
4. Bending of a circle	
5. Bending of U & V	

II ) Construction of clasps (Both sides upper/lower) Gauge 22 or 0.7 mm	18 hours
1. 3/4 clasp ( C -clasp )	
2. Full clasp ( Jackson's clasp )	
3. Adam's clasp	
III ) Construction of springs (Both sides upper both sides)	12 hours
Gauge 24 or 0.5 mm	
1. Finger spring	
2. Double cantilever spring ( Z spring )	
IV ) Construction of canine retractors Gauge 23 or 0.6 mm	7 hours
1. Helical canine retractor (Both sides upper and lower)	
2. Buccal canine retractor self supported canine retractor	
a) sleeve -5 mm wire or 24 gauge	
b) sleeve -19 gauge needle on one side	
3. Palatal canine retractor on upper both sides (Gauge 23 or 0.6 mm)	
4. Adams Clasp	
V) Labial Bow (Gauge 22 or 0.7 mm) One on both upper and lower	9 hours

<b>Clinical Exercise</b>	10 hours
1. Demonstration of upper alginate impression	
2. Demonstration of lower alginate impression	
3. Demonstration of model preparation	
4. Model analysis - Demonstration	
a) Pont's analysis	
b) Ashley howe 's analysis	
c) Carey's analysis	
d) Bolton's analysis	

## **SCHEME OF EXAMINATION**

**As per DCI this subject has no Theory or Practical Examination for III BDS**

## **4.22 PERIODONTICS**

Theory – 30 Hours, Clinical – 72 Hours

### **GOALS**

1. The subject of Periodontics aims at imparting knowledge in understanding the structures and function of Periodontium.
2. It aims at prevention, diagnosis and treatment of diseases affecting the surrounding tissues of teeth

### **OBJECTIVES**

#### **a. KNOWLEDGE**

1. The student is expected to learn the basics of surrounding structures like Gingiva, periodontal ligament, cementum and Alveolar bone , so as to impart this understanding for diagnosing Periodontal diseases in future.
2. To perform basic oral hygiene procedures along with educating and motivating the patients.

#### **b. SKILLS**

1. Identification of Plaque and Calculus.
2. Develop skills for Scaling and Root Planning
3. Manual Scaling and Polishing.
4. Oral Hygiene maintenance programs

## **COURSE CONTENTS**

(Syllabus to be covered in III BDS)

### **Theory : III Year BDS : 35 Hours**

1.	Historical background	1 Hr
2.	The Gingiva	2 Hrs
3.	Periodontal ligament	2 Hrs
4.	Cementum	1 Hr
5.	Alveolar Bone	1 Hr
6.	Defense mechanism of gingiva	2Hrs
7.	Gingival Inflammation	1 Hr
8.	Clinical Features of Gingivitis	1 Hr
9.	Gingival Enlargement	2 Hrs
10.	Dental Calculus	1 Hr
11.	Periodontal Microbiology	2 Hr
12.	Gingival diseases in childhood	1 Hr
13.	Classification of Periodontal diseases	2 Hrs
14.	Acute gingival infections	2 Hrs
15.	Influence of Systemic Diseases on Periodontium	2 Hrs
16.	Endocrine disorders and the Periodontium	2 Hrs
17.	AIDS and Periodontium	1 Hr
18.	Periodontal Pocket	1 Hr
19.	Chronic Periodontitis	1 Hr
20.	Refractory Periodontitis	1 Hr
21.	Aggressive Periodontitis	1 Hr
22.	Feed back and assessment	5 hours

**CLINICAL TEACHING : 72 hours****Clinical work and case discussion ( 2 Postings)**

10 Detailed Case History and Discussion : 17 hours

10 Oral Prophylaxis : 52 hours

Demonstration of All Surgical Procedure

Maintenance Therapy

Assessment : 02 hours

**Total 72 hours****SCHEME OF EXAMINATION**

As per DCI this subject has no Theory or Practical Examination for III BDS

**RECOMMENDED BOOKS**

Sl No	Author	Title	Edn	Publisher	Year of Publication
1	Carranza and Newman	Clinical Periodontology	10 <sup>th</sup>	SB Saunders Company	2006
2	Robert Genco, Henry. M. Goldman. D.Walter Cohen	Contemporary Periodontics	—	C. V. Mosby Company St. Louis	1990
3	Jan Lindhe, T. Karring, N. P. Lang	Clinical Periodontology & Implant Dentistry	5 <sup>th</sup>	Munksguard Copenhagen	2007
4	Grant, Stern, Listgarten	Periodontics	6 <sup>th</sup>	Mosby CBS Publishers Indian Edition	1998
5	Cohen	Atlas of Periodontal Surgery	2 <sup>nd</sup> Ed	C. V. Mosby Company, U. S. A.	1988

## **4.23 ORAL & MAXILLOFACIAL SURGERY**

Theory – 20 Hours, Clinical – 70 Hours

(Syllabus to be covered in III BDS)

### **AIM:**

To produce a dental surgeon competent enough to perform tooth extraction under both local, anticipate, prevent and manage associated complications, recognize underlying medical conditions and modify treatment plan, acquire adequate knowledge and understanding of various congenital, developmental and acquired pathologies, dysfunctions, defects and injuries occurring in the oral and Maxillofacial region, providing treatment options for common conditions and at the same time able to diagnose maxillofacial pathologies, fractures and refer them to higher specialty.

### **OBJECTIVES:**

#### **a) Knowledge & Understanding:**

By the end of the course of the clinical training the graduate is expected to –

1. Application of the knowledge acquired in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.
2. Good understanding of the evaluation, diagnosis and perioperative management of oral surgical patient.
3. Knowledge of range of surgical treatments.
4. Patient counseling regarding morbidity and dysfunction associated with craniofacial pathologies and anomalies and referring such patients to specialists.
5. Understand the principles of in-patient management.
6. Understanding of the diagnosis of major oral surgical procedures and principles involved in patient management.
7. Adequate knowledge of pain and anxiety management.
8. Should know ethical and medicolegal issues and communication ability.

#### **b) Skills:**

1. Acquire skill to examine any patient with oral surgical problem in a systematic manner and requisition of various clinical and laboratory investigations to arrive at a specific diagnosis.

2. Should be efficient in exodontia both under local and general anaesthesia.
3. Perform minor surgical procedures under local anesthesia like frenectomy, Alveoplasty, Biopsy and suturing techniques.
4. Ability to anticipate prevent and manage complications during and after surgery.
5. Understanding of management of major oral surgical problems and principles involved in inpatient management.
6. Diagnosis and Management of medical emergencies occurring on dental chair.
7. Identify the medically compromised patients and modify the treatment plan whenever required

## **COURSE CONTENT**

### **Theory: 30 Hours**

- |  |                |
|--|----------------|
| <b>I. Introduction</b>   | <b>2 Hours</b> |
| <ol style="list-style-type: none"> <li>a) Definition, Introduction, Objectives and Scope.</li> <li>b) History taking, examination of the patients, investigations and Diagnosis.</li> </ol>  |                |
| <b>II. Emergencies in Dental Practice:</b>   | <b>3 Hours</b> |
| <ol style="list-style-type: none"> <li>a) Cardio – Vascular</li> <li>b) Respiratory</li> <li>c) Endocrine disorders</li> <li>d) Drug allergies and interaction</li> <li>e) Tracheostomy</li> </ol>   |                |
| <b>III. Oral Surgical Procedure in</b>   | <b>4 Hours</b> |
| <ol style="list-style-type: none"> <li>a) Systemic disease.</li> <li>b) Patients with medically compromised candidates</li> <li>c) Immuno compromised conditions</li> <li>d) Geriatric patients</li> <li>e) Pregnant women</li> </ol>  |                |
| <b>IV. Anesthesia</b>  |                |
| <b>Local Anesthesia (L.A)</b>  | <b>6 Hours</b> |
| <ol style="list-style-type: none"> <li>a) Neurology of Facial Pain</li> <li>b) Historical aspects, definition, types of L.A., Indications and contra Indication, advantage and disadvantage.</li> <li>c) Local Anesthesia drugs, classification.</li> <li>d) Ideal requirements of L.A. solutions, composition and mode of action.</li> <li>e) Factors to be considered in the choice of particular mode of Anesthesia.</li> </ol> |                |

- f) Complications of L.A., its prevention and management.
- V. Anesthesia of Mandible 3 Hours**
- a) Anatomical consideration, infiltration, mental nerve block and Inferior dental nerve block.
- VI Anesthesia of Maxilla 3 Hours**
- a) Anatomical consideration, infiltration, infra orbital block, posterior superior Alveolar and Maxillary nerve block.
- b) Extra oral block – Indications and Technique.
- VII. General Anesthesia (G.A) 3 Hours**
- History of G.A.
  - Indications of G.A., in Oral Surgery.
  - Pre-anesthetic evaluation of the patients.
  - Pre-medication.
  - Types of G.A., including I.V. Sedation.
  - Stage of G.A. common general anesthetic agents.
  - Complications during and after anesthesia.
  - Post anesthetic care of the patients.
- VIII. Asepsis, Sterilisation, Cross Infection and Disinfection 2 Hours**
- Definitions.
  - Terminologies.
  - General considerations.
  - Effective measures in infection control
  - Problems encountered in asepsis and infection control.
- IX. Dento Alveolar Surgery 4 Hours**
- Exodontia**
- a) General Considerations.
- b) Indications and Contractions.
- c) Methods of Extractions:
- Principles of forceps extraction.
  - Indications, Principles and surgical procedure of Trans alveolar extraction.
  - Principles and use of elevators.
  - Complications of exodontia and management.



## RECOMMENDED BOOKS

Serial No	Book Name	Author	Edition	Year
01.	HANDBOOK OF LOCAL ANESTHESIA.	MALAMED.S.F.	4ED	2001
02.	MONHEIMS LOCAL ANESTHESIA AND PAIN CONTROL IN DENTAL PRACTICE.	BENNETT.C.R.	7ED	1984
03.	MINOR ORAL SURGERY.	HOWE.G.L.	3ED	1985
04.	THE EXTRACTION OF TEETH.	HOWE.G.L.	2ED	1980
05.	HAND BOOK OF MEDICAL EMERGENCIES IN THE DENTAL OFFICE.	MALAMED.S.F.	3ED	1989

## **4.24. CONSERVATIVE DENTISTRY AND ENDODONTICS**

Theory – 36 Hours, Clinical – 70 Hours

(Syllabus to be covered in III BDS)

### **GOALS**

- To develop exemplary clinicians and educators
- To seek innovations in Restorative dentistry & Endodontics, education and health care delivery systems
- Incorporate innovations in practice to deliver high quality treatment to the patient

### **OBJECTIVES**

- Enhance and facilitate the combined pre-clinical and clinical graduate program for students and clinicians who wish to practice or pursue further academic careers
- Upgrade and renovate the clinical environment to provide contemporary patient care, including treatment areas, clinical computing capabilities and instrument management
- Instill knowledge, skills and human values

### **SKILLS**

- A thorough understanding of the biological sciences to enable the integration and correlation of basic sciences with clinical dental practice
- Obtaining skills in all aspects of clinical restorative diagnosis, treatment planning and prognosis
- Skills to provide the preventive and treatment services commonly required in restorative dentistry
- Familiarize with endodontic instruments, materials and techniques needed to carry out simple Endodontic procedures

### **ETHICS**

- Adopt ethical principles, honesty and integrity in all aspects of dental practice
- Be humble and accept the limitations in knowledge and skill and ask for help from colleagues when needed
- Understand the principle of justice and how it impacts dentistry

## **COURSE CONTENT**

### **THEORY : 36Hours**

1	Examination –Diagnosis and treatment planning	3 hour
2	Infection control in Conservative Dentistry and Endodontics	2 hours
3	Recent advances of isolation	1 hours
4	Control of pain during operative procedures	2 hours
5	Management of gingival tissue during operative procedures.	2 hours
6	Contacts & contours	2 hours
7	Amalgam restorations-	
	• Complex amalgam restoration	2 hours
	• Class II modifications	2 hours
	• Pin retained amalgam restorations	2 hours
	• Bonded amalgam restorations	1 hours
8	Wasting diseases and its management	2 hours
9	Definition –Aim and scope of Endodontics	1 hour
10	Rationale of Endodontic Treatment	1 hour
11	Endodontic diagnosis	3 hours
12	Recent advances in endodontic diagnosis	1 hours
13	Case selection in endodontics	2 hours
14	Endodontic hand instruments Armamentarium – Classification –Standardization and Sterilization	3 hours
15.	Diseases of pulp and their management	2 hours
16.	Diseases of Periapical tissues and their management	2 hours

### **CLINICALS : 70 Hours**

#### **Clinical discussions / Demonstrations**

1. Case history and Chair position
2. Sterilization and infection control
3. Isolation (Cord Placement & Rubber Dam Application)
4. Management of deep carious lesions
5. Root canal Treatment on Anterior teeth (Acces opening, working length - Demonstration)
6. Preventive Resin Restroation (Discussion & Demonstration)

**Excercises**

- On extracted teeth – 8 class I dental amalgam restorations  
2 class V Glass ionomer
- On patients – 10 class I dental amalgam restorations  
2 class V Glass ionomer

**SCHEME OF EXAMINATION**

As per DCI this subject has no Theory or Practical Examination for III BDS

## **4.25 Prosthodontics and Crown & Bridge**

Theory – 30 Hours, Clinical – 70 Hours

(Syllabus to be covered in III BDS)

### **GOALS :**

Goal is to train the students for treating completely edentulous patients. Emphasis is placed on understanding the effects of edentulism, needs of the patient's and patient's attitude which influences the treatment planning. Goal is also to make the students accustomed with the art of the science involved in the fabrication of complete dentures.

### **OBJECTIVES:**

#### **(a) Knowledge**

At the end of the III B.D.S. course the student is expected to:

1. Understand the needs of the patients and to plan the treatment accordingly
2. Understand the anatomy and Histology of supporting structures for complete dentures.
3. To diagnose unfavorable situations and to modify the treatment plan accordingly.

#### **(b) Skills :**

At the end of the III B.D.S. course the student is expected to:

1. Acquire the skills to communicate with the patients and to understand the needs of the patients.
2. To develop skills to perform clinical procedures.
3. To get acquainted with the laboratory procedures.

## **COURSE CONTENT**

**THEORY : 30 Hours**

### **Complete denture prosthesis**

#### **I. a. Biomechanics of the edentulous state**

**2 Hours**

Mechanism of tooth support

Mechanism of complete denture support

Masticatory load

Mucosal support

Residual ridge

Psychologic effect on retention

Functional and parafunctional considerations

Occlusion

Functions: Mastication and swallowing

Mandibular movements

Para functions

Distribution of stresses to the denture supporting tissues changes in morphological face height and the temporomandibular joint

Face height

Centric relation

Temporomandibular joint changes

Individual behavioral or adaptive response

Cosmetic changes

Dietary changes

Adaptive and psychological changes

Adaptive potential of the patient

#### **b. Tissue response to complete denture prosthesis:**

The aging edentulous patient

Soft tissue changes

**Effects of Aging:**

- Oral changes
- Mucosa and skin
- Residual bone and the maxillomandibular relation
- Disuse atrophy
- Changes in the size of the basal seat
- Maxillo mandibular relations
- Tongue and taste
- Salivary flow and nutritional impairment
- Degenerative changes
- Dietary problems
- Psychologic changes

**II. Preparing the patient for complete denture prosthesis****1 Hour****III. Diagnosis and treatment planning for patient with some teeth****3 hours****Remaining**

- Diagnostic procedures
- History and records
- Immediate complaints
- Systemic evaluation – CVS, respiratory, renal, endocrines, CNS and other
- Temporomandibular joint disorders
- Intra oral examination
- Diagnostic cast
- Interarch space problems
- Radiographs and other investigations

**Treatment Plan**

- Deciding whether to extract the remaining teeth

- Pre-extraction record
- Mental attitudes and classification

#### **IV. Diagnosis of patient with no teeth remaining**

**1 Hour**

Examination charts and records

General observations affecting diagnosis

- age, sex, occupation, ethnic
- general health and nutrition
- social training
- patient complaints
- gait
- Facial features

Radiographic and intraoral examination

- Advantages of a radiographic examination
- Intra oral examination
- Ridge form
- Ridge relations
- Arch shape
- Sagittal profile of the residual ridge
- Shape of the palatal vault
- Relation of the hard and soft palate
- Muscular development
- Saliva
- Cheeks and lips
- Muscle tonus
- Muscular control
- Jaw movements
- Temporomandibular joint problems



- Tongue size and position
- Throat form
- Gagging

## **V. Development of the Treatment Plan**

**1 Hour**

Communicating with the patient

- Nutrition care of the denture patient
- Nutritional needs and status of the elderly
- Calcium and bone health
- Vitamin supplementation
- Nutrition counseling

## **VI. Identification and management of the patient with problems**

**1 Hour**

Basic rules to follow to avoid problems

- Conduction of the comprehensive examination
- Correctional procedures prior to making prosthesis

Patient behavior characteristics observed during the examination appointment that may indicate future management problems

- Disrupting regular office routine
- Overreacting to normal examination procedures
- Downgrading or criticizing treatment provided by a previous dentist

## **VII. Use of consultation report**

**1 Hour**

Contents of the Report

### **Economics of prosthodontic service**

**Improving the patient's denture foundation and ridge relations**

### **Non-surgical methods:**

- Rest for the prosthesis supporting tissues

- Occlusal and vertical dimension correcting of old prostheses
- Good nutrition and
- Conditioning of the patient's musculature

### **Surgical Methods**

- Hyperplastic ridge, epulis fissuratum, and papillomatosis
- Frenular attachments and pendulous maxillary tuberosities
- Bony prominences, undercuts, spiny ridges, and non-parallel bony ridges
- Discrepancies in jaw size
- Vestibuloplasty
- Ridge augmentation
- Replacing tooth roots by Osseo integrated dental implants

## **VIII.Rehabilitation of the Edentulous Patient**

**2 Hours**

### **Biologic considerations for Maxillary Impressions**

Macroscopic anatomy of supporting structures

- support for the maxillary denture
- residual ridge
- stress-bearing areas
- incisive papilla
- posterior palatal area
- bone of the basal seat

Macroscopic anatomy of limiting structures

- Resistant and non-resistant areas

Peripheral valvular sealing areas

### **Microscopic anatomy**

- Histological nature of soft tissue and bone
- Microscopic anatomy of supporting tissues
- Microscopic anatomy of limiting structures

## **Clinical Considerations of Microscopic Anatomy**

### **IX. Maxillary Impression Procedures**

**2 Hours**

Principles and objectives of impression making

Factors of retention of dentures

Acquired muscular control

Health of the basal seat tissues

#### **Impressions for the edentulous patient**

Primary impression-Patients position, operators position, stock trays, materials and step by step procedure for making primary impression.

- Impression trays-special trays and design for final impression
- Final impression materials

#### **Impression techniques:**

- First technique-border molded special tray
- Second technique-one step border molded tray
- Third technique-custom tray design based on the previously worn prosthesis.

### **X. Biologic considerations for mandibular impressions**

**2 Hours**

Sequelae of tooth loss

Macroscopic anatomy of the supporting structures

- Stages of change in the mandible
- Throat form and tongue positions
- Mental foramen area resorption
- Insufficient space between the mandible and the tuberosity
- Direction of ridge resorption
- Torus mandibularis

**Macroscopic Anatomy of Limiting Structures:**

- Buccal vestibule
- External oblique ridge and the buccal flange
- Masseter muscle region
- Distal extension of the mandibular impression
- Retromolar region and pad
- Influence and action of the floor of the mouth
- Sublingual gland region
- Alveololingual sulcus
- Lingual frenum and lingual notch
- Lingual flange

**Microscopic Anatomy:**

Supporting tissues

- Crest of the residual ridge
- Buccal shelf area

**XI. Mandibular impression procedures****1 Hour**

Classification of mandibular impressions

Aims and objectives, and theories of impression making

Construction Procedures

**XII. Biologic considerations in jaw relations and jaw movements****2 Hours**

Anatomic factors – Temporomandibular articulation

Classification of jaw relations

**XIII. Movements of the mandible****1 Hour**

- Practical significance of understanding mandibular movements
- Methods of studying mandibular movements
- Influence of temporomandibular joints
- Clinical understanding of mandibular movement

**XIV. Biologic consideration in vertical jaw relations****1 Hour**

- Anatomy and physiology of vertical jaw relations
- Establishment of the vertical maxillomandibular relations for complete denture prosthesis
- Methods of determining the vertical dimension

**XV. Biologic considerations in horizontal jaw relations****1 Hour**

- Muscle involvement in centric relations
- Orienting centric relation to hinge axis
- Significance of centric relation

**XVI. Recording and transferring bases and occlusion rims****2 Hours**

- Trial denture base, or recording base
- Occlusion rims
  - Guide for esthetics – Central line, lip line, canine line, smile line
- level of the occlusal plane
- preliminary centric relations records

**XVII. Relating the patient to the articulator****1 Hour**

- Articulators
- articulators based on theories of occlusion
- articulators based on the type of record used for their adjustment
- Selection of articulator for complete dentures

**XVIII. Selecting artificial teeth for the edentulous patient****1 Hour**

Mold charts and shade guides

- Anterior tooth selection
- Pre-extraction guides
- Size of the anterior teeth
- Form of the anterior teeth

- The dentogenic concept in selecting artificial teeth
- Posterior tooth selection
- Bucco lingual width of posterior teeth
- Mesiodistal length of posterior teeth
- Vertical length of the buccal surfaces of posterior teeth
- Types of posterior teeth according to materials
- Types of posterior teeth according to cusp inclines

#### **XIX. Preliminary Arrangement of Artificial Teeth**

**1 Hour**

- Guides for preliminary arranging anterior teeth
- Setting maxillary anterior teeth in wax for try in
- Setting mandibular anterior teeth in the wax for try in
- Preliminary arrangement of posterior teeth
- Setting posterior teeth for try in

#### **XX. Perfection and Verification of Jaw Relation Records**

**1 Hour**

- Verifying Vertical Dimension
- Verifying the centric relation
- Extra oral articulator method

#### **XXI. Creating Facial and Functional Harmony with Anterior Teeth:**

- Anatomy of natural appearance and facial expression
  - Normal facial landmarks
  - Maintaining facial support and neuromuscular balance
- Basic guides to developing facial and functional harmon

#### **XXII. Completion of the try in: Eccentric jaw relation records articulators and cast adjustments, establishing the posterior palatal seal**

**1 Hour**

- Protrusive and lateral relations

- Controlling factors of movement
- Eccentric relation records
- Establishing the posterior palatal seal

### **XXIII. Arranging Posterior Teeth for Functional Harmony:**

- Importance of occlusion
- Maintenance of occlusal harmony
  - Differences in artificial occlusion and natural occlusion
  - Reduced inclines in dentures
- Rational for arranging posterior teeth in temporomandibular joint disturbances
- Factors of centric occlusion
- Critical components in arranging posterior teeth
- Occlusal schemes used in complete dentures for the edentulous patients
- Techniques for arranging cusped teeth in Balanced occlusion
- Techniques for arranging cusplless teeth in occlusion

### **XXIV. Appearance and Functional Harmony of Denture Bases**

Materials used for denture bases: Acrylic resin, Metal

- Formation and preparation of the mold packing the mold
- Preserving the orientation relations
- Construction of remounting casts
- Completing the rehabilitation of the patient
- Treatment of the time of the denture insertion
- Errors in occlusion
- Interocclusal records for remounting dentures
- Interocclusal record of centric relation
- Remounting the mandibular denture verifying centric relation

**XXV. Patients instructions after care and recall and management of patient complaints:**  
**1 hour**

Protrusive inter occlusal record

Alternative use of plaster inter occlusal records advantages of balanced occlusion in complete dentures

Special instructions to the patient

- individuality of patients
- appearance with new dentures
- mastication with new dentures
- speaking with new dentures
- oral hygiene with dentures

Maintaining the comfort and health of the oral cavity in a rehabilitated edentulous patient

Twenty four hour oral examination and treatment

- adjustments relaxed to the occlusion
- adjustments relaxed to the denture bases
- subsequent oral examination and treatments

**CLINICALS : 70 hours**

**Work to be done by each student during IIIrd B.D.S.**

- 1. Complete Denture** - 1 Nos.
- 2. R.P.D.** - 5 Nos.

**SCHEME OF EXAMINATION**

**As per DCI this subject has no Theory or Practical Examination for III BDS**



## 4.26 PUBLIC HEALTH DENTISTRY

**Theory – 40 Hours, Clinical – 100 Hours**

**Goal:** To prevent and control oral diseases and promote oral health through organized community efforts.

### Objectives:

### Knowledge:

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

### Skill and Attitude:

At the conclusion of the course the students shall have acquired the skill of identifying health problems affecting the society, conducting health surveys, health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

**Communication abilities:**

At the conclusion of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

**The University exam will be held at the end of IV BDS**

Theory	Practical
<p>1. <b>Definition:</b> A <b>group</b> is a non-empty set <math>G</math> equipped with a binary operation <math>\cdot</math> satisfying the following properties:</p> <ul style="list-style-type: none"> <li><b>Closure:</b> For all <math>a, b \in G</math>, <math>a \cdot b \in G</math>.</li> <li><b>Associativity:</b> For all <math>a, b, c \in G</math>, <math>(a \cdot b) \cdot c = a \cdot (b \cdot c)</math>.</li> <li><b>Identity:</b> There exists an element <math>e \in G</math> such that <math>e \cdot a = a \cdot e = a</math> for all <math>a \in G</math>.</li> <li><b>Inverses:</b> For every <math>a \in G</math>, there exists an element <math>a^{-1} \in G</math> such that <math>a \cdot a^{-1} = a^{-1} \cdot a = e</math>.</li> </ul>	<p>1. <b>Example:</b> The set of integers <math>\mathbb{Z}</math> under addition <math>+</math> forms a group.</p> <ul style="list-style-type: none"> <li><b>Closure:</b> The sum of two integers is an integer.</li> <li><b>Associativity:</b> Addition is associative.</li> <li><b>Identity:</b> The integer 0 is the identity element.</li> <li><b>Inverses:</b> For every integer <math>a</math>, <math>-a</math> is its inverse.</li> </ul>

III BDS	20 hours	100 hours
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## COURSE CONTENT

**THEORY [TOTAL 20 HOURS]**

1. Introduction to dental public health, definition, history, aims , objectives, scope, procedural steps, difference between clinician and public health dentist 1 hours
2. Public health
  - a. History of public health, definition , changing concept 1 hour
  - b . Concept of health- Definition of health, changing concepts, new philosophies of health, dimensions of health, spectrum of health, determinants of health, indicators of health 1 hour

- c. Concept of Disease-Germ theory, epidemiologic triad, multifactorial causation, web of causation , iceberg of disease. 1 hour
- d. Environmental health –
  - i. Water - Safe and wholesome water, uses and sources, water pollution, purification of water, water quality – criteria and standards . 2 hours
  - ii. Air pollution and noise pollution 1 hour
  - iii. Disposal of waste, hospital waste management 1 hour
- e. Health care delivery systems -Definition of primary health care , elements and principles of primary health care , healthcare systems , primary healthcare in India. Village level, sub centre level, Primary health centre level National Health programs, oral health policy , national and international health agencies 2 hours
- f. Health Education- Definition, communication, types, barriers, approaches to health education, difference between health education and propaganda, principles of health education, methods in health education and communication, aids in health education. 2 hours
- g. General principles of Epidemiology-Definition, general principles, aims, epidemiological approaches , tools of measurement, measurement of morbidity and mortality, epidemiological methods , uses of epidemiology 3 hours
- h. Biostatistics - Introduction, definition, methods of collection of data, sampling, presentation of data, measures of central tendency and dispersion, tests of significance, types of errors. 3 hours
- i. Oral Health Survey -Definition, types of survey, steps in survey, WHO oral health survey procedures 1 hour
- j. Planning and evaluation -Definition of planning , steps , definition of evaluation, types of evaluation 1 hour

#### **PRACTICAL [ TOTAL 100 HOURS]**

- 1 Orientation program for the practical excises
- 2 Discussions and demonstration on following topics
  - a. Dental chair position, Sterilization of Instrument- Classification, Uses
  - b. Indices – DMFT, DMFS, deft, dfs, dft, OHI, OHIS, WHO, CPITN
- 3 Power point presentations of seminar.
- 4 These exercises designed to help the student in III year :

1. Understand the community aspects of dentistry
2. To take up leadership role in solving community oral health program
  - a. Oral health status assessment of the community using indices and WHO basic oral health survey methods.
  - b. Visit to primary health center-to acquaint with activities and primary health care delivery
  - c. Incidence & Prevalence of common oral diseases like dental caries, periodontal diseases , oral cancer , Fluorosis at national & international levels.
  - d. Preparation of oral health education material posters/ models/ slides/ lectures/ play acting skits etc.
  - e. Visit to water purification plant/public health laboratory/ center for treatment of waste water and sewage water
  - f. Exploring and planning setting of private dental clinics in rural, semi urban and urban locations, availment of finances for dental practices- preparing project report.
  - g. Visit to schools-to assess the oral health status of school children, health education including possible preventive care at school (tooth brushing technique demonstration and oral rinse programme etc.)

## **IV BDS**

### **4.27 ORAL MEDICINE AND RADIOLOGY**

Theory – 45 Hours, Clinical – 130 Hours

#### **GOALS**

To imbibe necessary skills and attitudes to attain the competence in diagnosis, investigations and appropriate treatment planning of oral and para oral lesions.

#### **OBJECTIVES**

By the end of the final year the student should acquire the following skills:

##### **1. Knowledge**

Theoretical, clinical and practical knowledge of all Under knowledge change mucosal to oral and paraoral lesions, diagnostic procedures pertaining to them and latest information of imaging modules.

##### **2. Skills**

Diagnostic skills in recognition of oral lesions and their management.

Proper history taking, thorough clinical examination of the patient, performing essential diagnostic procedures and other relevant tests and interpreting them to arrive at an accurate diagnosis. Acquire adequate skills and competence in conventional and specialized radiographic techniques.

##### **3. Human values, ethical practice and communication abilities.**

## **COURSE CONTENTS**

### **THEORY : 45 Hours**

1. Vesiculobullous lesions of oral mucosa: Herpes simplex, Herpes Zoster, Herpangina, Bullous lichen planus, Pemphigus, Cicatricial Pemphigoid, Erythema Multiforme, Aphthous Ulcers. 2 hours
2. Red lesions : Erythroplakia, Stomatitis Venenata & Medicamentosa, Erosive lesions and Denture Sore Mouth. 1 hour
3. White lesions : Chemical burns, Leukodema, Leukoplakia, Fordyce's Spots, Stomatitis Nicotina Palatinus, White Sponge Nevus, Oral Submucous fibrosis, Candidiasis, Lichen planus, Discoid Lupus Erythematosus 1 hour
4. Dermatological lesions : Ectodermal dysplasia, Lupus erythematosus, Psoriasis, Scleroderma, Dermatomyositis, Rheumatoid arthritis, Pachyonychia Congenita, Darier's disease, Epidermolysis Bullosa, Dermatitis herpetiformis. 1 hour
5. Oral Cancer 2 hours
  - Etiology, Classification & Epidemiology
  - Screening, Clinical Features, Clinical staging & Diagnosis
  - Laboratory Investigations & Other Investigations including radiographs
  - Chemotherapy / Radiotherapy
  - Postradiation therapy care.
6. Diseases of Salivary glands 2 hours
  - Development disturbances : Aplasia, Atresia and Aberration
  - Functional disturbances : Xerostomia, ptyalism
  - Inflammatory conditions : Non-specific sialadenitis, Mumps, Sarcoidosis, Heerfort's Syndrome (uveoparotid fever), Necrotising Sialometaplasia
  - Cysts and Tumors: Mucocele, Ranula, Pleomorphic Adenoma, Mucoepidermoid Carcinoma
  - Miscellaneous: Sialolithiasis, Sjogren's Syndrome, Mikulicz's Disease, Sialosis and Sialography

7. Immunological diseases – Immunodeficiency disorders & autoimmune disease 2 hours  
(a) Lupus Erythematosus (b) Scleroderma (c) Dermatomyositis  
(d) Rheumatoid arthritis  
(f) Recurrent oral ulcerations including Behcet's syndrome and Reiter's syndrome
8. AIDS 1 hour  
Prevalence, structure of HIV virus, pathogenesis, C/F, oral manifestations, investigations, postexposure prophylaxis and treatment & dental considerations.
9. Sexually Transmitted diseases 1 hour  
Classification, Etiopathogenesis, differential diagnosis, investigations and treatment of syphilis, gonorrhea, hepatitis and dental considerations.
10. Diseases of bone & Osteodystrophies 1 hour
  - Classification of diseases of bone manifested in jaws, etiology
  - Types, clinical features, radiographic features and types
  - Diagnosis, investigations, treatment dental consideration and follow up of the following diseases
  - Developmental disorders: Anomalies, Exostosis & tori, infantile, cortical hyperostosis, Marfan's syndrome, Fibrous dysplasia, Cementoosseous dysplasias - PCOD, FCOD, Osseous fibroma, Cherubism, Paget's disease, Osteopetrosis, Osteogenesis imperfecta,
11. Diseases of Nerves: 1 hour
  - a) Facial nerve paralysis including Bell's palsy,
  - b) Melkersson Rosenthal syndrome and Ramsay Hunt syndrome
  - c) Neuroma
  - d) Neurofibromatosis
  - e) Frey's syndrome
  - f) Trigeminal neuralgia
12. Diseases of Muscles: 1 hour
  - (a) Myositis Ossificans
  - (b) Trismus

- |     |  |         |
|-----|--|---------|
| 13. | Diseases of the TMJ<br>Temporomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Subluxation and Luxation, Myofascial Pain Dysfunction Syndrome   | 2 hours |
| 14. | Orofacial Pain<br>i) Organic pain:<br>Pain arising from the diseases of orofacial tissues like teeth, pulp, gingival, periodontal tissue, mucosa, tongue, muscles, blood vessels, lymph tissue, bone, paranasal sinus, salivary glands etc.<br>(ii) Pain arising due to C.N.S. diseases:<br>(a) Pain due to intracranial and, extracranial involvement of cranial nerves: Multiple sclerosis, cerebrovascular diseases, Trotter's syndrome etc<br>(b) Neuralgic pain due to unknown causes:<br>Trigeminal Neuralgia, Glossopharyngeal Neuralgia, Sphenopalatine Ganglion Neuralgia, Periodic Migrainous Neuralgia and Atypical Facial Pain<br>(iii) Referred pain: Pain arising from distant tissues like heart, spine etc | 2 hours |
| 15. | Medical Emergency Management – Cardiac Patient, Cardiac arrest, Space infections, Syncope, Anaphylaxis. Asthma, bleeding disorders, hypertension and diabetes  | 1 hour  |
| 16. | Forensic Odontology.<br>(a) Medicolegal aspects of orofacial injuries<br>(b) Identification of bite marks<br>(c) Determination of age and sex: lip prints<br>(d) Identification of cadavers by Dental Appliances, Restorations and Tissue Remnants<br>Radiographic age estimation and postmortem radiographic examination  | 1 hour  |
| 17. | Geriatrics   | 1 hour  |

- Definition, hard and soft tissue disorders and treatment
18. Therapeutics: General therapeutic measures - drugs commonly used in oral medicine viz., antibiotics, chemotherapeutic agents, anti-inflammatory & analgesic drugs, astringents, mouth washes, styptics, demulcents, local surface anesthetics, sialogogues, antisialogogues and drugs used in the treatment of malignancy. Antioxidants, corticosteroids, drug interactions and immunomodulators. 2 hours
  19. Pharmacotherapeutics in Oral Medicine
    - Antivirals
    - Antifungals
    - Analgesics
    - Antibiotics
    - Antioxidants
  20. Foci of infection and their ill effects on general health 1 hour
 

Definitions, mechanism of focal infection, pulp, periodontal, pericoronal foci of infection causing arthritis, pneumonia, SABE, low birth weight babies, two way relationship between oral foci of infection and diabetes
  21. Granulomatous diseases with contents as: Tuberculosis, sarcoidosis, midline lethal granuloma, Crohn's disease, Lasers in Oral Medicine. 1 hour
  22. Blood Dyscrasias including diagnosis with Investigations & Dental considerations 3 hours
    - Causes of bleeding in the oral cavity
    - Diseases of R.B.C –Anemias
      - Iron Deficiency anemia
      - Plummer – Vinson syndrome
      - Pernicious anemia
      - Haemolytic anemia
      - Thalassemia



- Sickle cell anemia
  - Erythroblastosis fetalis
  - Aplastic anemia
  - Polycythemia
  - Diseases of WBC –
    - Neutropenia
    - Cyclic neutropenia
    - Agranulocytosis
    - Infectious mononucleosis
    - Leukemias
    - Multiple Myeloma
  - Diseases of platelets –
    - Thrombocytopenic Purpura
    - Hemophilia
    - Christmas disease
    - Von Willebrand's disease
23. Orofacial Pigmentations 1 hour
- Exogenous pigmentation on soft tissue and hard tissues
  - Endogenous pigmentation on soft tissue and hard tissues
24. Metabolic and Nutritional deficiencies 1 hour
- Disorders of Carbohydrate, Protein and Lipid metabolism and their oral manifestations
  - Vitamins & Minerals deficiency disorders and their oral manifestations
25. Endocrine diseases and Investigations & Dental considerations 1 hour
- Pituitary - Gigantism, Acromegaly, Hypopituitarism
  - Thyroid - Hyperthyroidism, Hypothyroidism
  - Parathyroid - Hyper parathyroidism, Hypoparathyroidism.
  - Adrenal - Addison's disease, Cushing's Syndrome
  - Pancreas - Diabetes Mellitus

## **RADIOLOGY**

- |     |  |         |
|-----|--|---------|
| 1.  | Infections and inflammation of the jaws                          | 1 hour  |
| 2.  | Radiographic appearance of cysts- Odontogenic & Nonodontogenic   | 1 hour  |
| 3.  | Radiographic appearance of tumors- Odontogenic & Nonodontogenic  | 2 hours |
| 4.  | Radiographic appearance of fibro- osseous lesions                | 1 hour  |
| 5.  | Periapical Radiolucencies  | 1 hour  |
| 6.  | Periapical Radiopacities   | 1 hour  |
| 7.  | Pericoronal Radiolucencies & Radiopacities                       | 1 hour  |
| 8.  | Extra-oral:  | 1 hour  |
|     | ▪ Lateral projections of skull, jaw bones and paranasal sinuses  |         |
|     | ▪ Cephalograms, PA, Townes, Reverse Townes                       |         |
|     | ▪ Orthopantomography   |         |
|     | ▪ Projections of temporomandibular joint and condyle of mandible |         |
|     | Projections for Zygomatic arches                                 |         |
| 9.  | Specialised techniques:  | 3 hours |
|     | ▪ RVG, Scintigraphy  |         |
|     | ▪ Xeroradiography, Ultrasonography                               |         |
|     | ▪ Tomography, CT, MRI, CBCT, Contrast radiography                |         |
| 10. | Discussion & Demonstration of Extra Oral Radiographic Technique  | 1 hour  |
| 11. | Demonstration of Intra Oral RVG & OPG                            | 1 hour  |
| 12. | Radiographic features of maxillary sinus diseases                | 1 hour  |

## **PRACTICAL / CLINICALS : 130 HOURS**

- Routine case history taking and discussion : 10
- Radiograph making, processing and interpreting : 30
- Special case history taking and discussion : 5

## SCHEME OF EXAMINATION

### A. Theory: 100 marks

Distribution of Topics and type of Questions

Contents	Type of Questions and Marks	Marks
MCQ	20 x 1 marks	20
Long essays 1 Long essay from Oral Medicine 1 Long essay from Radiology	Long essays 2 x 10 marks	20
Short answer 5 Short answer from Oral Medicine 5 Short answer from Radiology	Short answer 10 x 3 marks	30
	<b>Total</b>	<b>70</b>

### B. Viva-Voce: 20 marks

Oral Medicine and Radiology = 20 marks

### C. Internal assessment (Written) = 10 Marks

**Clinical Examination: 90 Marks**

**Case History: 40 Marks**

**X – Ray 40 Marks**

**Record Book 10 Marks**

**90 Marks**

**Internal Assessment – Practical : 10 Marks**

#### **THEORY : 100 Marks**

Theory examination : 70 Marks

Theory Internal Assessment : 10 Marks

Viva Voce : 20 Marks

**100 Marks**

#### **PRACTICAL : 100 Marks**

Practical Examination : 90 Marks

Practical Internal Assessment : 10 Marks

**:100 Marks**

## Text Books to be Referred

Sl. No.	Name of the Book	Name of Author
1.	Oral Medicine Diagnosis & Treatment New XII Ed	Burkit Martin S Greenberg, Michel Glick
2.	Oral and Maxillofacial Pathology 3 <sup>rd</sup> Ed,	Elsevier, Neville
3.	Fundamental Of Oral Medicine And Radiology	Bailoor, Nagesh
4.	Medical Emergencies In The Dental Office VI Ed	Stanley Malamed
5.	Text Book Of Oral Pathology VII Ed	William Shafer, Maynard H, Barnett
6.	Oral Manifestations Of Systemic Diseases II Ed	David Mason & J. Harold Jones
7.	Oral Radiology (Principles & Interpretation) VI Ed.	White And Pharoah
8.	Differential Diagnosis Of Oral & Maxillofacial Lesions V Ed.	Norman K. Wood Paul. W-Goaz
9.	Essentials of Dental Radiography & Radiology IV Edition	Eric Whaites

## **4.28 PAEDODONTICS AND PREVENTIVE DENTISTRY**

Theory – 45 Hours, Clinical – 130 Hours

### **GOAL**

The dental graduates should acquire adequate knowledge, necessary skills and attitudes towards Pediatric dental practice involving the prevention, diagnosis and treatment of common diseases of the teeth & mouth associated tissues. The graduate should also understand the concept of school community programmes existing in the country.

### **OBJECTIVES**

#### **A. Knowledge**

The graduate should acquire the following during the period of training.

1. Adequate knowledge of the scientific foundations on which pediatric dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and should be able to evaluate and analyze scientifically various established facts and data.
2. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general – state of health and also the bearing on physical and social well – being of the patient.
3. Adequate knowledge of clinical disciplines and methods, which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive, diagnostic and therapeutic aspects of pediatric dentistry.
4. Adequate knowledge of biological function and behaviour of children in health and sickness as well as the influence of the natural psychological and social environment on the state of health .

#### **B. SKILLS**

1. Able to diagnose and manage various common dental problems encountered in general pediatric dental practice, keeping in mind the expectations and the right children and the society to receive the best possible treatment available wherever possible.
2. Acquire skill to prevent and manage complications if encountered while caring out various dental procedures.
3. Possess skill to carry out required investigative procedures and ability to interpret them.

4. Promote oral health and help to prevent oral diseases in children.
5. Competent in control of pain and anxiety during dental treatment.
6. To help and to participate in the implementation of national oral health programmes.

## **COURSE CONTENT**

1. **PEDIATRIC OPERATIVE DENTISTRY INCLUDING DENTAL MATERIALS.** 04 Hours
  - Principles of pediatric operative dentistry.
  - Modifications required for cavity preparation in primary and young permanent teeth. based on differences between deciduous and permanent teeth
  - Various isolation techniques, Matrix bands and retainers
  - Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials like mainly Glass Ionomer, composites and silver amalgam.
2. **ORAL SURGICAL PROCEDURES IN CHILDREN.** 01 Hour
  - Indications and contraindications of extractions of primary and permanent teeth in children.
  - Knowledge of local and general anesthesia.
  - Minor surgical procedures in children.
  - Age changes of Mandibular foramen.
3. **BACTERIAL, VIRAL & FUNGAL DISEASES IN CHILDREN** 02 Hours
4. **DEVELOPMENT OF OCCLUSION FROM BIRTH THROUGH ADOLESCENCE.** 03 Hours
  - Study of variations and abnormalities
5. **DEEP CARIES MANAGEMENT (PEDIATRIC ENDODONTICS)** 04 Hours
  - Principles & Diagnosis.
  - Classification of pulpal pathology in primary young permanent & permanent teeth.
  - Management of pulpally involved primary, young permanent and permanent teeth.

- o Pulp capping- direct pulp capping
  - o Pulpotomy.
  - o Pulpectomy.
  - o Apexogenesis.
  - o Apexification
  - Obturation Techniques & material used for primary, young permanent & permanent teeth in children.
- 6. STAINLESS STEEL, POLYCARBONATE & RESIN CROWNS. 01 Hour**
- 7. TRAUMATIC INJURIES IN CHILDREN : 05 Hours**
- Classification & importance.
  - Sequelae & reaction of teeth to trauma .
  - Management of traumatized teeth.
- 8. CHILD PSYCHOLOGY 04 Hours**
- Definition.
  - Theories of child psychology.
  - Psychological development of children with age.
  - Principles of psychological growth & development while managing child patient.
  - Dental fear and its management.
  - Factors affecting child's reaction to dental treatment.
- 9. CHILD BEHAVIOUR & BEHAVIOUR MANAGEMENT: 04 Hours**
- Definitions
  - Types of behaviour encountered in the dental clinic.
  - Non-pharmacological & pharmacological methods of behaviour management.
- 10. PREVENTIVE & INTERCEPTIVE ORTHODONTICS: 04 Hours**
- Definition.

- Problems encountered during primary, mixed dentition phases & their management.
  - Space management
  - Serial extraction
- 11. ORAL HABITS IN CHILDREN:** 04 Hours
- Definition, etiology & classification.
  - Clinical features of digit sucking, Tongue thrusting, mouth breathing & various other deleterious secondary habits.
  - Management of oral habits in children.
- 12. DENTAL CARE OF CHILDREN WITH SPECIAL NEEDS.** 04 Hours
- Definition etiology classification, behavioural and clinical features & management of children with.
    - o Physically handicapping conditions.
    - o Mentally compromising conditions.
    - o Medically compromising conditions.
  - Genetic disorders and aspects in pediatric dentistry
- 13. DENTAL EMERGENCIES IN CHILDREN AND THEIR MANAGEMENT.** 01 Hour
- 14. CHILD ABUSE & NEGLECT, FORENSIC ODONTOLOGY** 01 Hour
- 15. SETTING UP OF PEDODONTIC CLINIC** 01Hour
- 16. CONGENITAL ABNORMALITIES IN CHILDREN.** 02 Hour
- Definition, classification, clinical features & management.
- 17. DENTAL HEALTH EDUCATION & SCHOOL DENTAL HEALTH PROGRAMMES.** 01 Hour
- 18. ETHICS.** 01 Hour



**PRACTICALS : 130 Hours****CLINICAL EXERCISES**

Sl No.	Treatment	Hours
1	Case History	10
2	Oral Prophylaxis + Fluoride Application	10
3	Restorative procedures	30
4	Extraction	20
5	Pulp therapy (Only demonstration)	–
6	Space maintainers (Only demonstration)	–
	<b>Total</b>	<b>70</b>

**SCHEME OF EXAMINATION****A.Theory : 70 Marks**

## Distribution of Topics and Types of Questions

Contents	Type of Questions and Marks	Marks
Multiple choice questions	M.C.Q. 20 X 01 Marks	20-Marks
Long Essay a) One question from the following topics : i) Psychology. ii) Child Behavior , Behavior Management. iii) Dental caries & management in children. iv) Restorative & Esthetic Dentistry in Children. v) Pulp Therapy. vi) Preventive & Interceptive Orthodontics. b) One question from the following topics : i) Occlusal Guidance & Space Management. ii) Management of traumatic injuries to teeth and associated structures in children. iii) Oral habits and their management. iv) Management of handicapped patients. v) Gingival & Periodontal diseases and management in children, Oral surgery for children.	Long Essay 02X10 Marks	20-Marks
Short Answers	Short Essays	

i) Introduction, Definition & Scope of Pediatric Dentistry. ii) Applied aspects of Growth and Development. iii) Genetic Aspects. iv) Chronology of Human Dentition. v) Examination, Investigation, Diagnosis & Treatment in Pediatric Dentistry. vi) Setting of Pediatric Dental clinic. vii) Management of developmental and acquired disturbances of teeth. viii) Oral manifestation of systemic diseases. ix) Management of pain. x) Teething Disorders. xi) Fluorides . xii) Bacterial, Viral & Fungal diseases in children. xiii) Dental Health Education & School Dental Health programmes.	10 X 03 Marks	30-Marks
Questions can be asked from any chapter of the syllabus		
	<b>Total</b>	<b>70-Marks</b>

**B. Viva Voce 20 Marks**

**C. Internal Assessment –Theory : 10 Marks, Practical : 10 Marks**

**D. Clinical Examination : 90 Marks**

Clinical Examination consists of two exercise:

**Exercise 1 : Marks allotted : 35**

(Common for all students)

- Clinical Examination and recording of Long Case History 10 -Marks
- Diagnosis, Treatment planning & Management 15 –Marks
- Record book 10- Marks

**Exercise 2: Marks allotted: 55**

(Any one of the following Exercise –by lot )

1. Oral Prophylaxis Fluoride Application
  - Management of Child 10 -Marks
  - Oral Prophylaxis 20 -Marks
  - Topical Fluoride Application 20 -Marks
  - Post Operative Instructions 05 -Marks

2. Restoration of Tooth
  - Management of Child 10 -Marks
  - Cavity Preparation 20- Marks
  - Isolation, Lining, Matrix Band Application 10- Marks
  - Filling, Carving & Finishing 10- Marks
  - Post- operative Instructions 05 -Marks
3. Extraction of tooth
  - Management of Child 10- Marks
  - Local Anesthesia 15 -Marks
  - Extraction 20- Marks
  - Prescription 05 -Marks
  - Post- operative Instructions 05 -Marks

#### **BOOKS RECOMMENDED & REFERENCE**

1. Pediatric Dentistry ( Infancy through Adolescences ) – Pinkham.
2. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon
3. Occlusal guidance in Pediatric Dentistry – Stephen H. Wei.
4. Clinical use of Fluorides - Ripa
5. Pediatric Oral & Maxillofacial Surgery – Kaban.
6. Pediatric Medical Emergencies - P. S. Whatt.
7. Understanding of Dental Caries. – Niki Foruk.
8. An Atlas of Glass Ionomer cements – G. J. Mount.
9. Clinical Pedodontics - Finn.
10. Text Book of Pediatric Dentistry – Braham Morris.
11. Primary Preventive Dentistry – Norman O. Harris
12. Hand Book of Clinical Pedodontics - Kenneth. D
13. Preventive Dentistry – Forrester
14. The Metabolism and Toxicity of Fluoride – Garry M. Whitford.
15. Dentistry for the child and Adolescence – Mc. Donald.
16. Pediatric Dentistry – Damle. S. G.

17. Behaviour Management – Wright
18. Pediatric Dentistry – Mathewson.
19. Traumatic Injuries – Andreson.
20. Occlusal guidance in Pediatric Dentistry – Nakata.
21. Pediatric Drug Therapy – Tomare.
22. Contemporary Orthodontics – Profitt.
23. Preventive Dentistry. – Soben Peter.
24. Metabolism & Toxicity of Fluoride – Withford G. M.
25. Endodontic Practice - Grossman.
26. Principles of Endodontics – Munford.
27. Endodontics – Ingle
28. Pathway of Pulp –Cohen.
29. Management of Traumatized anterior Teeth – Hargreaves.
30. Text book & Pedodontics - Shobha Tendon
31. Pediatric Dentistry - Nikhil Marwah
32. Pediatric Dentistry - M.S. Muthu
33. Text book of Pedodontics - Arati Rao

## **4.29 ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS**

**Theory – 30 Hours, Practical – 100 Hours**

### **GOALS :**

1. The goal of the Orthodontics program is to provide a basic education in Orthodontics for and improved understanding of the diagnosis and treatment planning of various types of malocclusions and increased skill in their management.
2. To transform the nature of dental education and practice in ways that will dramatically improve the way we serve our students, our patients, and the surrounding community.

### **OBJECTIVES:**

#### **A. Knowledge:-**

- a) To have a systematic understanding of the dynamic interaction of Biologic processes and Mechanical forces acting on the Stomatognathic system during Orthodontic treatment.
- b) To lay foundation of basic knowledge and assimilate associated orthodontic skills to enable students to Diagnose and manage various Orthodontic problems.

#### **B. Skills:-**

Clinical practice is limited to collection and analysis of records and correction of mild occlusal problems with removable appliances.

## **COURSE CONTENT**

### **THEORY : 30 Hours**

- |    |  |         |
|----|--|---------|
| 1. | Cephalometrics In Orthodontic  | 4 hours |
|    | a. Tweeds  |         |
|    | b. Downs   |         |
|    | c. Steiners  |         |
| 2. | Corrective Orthodontics  | 4 hours |
|    | a. Definition, factors to be considered during treatment planning.   |         |
|    | b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's<br>Mixed dentition analysis.   |         |
|    | c. Methods of gaining space in the arch:- Indications, relative merits<br>and demerits of proximal stripping, arch expansion and extractions |         |
|    | d. Extractions in Orthodontics - indications and selection of teeth<br>for extractions.  |         |
| 3. | Tissue Response to Orthodontic tooth moment  | 1 hour  |
| 4. | Orthodontic forces& Biomechanics   | 1 hour  |
| 5. | Anchorage in Orthodontics  | 1 hour  |
| 6. | Orthodontic Appliances: Fixed  | 4 hours |
|    | a. Definition, Indications & Contraindications   |         |
|    | b. Component parts and their uses  |         |
|    | c. Basic principles of different techniques: Edgewise,<br>Begg's, straight wire.   |         |
|    | d. Preliminary knowledge of acid etching and direct bonding.   |         |
| 7. | Ethics   | 1 hour  |
| 8. | Extraoral Appliances   | 1 hour  |
|    | 1. Headgears   |         |
|    | 2. Chincup   |         |
|    | 3. Reverse pull headgears  |         |

9.	Myofunctional Appliances	4 hours
	1. Definition and principles	
	2. Muscle exercises and their uses in orthodontics	
	3. Functional appliances:	
	i) Activator, oral screens, Frankels function regulator, bionator, twin blocks, lip bumper	
	ii) Inclined planes - upper and lower	
10.	Orthodontic Management of Cleft Lip And Palate	1 hour
11.	Principles of Surgical Orthodontics Brief knowledge of correction of:	1 hour
	a. Mandibular Prognathism and Retrognathism	
	b. Maxillary Prognathism and Retrognathism	
	c. Anterior open bite and deep bited. Cross bite	
12.	Principle, Differential Diagnosis & Methods of Treatment of:	5 hours
	1. Midline diastema	
	2. Cross bite	
	3. Open bite	
	4. Deep bite	
	5. Spacing	
	6. Crowding	
	7. Class II - Division 1, Division 2	
	8. Class III Malocclusion -True and Pseudo Class III	
13.	Retention And Relapse Definition, Need for retention, Causes of relapse, Methods of retention, Different types of Retention devices, Duration of retention.	2 hours
14.	Adult Orthodontics	1 hour
15.	Revision	1 hour

# Syllabus of Orthodontics to be covered in IV BDS

## PRACTICAL : 100 Hours

Topics	Hours
<b>Clinical training</b>	40 hours
1) Case history taking (3 Cases)	
2) Case discussion (3 Cases)	
3) Discussion on given topic	
4) Cephalometric tracing	
a ) Down's analysis,	
b ) Steiners analysis	
c ) Tweeds analysis	
<b>Practical training</b>	30 hours
1) Adam's clasp on anterior teeth gauge 0.7 mm	
2) Standard & long labial bow.	
(gauge of labial bow 0.9 mm, apron spring 0.3 mm)	
Appliance Construction in Acrylic	30 hours
1. Upper and Lower Hawleys appliance	
2. Upper Hawley's with anterior bite plane	
3. Upper Habit breaking appliance	
4. Upper Hawley's with posterior bite plane with Z spring	
5. Oral Screen	
6. Lower inclined plane / catalan's appliance	
7. Demo of soldering welding	
8. Demo of Bonding , banding	
9. Demo of Night guard preparation	
10. Demo of Construction bite	



## SCHEME OF EXAMINATION

**THEORY: 100 Marks**

**University written examination : 70 marks**

**Viva voce : 20 marks**

**Internal Assessment : 10 marks**

**Distribution of Topics and Type of Questions**

Contents	Type of Questions and Marks	Marks
<b>Multiple choice questions</b>	M.C.Q 20 X 1 = 20	20
<b>Long essays</b> Growth and Development: In General Morphologic Development of Craniofacial Structures Classification & Etiology of Malocclusion Anchorage In Orthodontics Diagnosis And Diagnostic Aids Biomechanical Principles In Orthodontic Tooth Movement Myofunctional appliances Treatment Planning Preventive Orthodontic Interceptive Orthodontics Corrective Orthodontics Retention And Relapse	Long essays 2 x10 marks	20
<b>Short answers</b> Questions may be asked from all topics	Short answers 10 x3 marks	30
	Total	70

**Clinical./ Practical : 100 Marks**

**University Clinical /Practical examination. 90 marks**

1. Exercise No. 1 : 10 marks  
(log book/records)
2. Exercise No. 2 : 30 marks  
(Case history / Clinical discussion)
3. Exercise No. 3 : 20 marks

(2 x 10 Spotters)

4. Exercise No. 4 : 30 marks

(Wire bending - Clasps/ spring / Retractors / Bows)

**Total : 90 marks**

**Internal Assessment : 10**

**THEORY : 100 Marks**

**PRACTICAL : 100 Marks**

Theory examination : 70 Marks Practical Examination : 90 Marks

Theory Internal Assessment : 10 Marks Practical Internal Assessment : 10 Marks

Viva Voce : 20 Marks

**100 Marks**

**:100 Marks**

**RECOMMENDED BOOKS**

S. No	Name	Author	Edition	Year	Publisher
1	Contemporary orthodontics	William R Proffit	4 <sup>th</sup> Edition	2007	Mosby
2	Orthodontics for students	GardinerLeighton, Luffingham and Valiathan	4 <sup>th</sup> Edition	1998	Oxford
3	Handbook of orthodontics	Moyers	4 <sup>th</sup> Edition	1988	Year book medical publisher.inc
4	Orthodontics – principles and Techniques	Graber and Vanarsdall	4 <sup>th</sup> Edition	2000	Mosby
5.	Design , construction and use of removable orthodontics	C . Adams	6 th Edition	1990	Varghese publishing house
6.	Textbook of orthodontics	W.J. Houston	2 <sup>nd</sup> Edition	1994	Wright Oxford

## **4.30 PERIODONTOLOGY**

Theory – 76 Hours, Practical – 130 Hours

### **GOALS**

1. The subject of Periodontics aims at imparting knowledge in understanding the structures and function of Periodontium.
2. It aims at prevention, diagnosis and treatment of diseases affecting the surrounding tissues of teeth

### **OBJECTIVES**

#### **a. KNOWLEDGE**

1. The student is expected to learn the basics of surrounding structures like Gingiva, Periodontal Ligament, Cementum and Alveolar bone , so as to impart this understanding for diagnosing Periodontal diseases in future.
2. To perform basic oral hygiene procedures along with educating and motivating the patients.

#### **b. SKILLS**

1. Identification of Plaque and Calculus.
2. Develop skills for Scaling and Root Planning
3. Manual Scaling and Polishing.
4. Oral Hygiene maintenance programs

## **COURSE CONTENTS**

**THEORY : 76 Hours**

<b>Sl No</b>	<b>Topic</b>	<b>Hours</b>
1.	Evidence based Decision Making	1Hr
2.	Aging on the Periodontium	1Hr
3.	Classification of Diseases and conditions affecting the Periodontium	1 Hr
4.	Epidemiology of Gingival and periodontal disease	1Hr
5.	Smoking & Periodontal disease	1hr
6.	Periodontal Medicine: Impact of Periodontal infection on systemic health	1Hr
7.	Oral Malodor	1 Hr
8.	Gingival enlargement	2 Hrs
9.	Acute Gingival Infections	1Hr
10.	Gingival Diseases in Childhood	1 Hr
11.	Desquamative Gingivitis and Oral Mucous Membrane Diseases	1Hr
12.	The Periodontal Pocket	1Hr
13.	Bone Loss and Patterns of Bone Destruction	1Hr
14.	Periodontal response to external forces	2Hrs
15.	Trauma from occlusion	1Hr
16.	Chronic Periodontitis	1Hr
17.	Necrotizing Ulcerative Periodontitis, Refractory Periodontitis and Periodontitis as a Manifestation of Systemic Diseases	2 hrs
18.	Aggressive Periodontitis	1 Hrs
19.	AIDS and the Periodontium	2Hrs
20.	Clinical Diagnosis	1Hr
21.	Radiographic Aids in the Diagnosis of Periodontal Disease	1Hr
22.	Advanced Diagnostic Techniques	1Hr
23.	Risk Assessment	1Hr
24.	Levels of Clinical Significance	1Hr
25.	Determination of Prognosis	1Hr

<b>26.</b>	<b>The Treatment Plan</b>	<b>1Hr</b>
<b>27.</b>	<b>Rationale for Periodontal Treatment</b>	<b>1Hr</b>
<b>28.</b>	<b>Periodontal Therapy in the Female Patient</b>	<b>1 Hr</b>
<b>29.</b>	<b>Periodontal Treatment of Medically Compromised Patients</b>	<b>2 Hrs</b>
<b>30.</b>	<b>Periodontal Treatment of Older Adults</b>	<b>1Hr</b>
<b>31.</b>	<b>Treatment of Aggressive &amp; Atypical forms of Periodontitis</b>	<b>1 Hrs</b>
<b>32.</b>	<b>Treatment of Acute Gingival Disease</b>	<b>1 Hr</b>
<b>33.</b>	<b>Treatment of Periodontal Abscess</b>	<b>1Hr</b>
<b>34.</b>	<b>Non Surgical Therapy</b>	<b>3 Hrs</b>
	-Phase I therapy	
	-Plaque Control for the Periodontal Patient -Scaling and Root Planning	
<b>35.</b>	<b>Chemotherapeutic Agents</b>	<b>2 Hrs</b>
	-Local Delivery of Antibiotics	
<b>36.</b>	<b>Host Modulation Agents</b>	<b>1 Hr</b>
<b>37.</b>	<b>Periodontal Splints</b>	<b>1Hr</b>
<b>38.</b>	<b>Sonic and Ultrasonic Instrumentation</b>	<b>1Hr</b>
<b>39.</b>	<b>Supragingival and Subgingival Irrigation</b>	<b>1Hr</b>
<b>40.</b>	<b>Occlusal Evaluation and Therapy</b>	<b>1Hr</b>
<b>41.</b>	<b>Adjunctive role of orthodontic therapy</b>	<b>1Hr</b>
<b>42.</b>	<b>Periodontic-Endodontic Continuum</b>	<b>1Hr</b>
<b>43.</b>	<b>The Surgical Phase of Therapy</b>	<b>2 Hrs</b>
	-Phase II periodontal Therapy	
<b>44.</b>	<b>General Principles of Periodontal Surgery</b>	<b>1Hr</b>
<b>45.</b>	<b>Surgical Anatomy of Periodontium and Related Structures</b>	<b>1Hr</b>
<b>46.</b>	<b>Gingival Surgical Techniques</b>	<b>1Hr</b>
	Gingival Curettage Gingivectomy	
<b>47.</b>	<b>Treatment of Gingival Enlargement</b>	<b>2Hrs</b>
<b>48.</b>	<b>The Periodontal Flap</b>	<b>2Hr</b>
<b>49.</b>	<b>Suturing Technique</b>	<b>1Hr</b>

<b>50.</b>	<b>The Flap Technique for Pocket Therapy</b>	<b>2Hr</b>
<b>51.</b>	<b>Resective Osseous Surgery</b>	<b>1Hr</b>
<b>52.</b>	<b>Reconstructive Periodontal Therapy</b>	<b>2Hrs</b>
<b>53.</b>	<b>Furcation: Involvement and Treatment</b>	<b>2Hrs</b>
<b>54.</b>	<b>Periodontal Plastic and Esthetic Surgery</b>	<b>2 Hrs</b>
<b>55.</b>	<b>Recent Advances in Surgical Technology</b>	<b>1Hr</b>
<b>56.</b>	<b>Preparation of the periodontium for restorative Dentistry</b>	<b>1Hr</b>
<b>57.</b>	<b>Restorative Interrelationship</b>	<b>1Hr</b>
<b>58.</b>	<b>Oral Implantology</b>	<b>1Hr</b>
<b>59.</b>	<b>Supportive Periodontal Treatment</b>	<b>1Hr</b>
<b>60.</b>	<b>Dental Ethics</b>	<b>2 Hrs</b>
	-Legal Principles: Jurisprudence	
	-Dental Insurance	

#### **CLINICAL TEACHING HOURS : 122 HOURS**

##### **Clinical work and case discussion**

15 case history	: 22 hours
40 Oral Prophylaxis	: 80 hours
Demonstration of all surgical	
Procedure	: 10 hours
Maintenance Therapy	: 10 hours
<b>Total</b>	<b>122 hours</b>

## SCHEME OF EXAMINATION

### A. Theory: 70 Marks

Distribution of Topics and type of Questions

Contents	Type of Questions and Marks	Marks
<b>MCQ</b>	20 x 1 marks	20
<b>Long essays</b> One long essay from basics and etiopathogenesis One long essay from treatment	Long essays 2 x 10 marks	20
Short answers 4 short answer from etiopathogenesis 3 short answer questions from basics 3 short answer questions from treatment	Short answers 6 x 5 marks	30
	<b>Total</b>	<b>70</b>

### B. Theory Viva-Voce : 20 Marks

Etiopathogenesis	06 marks
Treatment	08 marks
Basics	06 marks
<b>Total</b>	<b>20 Marks</b>

### Practicals

### C. Clinical Examination: 90 Marks

Exercise No.1: Clinical Case History - Marks: 40

Exercise No.2: Clinical Work (Oral Prophylaxis) - Marks: 50

### D. Internal Assessment: 20 Marks

Theory: 10 marks

Practicals : 10 marks

#### **THEORY : 100 Marks**

#### **PRACTICAL : 100 Marks**

Theory examination	: 70 Marks	Practical Examination	: 90 Marks
Theory Internal Assessment	: 10 Marks	Practical Internal Assessment	: 10 Marks
Viva Voce	: 20 Marks		
	<b>100 Marks</b>		<b>:100 Marks</b>

## RECOMMENDED BOOKS

Sl No	Author	Title	Edn	Publisher	Year of Publication
1	Carranza and Newman	Clinical Periodontology	10 <sup>th</sup>	SB Saunders Company	2006
2	Robert Genco, Henry. M. Goldman. D.Walter Cohen	Contemporary Peridontics		C. V. Mosby Company St. Louis	—
3	Jan Lindhe, T. Karring, N. P. Lang	Clinical Periodontology & Implant Dentistry	5 <sup>th</sup>	Munksguard Copenhagen	2007
4	Grant, Stern, Listgarten	Periodontics	6 <sup>th</sup>	Mosby CBS Publishers Indian Edition	1998
5	S. P. Ramfjord, M. M Ash	Periodontology and Peridontics Modern Theory and practice	—	AITBS Publisher India	1996
6	T. ITO, J. D. Johnson	Colour Atlas of Periodontal Surgery	—	Mosby & Wolfe. U. S.A.	—
7	Cohen	Atlas of Periodontal Surgery	—	C. V. Mosby Company, U. S. A.	—



## **4.31 ORAL & MAXILLOFACIAL SURGERY**

Theory – 55 Hours, Clinical – 200 Hours

### **GOALS:**

To produce a dental surgeon competent enough to perform tooth extraction under both local, anticipate, prevent and manage associated complications, recognize underlying medical conditions and modify treatment plan, acquire adequate knowledge and understanding of various congenital, developmental and acquired pathologies, dysfunctions, defects and injuries occurring in the oral and Maxillofacial region, providing treatment options for common conditions and at the same time able to diagnose maxillofacial pathologies, fractures and refer them to higher specialty.

### **OBJECTIVES:**

#### **a) Knowledge & Understanding:**

By the end of the course of the clinical training the graduate is expected to –

1. Application of the knowledge acquired in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.
2. Good understanding of the evaluation, diagnosis and perioperative management of oral surgical patient.
3. Knowledge of range of surgical treatments.
4. Patient counseling regarding morbidity and dysfunction associated with craniofacial pathologies and anomalies and referring such patients to specialists.
5. Understand the principles of in-patient management.
6. Understanding of the diagnosis of major oral surgical procedures and principles involved in patient management.
7. Adequate knowledge of pain and anxiety management.
8. Should know ethical and medicolegal issues and communication ability.

#### **b) Skills:**

1. Acquire skill to examine any patient with oral surgical problem in a systematic manner and requisition of various clinical and laboratory investigations to arrive at a specific diagnosis.

2. Should be efficient in exodontia both under local and general anaesthesia.
3. Perform minor surgical procedures under local anesthesia like frenectomy, Alveoplasty, Biopsy and suturing techniques.
4. Ability to anticipate prevent and manage complications during and after surgery.
5. Understanding of management of major oral surgical problems and principles involved in inpatient management.
6. Diagnosis and Management of medical emergencies occurring on dental chair.
7. Identify the medically compromised patients and modify the treatment plan whenever required.

## **COURSE CONTENTS**

**THEORY : 55 Hours**

### **DENTO ALVEOLAR SURGERY**

**4 Hours**

#### **Impacted Teeth**

- a) General factors, incidence, etiology.
- b) Classification, indications for removal of lower third molar.
- c) Assessment: Clinical and radiological.
- d) Anesthetic considerations.
- e) Surgical procedure.
- f) Maxillary third molar and canine impactions, Incidence, Indications for removal, classification, Assessment and Localisation, Surgical procedure.
- g) Complication of surgical removal of impacted teeth.

#### **Endodontic Surgery**

**1 Hour**

- Introduction
- Classification
- Apicectomy
- Replantation

#### **Pre-Prosthetic Surgery**

**3 Hours**

- Introduction, Aims of Pre- prosthetic Surgery, Classification.
- Corrective procedure – hard and soft tissue.
- Sulcus extension procedure.

**Principal of Implantology****1 Hour****Infection of Oral Cavity****5 Hours**

- a) Introduction.
- b) Microbiology of Odontogenic infections.
- c) Anatomical consideration and Facial spaces.
- d) Spread of Infection
- e) Acute dento – alveolar abscess.
- f) Acute and chronic infections of the Jaws: Cellulitis, Ludwig's angina, actinomycosis, Osteomyelitis, Osteoradionecrosis.
- g) Management of Infections:
  - Medical - Antibiotics.
  - Analgesics, Anti-inflammatory drug.
  - Surgical Management.
- h) Hepatitis –B, & H.I.V. infections.

**Maxillary Sinus Diseases****3 Hours**

- Applied anatomy, acute and chronic sinusitis, surgical approach to sinus.
- Removal of tooth or root from the antrum.
- Oral-antral fistula and its management

**Cystic Lesions of the Jaws****4 Hours**

- General features, definition, Classification.
- Pathogenesis, signs and symptoms.
- Clinical, radiological and other investigations.
- Surgical management and complications of each type of cyst.

**Disorders of Temporomandibular Joint****5 Hours**

- Applied anatomy.
- Sub-luxation and dislocation of the T.M.Joint
- Pain dysfunction syndrome.
- Ankylosis of the joints and management.
- Infections of the T.M.Joint.

**Disease of Salivary Glands****4 Hours**

- General features, investigations in the diagnosis of salivary gland diseases.
- Acute and Chronic infection.
- Salivary calculus and its management
- Tumors of the salivary glands and its management

**Neurogenic Disorders:****2 Hours**

- Nerve injuries
- Trigeminal Neuralgia.
- Glossopharyngeal and Facial Paralysis.
- Facial Nerve Palsy.

**Fracture of Jaws****12 Hours**

Introduction, Applied Anatomy & types of Fractures.

- a) Dento Alveolar Fractures
- b) Mandibular Fractures
  - Classification
  - Clinical features & Diagnosis
  - Preliminary and definitive management.
- b) Zygomatic complex Fractures
- c) Middle third Fractures
  - Classification
  - Clinical features & Diagnosis.
  - Outline of immediate and definitive treatment.
- d) Orbital Fractures
- e) Nasal Fractures

**Development Deformities:****7 Hours****a) Deformities of the Jaws:**

- Basic forms of deformities, Prognathism, Retrognathism and apertognathia.
- Reasons for surgical correction, Pre –operative planning
- Outline of various surgical procedure in mandible and maxilla.

**b) Cleft Lip and Palate:**

- Etiology, Incidence, Timing of Repair.
  - i. Role of General dental Practitioner.

**Tumors of the Head and Neck (Odontogenic and Non Odontogenic)**

**4 Hours**

- Clinical Features
- Diagnostic techniques
- Management

**Clinicals : 200 Hours**

**Students are required to learn the following**

1. Case history taking
2. Examination of the patient
3. Recording blood pressure
4. Various anesthetic injections techniques
5. Use of different instruments in Oral surgery
6. Suturing techniques on models – orange peel/gloves

**SCHEME OF EXAMINATION**

**A. THEORY: 100 marks**

**Distribution of Topics and type of Questions**

Contents	Type of Questions and Marks	Marks
<b>Multiple choice questions</b> Entire Portion	M.C.Q. 25 x 1 = 25	25
<b>Long essays</b> 1. One question from Local Anesthesia 2. One question from Oral Surgery	Long essays 2 x 10 marks	20
<b>Short essays</b> 4 Question from Oral Surgery 1 Question form General anesthesia	Short essay 5 x 5 marks = 25	25
<b>Short answers Entire portion</b> 9 Question from Oral Surgery 1 Question form Local Anesthesia	Short answers 10 x 3 marks = 30	30
Total		100

**B. VIVA-VOCE: 25 marks**

**C. CLINICAL EXAMINATION: 75 marks**

- (i) Case History, Examination of the patient, presenting the case history to the examiners at the chair side 25 Marks
- (ii) Local Anesthesia techniques 25 Marks
- (iii) Tooth Extraction and patient management 25 Marks

**D. INTERNAL ASSESSMENT – Theory: 25 marks ; Practical: 25 marks**

**RECOMMENDED BOOKS**

Sl. No	Book Name	Author	Edition	Year
01	Oral and Maxillofacial Surgery.	Laskin.d.m.	1ED	1985
02	Killey and kays Outline of Oral Surgery. Part 1.	Seward.G.R; Harris.M.	2ED	1987
03	Killey and Kay's outline of Oral Surgery, part II.	Seward.G.R; Harris.M.	2ED	1987
04	Killey's fractures of the middle third of the facial skeleton .	Banks.P.	4ED	1981
05	Killeys Fractures Of The Mandible.	Banks.P.	3ED	1985
06	Cysts Of The Oral And Maxillofacial Regions.	Shear.M.	4ED	2007
07	Oral And Maxillofacial Infections.	Topazian.R.G; Goldberg.M.H.	2ED	1987

## LIST OF REFERENCE BOOKS

SL NO.	TOPICS	BOOKS
1	Extraction and instruments	The extraction of teeth-Geoffrey L.Howe -oral and maxillofacial surgery –Archer
2	Medical emergencies in dental practice	Malamed's Medical emergencies in the dental office Little and Falace's dental management of the medically compromised patient
3	Local anaesthesia and blocks	<u>Oral and maxillofacial surgery-Daniel M. Laskin, Volume- I</u> <u>Handbook of local anaesthesia- Stanley F. Malamed</u> <u>Monheim's local anaesthesia and pain control in dental practice</u>
4	<u>Impaction</u>	Oral and maxillofacial surgery- Archer
5	<u>Space infections</u>	Oral and maxillofacial surgery-Daniel M. laskin Topazian –Oral and maxillofacial infections
6	<u>Cysts of the jaws</u>	Oral and maxillofacial surgery –Danial M. Laskin, <u>Textbook of Oral and maxillofacial surgery</u> S. M. Balaji
7	<u>Bengintumours of the jows</u>	Oral and maxillofacial surgery Daniel M. laskin volume-II
8	<u>Malignant tumours of the jaws</u>	Peterson's principles of oral and maxillofacial surgery-Volume-II
9	<u>Masillofacial trauma –</u> a. <u>Midface fractures</u> b. <u>Mandible fractures</u>	Killey's fractures of the middle third of the facial skeleton Killey's fractures of the mandible
10	<u>Red nd white lesions,</u> <u>Oral cancer</u>	Jatin P. Shah-Oral cancer Chapter- potentiamalignant lesions
11	<u>Nerve injuries,Trigeminal neuralgia</u>	<u>Textbook of oral and maxillofacial surgery-</u> S M Balaji
12	<u>Orthoganthic surgery</u>	<u>Textbook of oral and maxillofacial surgery-</u> S M Balaji
13	<u>Cleft lip and palate</u>	<u>Textbook of oral and maxillofacial surgery-</u> S M Balaji
14	<u>Preprosthetic surgery</u>	-ora and maxillofacial surgery-Daniel M Laskin,volume II -Textbook of oral and maxillofacial surgery- S M Balaji
15	<u>TMJ-</u> a. <u>Anatomy</u> b. <u>Hypermobility</u> c. <u>dislocation</u> d. <u>Subluxation</u>	<u>Textbook of oarl and</u> <u>Maxillofacial surgery-S M Balaji</u>  <u>-Surgery of the temperomandibular joint-David</u> <u>A.keith</u> <u>Chapter-Mandibular dislocation</u>
16	<u>Maxillary sinus</u>	<u>Textbook of oral and maxillofacial surgery-</u> S,M Balaji
17	<u>Salivary gland disorders</u>	<u>Textbook of oral and maxillofacial surgery-</u> S M Balaji

## **4.32 CONSERVATIVE DENTISTRY AND ENDODONTICS**

Theory – 83 Hours, Clinical – 300 Hours

### **GOALS**

- To develop exemplary clinicians and educators
- To seek innovations in Restorative dentistry & Endodontics, education and health care delivery systems
- Incorporate innovations in practice to deliver high quality treatment to the patient

### **OBJECTIVES**

- Enhance and facilitate the combined pre-clinical and clinical graduate program for students who wish to practice or pursue further academic careers
- Upgrade and renovate the clinical environment to provide contemporary patient care, including treatment areas, clinical computing capabilities and instrument management
- Instill knowledge, skills and human values

### **SKILLS**

- A thorough understanding of the biological sciences to enable the integration and correlation of basic sciences with clinical dental practice.
- Obtaining skills in all aspects of clinical restorative diagnosis, treatment planning and prognosis
- Skills to provide the preventive and treatment services commonly required in restorative dentistry
- Familiarize with Endodontic instruments, materials and techniques needed to carry out simple Endodontic procedures

### **ETHICS**

- Adopt ethical principles, honesty and integrity in all aspects of dental practice
- Be humble and accept the limitations in knowledge and skill and ask for help from colleagues when needed
- Understand the principle of justice and how it impacts dentistry



## **COURSE CONTENTS**

### **THEORY : 83 HOURS**

<b>SL.No</b>	<b>Topic</b>	<b>Hours</b>
1.	Anatomy of the pulp space , Anomalies of pulp. Access opening and its principles	4 hours
2.	Determination of working length	2 hours
3.	Rotary Instruments for cleaning and shaping	2 hours
4.	Preparation of root canal - Shaping & Cleaning	3 hours
5.	Irrigants used in Endodontics	2 hours
6.	Disinfection of root canal - Intracanal Medicaments	2 hours
7.	Temporary filling materials	1 hours
8.	Microbiology as related to Endodontics <ul style="list-style-type: none"> <li>• Microbial flora and infected pulp</li> <li>• Various cultures tests -techniques -culture media interpretation</li> <li>• Antibiotic sensitivity</li> </ul>	2 hours
9.	Obturing Materials – Classification, Description & ideal requirements	1 hours
10.	Root Canal Sealer ideal requirements, classification and manipulation	2 hours
11.	Various techniques of root canal obturation including recent techniques	2 hours
12.	Post Endodontic Restoration	2 hours
13.	Procedural errors and their management	3 hours
14.	Failures in Endodontics	1 hour
15.	Cast Gold restorations <ul style="list-style-type: none"> <li>• Definitions of Inlay and Onlay</li> <li>• Indications and Contraindications</li> <li>• Cavity designs for class II cast Gold inlay restorations, wax patterns</li> <li>• Spruing ,Investing and Casting</li> <li>• Seating ,Adjusting , Polishing of the Casting</li> </ul>	5 hours

- Cementation
  - Casting defects
  - Differences between amalgam and cast restoration
  - Bevels used in cast restoration
16. Direct filling Gold 2 hours
- Indication ,contraindications
  - Various cavity designs and preparation of cavities, types of Cohesive Gold
  - Principles of manipulation
  - Compaction techniques, finishing and polishing.
17. a) Fundamental concepts of enamel and dentin adhesion 2 hours
- Basic concepts of adhesion
  - Enamel adhesion
  - Dentin adhesion
  - Development of dentin bonding systems
  - Current concept of bonding systems with clinical relevance
- b) Introduction to composite restorations 2 hours
- Types of composites
  - Important properties
  - Polymerization of composite
  - Indications
  - Contraindications
  - Advantages
  - Disadvantages
  - Material aspects
- c) Direct Composite restorations 2 hours
- Tooth preparation and restorative technique for Class I II III IV V and VI composite restorations
  - Repair of composite restorations
  - Common problems: causes and potential solutions
- d) Glass ionomer restorations 2 hours

- Indications
  - Contraindications
  - Advantages
  - Disadvantages
  - Tooth preparation and restorative technique
- e) Dental Ceramics 3 hours
- f) Class I and Class II indirect tooth colored restorations (Ceramic and Composite) 2 hours
- Indications
  - Contraindications
  - Advantages
  - Disadvantages
  - Clinical procedures
  - Common problems and solutions
  - Repair of tooth coloured inlays and onlays
- g) Additional conservative esthetic procedures
- 1) Artistic elements 2 hours
- Shape or form
  - Symmetry and proportionality
  - Position and alignment
  - Surface texture
  - Color
  - Translucency
  - Clinical considerations
- 2) Conservative alterations of tooth contours and contacts 3 hours
- Alterations of shape of natural teeth
  - Alterations of embrasures
  - Correction of diastemas
- 3) Conservative treatments for discoloured teeth (Etiology, Microabrasion, Macroabrasion only)
- 4) Acid etched resin bonded splints

- Periodontally involved tooth
  - Stabilization of teeth after orthodontic treatment
- 5) Conservative bridges
- Natural tooth pontic
  - Denture tooth pontic
  - Porcelain fused to metal pontic or all metal pontic with metal retainers
  - All porcelain pontic
- 6) Veneers 2 hours
- Direct veneer techniques
  - Indirect veneer techniques
  - Veneer for metal restorations
  - Repair of veneers
18. Bleaching of discolored teeth 2 hours
19. Endodontics –Periodontics - interrelation –classification & management. 2 hours
20. Surgical Endodontics 5 hours
- Case selection – indications /contraindications
  - Incision and drainage Trephination
  - Various flap designs for periradicular surgery
  - Root end surgeries –Apicoectomy /curettage.
  - Retrograde fillings – root resection and hemisection
  - Bicuspidation (short essay /short answer)
  - Reimplantation , Intentional
  - Reimplantation. Transplantation.
  - Endodontics Endosseous Implants
  - Miscellaneous of Endodontics
  - Use of Microscopes in Endodontics
21. Root resorption – classification, etiology & management 2 hours
22. Vital pulp therapy, Pulpotomy & apexification 2 hours
23. Regenerative Endodontics 2 hours
24. Treatment of Traumatic teeth- Classification and Management of fractured teeth 3 hours

25.	Endodontic emergencies and management	3 hours
26.	Single visit Endodontics	1 hour
27.	Smear layer and its importance in Conservative Dentistry & Endodontics	1 hour
28.	Hypersensitive dentin and its management	1 hour
29.	Role of Lasers in Conservative Dentistry and Endodontics	1 hour
30.	Air abrasion	1 hour
31.	Use of Microscopes in Endodontics	1 hour

### **CLINICALS : 300 Hours**

- A. Clinical discussions
  - 1. Composite class II, III, IV
  - 2. Anterior root canal therapy
  - 3. Class II inlay
  - 4. Modified class II
  - 5. Viva tray
  - 6. Video of endodontic surgery
- B. Clinical demonstrations
  - 1. Composite class II, III, IV
  - 2. Anterior root canal therapy
- C. On extracted teeth
  - 1. Class II Amalgam - 5
  - 2. Composite class II, III, IV – 2 each
  - 3. GIC Restoration class V - 2
  - 4. Vital pulp therapy - 2
  - 5. Anterior root canal therapy – 3
- D. On patients
  - 1. Dental amalgam restorations - 20
  - 2. Glass ionomer restorations-5
  - 3. Vital pulp therapy – 3

4. Composite restorations – 15
5. Anterior root canal therapy - 2

## **SCHEME OF EXAMINATION**

### **I. THEORY: 70 Marks**

Distribution of topics and type of Questions

<b>Contents</b>	<b>Type of Question and Marks</b>	<b>Marks</b>
<b>Multiple choice question</b>	M.C.Q 20 x 1 = 20 marks	20
<b>Long essays</b> One long essay from Conservative One long essay from Endodontics	Long essays 2 x 10 = 20 marks	20
<b>Short essays</b> 5 Short essay from Conservative Dentistry and Endodontics  5 Short questions from Conservative 5 Short question from Endodontics	Short essay 10 x 3 = 30 marks	30
	<b>Total</b>	<b>70</b>

**B. Viva –Voce : 20 marks**

**C. Internal Assessment: 10 marks**

**Theory Total: 70 + 20 + 10 = 100 marks**

### **II. CLINICAL EXAMINATION: 90 Marks**

**1. Case History + Record Book** 10 marks

#### **2. Clinical Exercise**

##### **A. Conservative Exercise**

a. Class II tooth Preparation 45 marks

b. Lining and Matrix 10 marks

c. Filling and Carving 25 marks

**80 marks**

OR

**B. Endodontics Exercise**

- a) Preparation of access cavity for root canal treatment in an anterior tooth 20 marks
  - b) Working length determination 15 marks
  - c) Bio Mechanical preparation and selection of master cone 45 marks
- 80 marks**

**3. Internal Assessment = 10 marks**

**Practical Total: 10 + 80 + 10 = 100 Marks**

**RECOMMENDED TEXT BOOKS**

SL No	Title	Author	Edition
1	Art and Sciences of Operative Dentistry	Strudevant	V
2	Endodontic Practice	Louis J Grossman	XI
3	Strudevant Art and Sciences of Operative Dentistry	Andree V. Kittee	II South Asia
4	Principles and practice of Operative Dentistry	Charbeneau	III
5	Endodontic Therapy	Weine Torabinejad	VI

## **4.33 PROSTHODONTICS AND CROWN & BRIDGE**

Theory – 80 Hours, Clinical – 300 Hours

### **GOALS**

The goal is to provide in-depth training in removable Prosthodontic in general and removable partial prosthodontics in particular.

### **OBJECTIVES**

#### **A ) Knowledge**

1. To understand basis of designing and fabrication of removable partial dentures.
2. To provide quality and professional care to all patients.

#### **B) Skill**

At the end of IV BDS course the student is expected to,

1. Acquire skills of diagnosing and designing of partial denture.
2. Possess skill of treating large diversity of patients.

### **Course Contents**

#### **THEORY : 80 HOURS**

<b>SlNo.</b>	<b>Topics</b>	<b>No. of Hours allotted</b>
<b>Removable Partial Denture Prosthesis</b>		
<b>I.</b>	<b>Introduction</b>	<b>2 Hrs</b>
	<b>a.</b> Terminology Definitions – History-Scope in Prosthodontic therapy	
	<b>b.</b> Stomatognathic system cranio mandibular system (Masticatory apparatus)	
	<b>c.</b> Components of masticatory apparatus – Functions	
	<b>d.</b> Applied anatomy, histology and physiology of the components of craniomandibular system	
	<b>e.</b> Applied growth and development including genetics, immunity	
	<b>f.</b> Reasons for loss of teeth and associated structures.	
	<b>g.</b> Clinic and laboratory – facilities for prosthodontic therapy (equipments, instruments, materials).	



- h. Prosthodontic therapy for diseases of cranio mandibular system.
- i. Asepsis and cross infection control in clinical and laboratory. Hospital and laboratory waste disposal system and management.

### **Applied Dental Anatomy**

<b>2</b>	<b>Removable Partial Denture Prosthesis</b> Introduction and scope Terminology Classifications Examination, diagnosis and treatment planning Components of removable partial dentures and their functions	<b>2 Hrs</b>
<b>3</b>	<b>Major Connectors</b> Mandibular Major connectors Maxillary Major connectors	<b>2 Hrs</b>
<b>4</b>	<b>Minor connectors</b> Functions Form and location Tissue stops Finishing lines Reaction of tissues to metallic coverage Form of occlusal rests and rest seats	<b>2 Hrs</b>
<b>5</b>	<b>Rests and rest seats</b> Inerproximal occlusal rest seals Internal occlusal rests Incisal rests and rest seals Lingual rests on canines and incisor teeth Possible movements of partial denture Support for rests	<b>1 Hour</b>
<b>6</b>	<b>Direct retainers</b> Internal attachments Extra coronal direct retainers Relative uniformity of retention Criteria for selecting a given clasp design Basic principles of clasp design Basic principles of clasp design Designs of clasps	<b>3 Hrs</b>

<b>7</b>	<b>Indirect retainers</b> Denture rotation about an axis Factors influencing effectiveness of indirect retainers Auxillary functions of indirect retainers Forms of indirect retainers Auxillary occlusal rests Canine rests Continuous bar retainers and lingual plates Modification areas Rugae support Direct indirect retention Denture base considerations Tooth supported partial denture base	<b>2 Hrs</b>
<b>8</b>	<b>Distal extension partial denture base</b> Functions of denture bases Methods of attaching denture bases Ideal denture base material Advantages of metal bases Methods of attaching artificial teeth Need for relining	<b>2 Hrs</b>
<b>9</b>	<b>Stress breakers</b> Types of stress breakers Advantages of stress breakers Disadvantages of a rigid design Disadvantages of a rigid design Stress breaking principles Principles of removable partial denture design Biomechanical considerations Other factors influencing Differentiation between two main types of removable partial dentures Essentials of partial denture design Components of partial denture design Additional considerations in influencing design	<b>2 Hrs</b>
<b>10</b>	<b>Surveying</b> Description of dental surveyor Purpose of a surveyor Factors that determine path of placement and removal Step by step procedure in surveying a diagnostic cast	<b>2 Hrs</b>

Final path of placement  
 Recording relation of cast to surveyor  
 Surveying the master cast  
 Measuring retention and balancing of retention  
 Influence of survey line in designing of clasps  
 Blocking out the master cast  
 Relieving the master cast  
 Paralleled block out, shaped block out, arbitrary block out and relief  
 Preparation of the model for removable partial denture  
 Oral surgical preparation  
 Conditioning of abused and irritated tissues  
 Periodontal preparation  
 Periodontal diagnosis and treatment planning  
 Initial disease control therapy  
 Definitive periodontal therapy  
 Recall and maintenance  
 Advantages of periodontal therapy  
 Preparation of abutment teeth  
 Classification of abutment teeth  
 Sequence of abutment preparation on sound enamel  
 Abutment preparation using conservative restorations  
 Abutment preparation using crowns  
 Splinting of abutment teeth  
 Use of isolated teeth as abutment  
 Missing anterior teeth  
 Temporary crowns when a partial denture is being worn  
 Fabricating restorations to fit existing denture retainers

**11      Impression materials and procedures for removable partial denture      1 Hr**

Rigid materials  
 Thermoplastic materials  
 Elastic materials  
 Impressions of the partially edentulous arch  
 Individual impression trays  
 Support for the distal extension denture base  
 Distal extension removable partial dentures  
 Factors influencing the support of distal extension bases  
 Method for obtaining functional support for distal extension base

<b>12</b>	<b>Occlusal relationship for removable partial denture</b> Difference in natural and artificial occlusion Desirable occlusal contact relationship for removable partial denture Method for establishing occlusal relationship Materials for artificial posterior teeth Establishing jaw relation for mandibular removable partial denture opposing a maxillary complete denture Laboratory procedures Duplicating a stone cast Waxing the partial denture framework Anatomic replica pattern Spruing, investing, burnout, casting and finishing of the partial denture framework Making record base Occlusal rims Making a stone occlusal template from a functional occlusal record Arranging posterior teeth to an opposing cast Types of anterior teeth Waxing and investing the partial denture before processing the acrylic resin base Processing the denture Remounting and occlusal corrections to an occlusal template Polishing the denture	<b>1 Hr</b>
<b>13</b>	<b>Work authorization for removable partial denture</b> Work authorization Definitive instructions by work authorization Legal aspects of work authorization Relining and rebasing the removable partial denture Relining tooth support – supported denture base Relining distal extension denture base Method of reestablishing occlusion of a relined partial denture	<b>1 Hr</b>
<b>14</b>	<b>Repair and additions to removable partial denture</b> Broken clasp arms Fractured occlusal rests Distortion or breakage of other components Loss of 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 repair Repair by soldering	<b>1 Hr</b>

- |           |  |              |
|-----------|--|--------------|
| <b>15</b> | <b>Temporary removable partial denture</b><br>Appearance<br>Space maintenance<br>Reestablishing occlusal relationships<br>Conditioning teeth and residual ridge<br>Conditioning the patient for wearing a prosthesis   | <b>1 Hr</b>  |
| <b>16</b> | <b>Removable partial denture considerations in maxillofacial Prosthodontics</b><br>Maxillofacial prosthodontics<br>Intraoral prosthesis design considerations<br>Maxillary prosthesis<br>Mandibular prosthesis<br>Treatment planning<br>Framework design<br>Class I resections<br>Class II resections<br>Mandibular flange prosthesis  | <b>2 Hrs</b> |
| <b>17</b> | <b>Immediate Denture Treatment</b><br>indication for immediate dentures<br>-contraindications to immediate denture service<br>-delayed and transitional dentures<br>-treatment planning<br>-clinical procedures<br>-subsequent service for immediate dentures  | <b>1 Hr</b>  |
| <b>18</b> | <b>Over Dentures</b><br>- Advantages & Disadvantages<br>- Indications & Treatment Planning<br>- Selection of abutment teeth<br>- Clinical Procurers<br><br><b>Single complete dentures opposing natural teeth</b><br>- maxillary single dentures<br>- clinical and laboratory procedures<br>- subsequent problems with single dentures against natural teeth<br>- mandibular single dentures<br>- supplemental prosthodontic procedures for the edentulous patient | <b>1 Hr</b>  |
| <b>19</b> | <b>Relining or rebasing of complete dentures</b><br>treatment rationale<br>- diagnosis   | <b>1 Hr</b>  |

- clinical procedures
- static impression technique closed and open mouth relines/ rebases
- functional impression technique
- chair side technique

### **Repair of Complete Dentures and Duplication of Casts:**

- Maxillary and mandibular fracture repair
- repairs using cold
- curing resin
- duplication of casts-reversible hydrocolloid technique
- irreversible hydrocolloid technique

## **Elements of Fixed Prosthodontics**

<b>20</b>	<b>Introduction</b>	<b>2 Hrs</b>
	<ul style="list-style-type: none"> <li>a. Terminology – Definitions – History – Scope in Prosthodontic therapy</li> <li>b. Stomatognathic system cranio mandibular system (Masticatory apparatus)</li> <li>c. Components of masticatory apparatus – Functions</li> <li>d. Applied anatomy, histology and physiology of the components of craniomandibular system</li> <li>e. Applied growth and development including genetics, immunity.</li> <li>f. Reasons for loss of teeth and associated structures.</li> <li>g. Clinic and laboratory – facilities for prosthodontic therapy (equipments, instruments, materials).</li> <li>h. Prosthodontic therapy for diseases of cranio mandibular system.</li> <li>i. Asepsis and cross infection control in clinical and laboratory. Hospital and laboratory waste disposal system and management.</li> </ul>	
<b>21</b>	<b>Applied Dental Anatomy</b>	<b>1 Hour</b>
	Physiology, nutrition, occlusion, occlusal curves, vertical overlap, horizontal overlap, condylar path, saliva, pain and other reflexes, neuro muscular mechanism and applied psychiatry medicine.	
<b>22</b>	<b>Elements of Fixed Prosthodontics</b>	<b>2 Hrs</b>
	Introduction, definitions	
	Terminologies	
	Indication and contraindications	
<b>23</b>	<b>Examination diagnosis and treatment planning and radiological interpretations</b>	<b>2 Hrs</b>
<b>24</b>	<b>Selection and choice of abutment teeth</b>	<b>1 Hour</b>
<b>25</b>	<b>Biomechanical principals of tooth preparation</b>	<b>2 Hrs</b>
	Preservation of tooth structure	

	Retention and resistance form Structural durability of the restoration Marginal integrity Preservation of the periodontium	
<b>26</b>	<b>Full veneer crowns</b> Maxillary and mandibular posterior three quarter crowns Anterior three quarter crown Pin modified three quarter crowns Seven eighths crown Proximal half crowns	<b>4 Hrs</b>
<b>27</b>	<b>Anterior Posterior porcelain fused to metal crowns</b>	<b>2 Hrs</b>
<b>28</b>	<b>All ceramic crowns</b> Preparation, modifications for damaged teeth Modifications for damaged vital teeth Conversion of defects into retentive features Solution to common problems	<b>2 Hrs</b>
<b>29</b>	<b>Endodontically treated tooth</b> Preparation modifications for special situations Preparation for fixed bridge abutment Preparation for removable partial denture abutments	<b>2 Hrs</b>
<b>30</b>	<b>Isolation of working field and temporary protections of prepared tooth</b> Gingival retractions and impression procedures Construction of DIES of working models, direct and indirect technique Techniques of fabrication of retainers and materials used, its application with reference of fabrication and esthetics	<b>2 Hrs</b>
<b>31</b>	<b>Selection and fabrication of pontics and esthetics</b> Connectors, stress-breakers and assembly of fixed bridges Finishing, cementing and maintenance of crowns and bridges Laser and high speed	<b>2 Hrs</b>
<b>32</b>	<b>Maxillofacial Prosthesis</b> Restoration of congenital and acquired oral and para oral defects (Facial Prostheses, including osseointegrated support facial prosthesis). Splints Obturator Bruxism and management of occlusal attrition	<b>5 Hrs</b>

<b>33</b>	<b>Miscellaneous</b>	<b>1 Hour</b>
	Patient and practice management in prosthodontic clinic ethics, law, jurisprudence and forensic odontology – in prosthodontic practice	
	Assistants – Laboratories and clinic	
	Communication methods – Technician work	
	Authorization, methods and legality	
	During impression recording in partial, complete edentulous situation and maxillofacial defects	
	Precautions and management of traumatic accidents in tooth preparation use of constrictor in anaesthetic solutions and retraction cords	
	Ill fitting dentures	
	Broken clasps, facings	
	Broken prosthesis	
	Swallowing prosthesis	
	General management of elderly and C.V.S. and immunocompromised patients	
	<b>Total</b>	<b>30</b>

<b>SlNo.</b>	<b>Topics</b>	<b>No. of Hours allotted</b>
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#### **Oral Implatology**

<b>1.</b>	History of implants, their design & surface characteristics and osseo-integration	<b>2 hours</b>
<b>2.</b>	Scope of oral & maxillofacial implant logy & terminologies.	<b>1 hour</b>
<b>3.</b>	A brief introduction to various implant systems in practice	<b>1 hour</b>
<b>4.</b>	Bone biology, Morphology, Classification of bone and its relevance to implant treatment and bone augmentation materials.	<b>2 hours</b>
<b>5.</b>	Soft tissue considerations in implant dentistry	<b>1 hour</b>
<b>6.</b>	Diagnosis & treatment planning in implant dentistry case history taking/ Examination/Medical evaluation/Orofacial evaluation/ Radiographic revaluation/ Diagnostic evaluation/ Diagnosis and treatment planning/ treatment alternatives / Estimation of treatment costs / patient education and motivation.	<b>1 hour</b>
<b>7.</b>	Pre surgical preparation of patient.	<b>1 hour</b>
<b>8.</b>	Implant installation & armamentarium for the Branemark system as a role model	<b>1 hour</b>
<b>9.</b>	First stage surgery – Mandible – Maxilla	<b>1 hour</b>
<b>10.</b>	Healing period & second stage surgery	<b>1 hour</b>



<b>11.</b>	Management of surgical complications & failures	<b>1 hour</b>
<b>12.</b>	General considerations in Prosthodontic reconstruction & Bio mechanics	<b>2 hours</b>
<b>13.</b>	Prosthodontic components of the branemark system as a role model	<b>1 hour</b>
<b>14.</b>	Impression procedures & preparation of master cast.	<b>1 hour</b>
<b>15.</b>	Jaw relation records and construction of superstructure with special emphasis on occlusion for Osseo integrated prosthesis.	<b>1 hour</b>
<b>16.</b>	Management of Prosthodontic complications & failures	<b>1 hour</b>
<b>17.</b>	Recall & maintenance phase.	<b>1 hour</b>
<b>Total</b>		<b>20</b>

## SCHEME OF EXAMINATION

**Theory: 70 marks**

Distribution of Topics and type of Questions

Contents	Type of Questions and Marks	Marks
<b>MCQ</b>	20 X 1 Marks	20
One long essay from complete denture One long essay from removable partial denture/ fixed partial denture	Long essays 2 x 10 marks	20
4 short essay from complete denture 3 short essays from removable partial denture 3 short essays from fixed partial denture	Short essay 10 x 3 marks = 30	30
<b>Total</b>		<b>70</b>

**Viva-Voce : 20 marks**

Complete denture - 10 marks

Removable partial denture - 5 marks

Fixed partial denture - 5 marks

Implants, maxillofacial and  
Allied prosthesis

**Theory :****Theory examination : 70 Marks****Theory Internal Assessment: 10 Marks****Viva Voce : 20 Marks****Total Marks 100 Marks****Practicals / Clinicals****Practical examination : 90 Marks****Practical Internal Assessment: 10 Marks****Total Marks : 100 Marks****Recommended Books :**

<b>Sl. No.</b>	<b>Title</b>	<b>Author</b>	<b>Edition</b>	<b>Yr. of Publ.</b>	<b>Publisher</b>
1.	Prosthodontic treatment of Edentulous patients	Boucher	12 <sup>th</sup>	2004	Mosby
2.	Syllabus of complete denture	Heartwell	5 <sup>th</sup>	1993	Lea & Febiger
3.	Theory and practice of fixed Prosthodontics	Tylman	8 <sup>th</sup>	1993	Ishiyaku Euro
4.	Removable partial denture	Mc Cracker	11 <sup>th</sup>	2005 South Asian	CBS
5	Sciences of dental materials	Skinner	11 <sup>th</sup>	2012 South Asian	W. B. Saunders Co.
6	Dental materials Properties and manipulation	Craig	14 <sup>th</sup>	2018	Mosby

## **4.34 PUBLIC HEALTH DENTISTRY**

Theory – 40 Hours, Clinical – 100 Hours

### **GOAL:**

To prevent and control oral diseases and promote oral health through organized community efforts.

### **OBJECTIVES:**

#### **Knowledge:**

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

#### **Skill and Attitude:**

At the conclusion of the course the students shall have acquired the skill of identifying health problems affecting the society, conducting health surveys, health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

#### **Communication abilities:**

At the conclusion of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

## **COURSE CONTENT**

### **THEORY : 40 Hours**

1. Epidemiology of dental diseases 4 hours
  - a. Epidemiology of dental caries , definition , classification of caries , epidemiological triad, studies on diet and dental caries , caries risk assessment.
  - b. Epidemiology of periodontal disease , etiology of periodontal disease,
  - c. Epidemiology of oral cancer and malocclusion
2. Indices 3 hours

DMFT/DMFS, WHO Dentition states and treatment needs.

OHI – OHIS, Sillness and loe index, Loe and Sillness index. CPI, CPITN, Deans fluorosis index, Russels index.

3. Social Sciences - Branches of social sciences , family, socioeconomic status , application in dentistry , culture , belief, taboos, customs. 2 hours
  4. Preventive dentistry 2 hours
 

Definition, general levels of prevention,

    - a. Prevention of dental caries
      - i. Fluorides
 

History , mechanism of action of fluorides in preventing caries, sources of fluorides, metabolism of fluorides, modes of delivering of fluoride , systemic- [ water, salt, milk, tablets, drops ]local [ self and professional ] Toxicity of fluoride. 6 hours
      - ii. Minimal intervention dentistry 3 hours
 

Pit and fissure sealants, preventive resin restoration, atraumatic restorative technique, arresting caries technique, caries vaccine, laser, ozone , probiotics.
    - b. Prevention of periodontal disease
 

Plaque control [ mechanical, chemical ] levels of prevention 2 hours
    - c. Prevention of oral cancer 1 hour
 

Diagnostic aids in oral cancer, approaches in prevention of oral cancer, levels of prevention
5. School Dental Health Programs 2 hours
6. Dental care delivery system
  - a. Structure of system : 2 hours
 

Types of practice, methods of dental care delivery, practice management, place, locality, premises, layout, and maintenance of record, accounts, audit, and hospital management
  - b. Manpower 2 hours
 

Dentist, auxiliaries
  - c. Finance in dental care 2 hours
 

Classification, methods, insurance

DCI, IDA, Dentist Act 3 hours
  - d. Mobile Dental Clinic
7. Ethics and Jurisprudence, COPRA – establishment , redressal system , consent 2 hours

**Desirable to know**

8.	EBD and Teledentistry	2 hours
9.	Research methodology	2 hour
10.	Preparation of protocol for research	1 hour
11.	Preparation of manuscript for publication	1 hour

**COURSE CONTENT FOR IV YEAR****PRACTICAL [TOTAL 100 HOURS]**

These exercises designed to help the student in IV year:

- 1 Preventive dentistry: demonstration of application of pit and fissure sealants, fluoride gel and atraumatic restorative treatment [ desirable to do any preventive treatment on one patient].
- 2 Visit to institution for the care of handicapped, physically, mentally or medically compromised patients.
- 3 Comprehensive oral health care - Total oral health care approach- in order to prepare the new graduates in their approach to diagnosis, treatment planning, cost of treatment, prevention. Treatment schedule, recall, maintenance of records etc at least 5 patients (both children and adults of all types posting for at least one month).
- 4
  - a) Basic oral health survey procedures , analysis and presentation of oral health assessment of school. Children and community independently using WHO basic oral health survey methods.
  - b) Participation in rural oral health education programmes

**SCHEME OF EXAMINATION****MARKS DISTRIBUTION**

<b>THEORY</b>	<b>100 MARKS.</b>	<b>PRACTICAL</b>	<b>100 MARKS</b>
University written exam	70	University exam	90
Viva Voice	20	Internal Assessment	10
Internal Assessment	10		
	<b>100</b>		<b>100</b>

**WRITTEN EXAMINATION**

Written examination shall consist of one paper of three hours duration and shall have maximum marks 70

The question should contain different types of questions like

1. MCQ – 20 marks [ 20 x 1 marks]
2. Long essay – 20 marks [ 2 x 10 marks]
3. Short answer – 30 marks [ 10 x 3 marks]

## **PRACTICAL & CLINICAL EXAMINATION –**

**Practical examination shall have maximum marks of 90**

### **Exercise 1**

1. Objective structured practical examination will be carried out. This includes case history , indices – [Oral hygiene indices simplified, Sillness and Loe index for Plaque, Loe and Sillness index for Gingiva, CPI, DMFT and DMFS , DFT and AFS, Deans fluoride index] and spotters. [50 marks ]

### **Exercise 2**

1. Oral Health talk. [ 5 marks]
2. Project – oral health education model / chart [ 10 marks]
3. Records / Log books:- The candidate should be given credit for this records based on the scores obtained in the record. [ 5 marks]

### **Exercise 3**

Performing preventive procedure like Pit & Fissure sealant application , topical fluoride application , ART procedure [ 20 marks]

## **VIVA VOICE :-**

**Viva voice shall have maximum marks of 20**

Viva voce is an excellent mode of assessment because it permits a fairly broad coverage and it can assess the problem solving capacity of the student. An assessment related to the affective domain is also possible through viva voce. It is desirable to conduct the viva voce independently by each examiner. In order to avoid vagueness and to maintain uniformity of standard and coverage, questions can be pre- formulated before administering them to each student. Twenty marks are exclusively allotted for viva voce and that can be divided equally amongst the examiners, i. e 10 marks per examiner.

## THEORY WRITTEN EXAMINATION PATTERN AND DISTRIBUTION OF TOPICS

CONTENTS	TYPE OF QUESTIONS AND MARKS	MARKS
<b>LONG ESSAYS</b> <ol style="list-style-type: none"> <li>Measures of Central Tendency; Tests of Significance; Sampling and methods of sampling.</li> <li>Definition, Aims and objectives of epidemiology; Studies of epidemiology; Investigations</li> <li>Definition, Aims and objectives of Health Education, Principles, method of Mass Media</li> <li>Definition, aims and objectives of Public Health Dentistry; Function of Public Health Dentistry.</li> <li>Surveying, Indices used in the Survey; Basic Oral Health Survey methods; WHO.</li> <li>Type, Needs, Development of Dental Personnel, Dental Auxiliary.</li> <li>Oral Health Care Delivery System in India and other countries</li> <li>School Oral Health Program</li> <li>Payment Plan for Dental Care.</li> <li>Define, Levels of Prevention, Specific preventive measures against oral diseases</li> <li>Fluorides-systemic, local, metabolism, toxicity.</li> <li>Planning of setting up of Dental practice.</li> <li>Levels of prevention</li> <li>Prevention of oral diseases – dental caries, periodontal disease, oral cancer.</li> </ol>	2x 10 marks	20
<b>SHORT - ANSWERS</b> <ol style="list-style-type: none"> <li>State Dental Council, Dentist Act 1948, Indian Dental Association</li> <li>Mean and Standard Deviation; Normal Curve; Sampling Methods.</li> <li>National Health Programs; Philosophy of Public Health.</li> <li>Principles of Epidemiology; Epidemiological Triad; Uses of Epidemiology</li> <li>Barriers for health education; Mass Media; Principles of Health Education.</li> <li>Difference between Clinical Dentists and Public Health Dentists; Procedures and steps used in Dental Public Health; Functions of Public Health Professional.</li> <li>Path Finder Survey; Indices.</li> <li>Dental Auxiliaries.</li> <li>Incremental Dental Care; School based prevention program.</li> <li>Payment plans for dental care.</li> <li>Prevention of Dental Caries-Topical Fluoride application, Vaccines, prevention of plaque, prevention of periodontal disease; Oral cancer, Milk and salt fluoridation, School water fluoridation.</li> </ol>	10x3 marks	30

12. Taboos related to Oral health. Concepts of oral health among different socio-economic strata. 13. Setting of fees in dental practice. Quality care, Legal implication, contract. Success in dental practice. 14. State Dental Council. Functions of Dental Council of India 15. Mean, Median, Mode. Different Sampling Methods 16. Prospective Studies, Retrospective Studies, Cohort Study 17. Mass Media in Health Education 18. Aims of Survey, Indices. 19. Different Dental Auxiliaries - School Dental Nurse; Expanded function Dental Auxiliary etc. 20. Askov Dental program, Tattle tooth program etc 21. Prepayment plan; Delta Dental Plan; Co-insurance. 22. Toxicity of fluorides; Different studies on Water fluoridation Newburgh Kingston Studies; 21 Cities Studies. 23. Fluoride tablets; Fluoride varnishes; Fluorides in restorative materials; Topical fluoride application Salt fluoridation; Milk fluoridation; Plaque preventive measures; Mouthwashes; 24. Culture 25. Quality Required for success in Dental Practice 26. Floor plan for the Dental Clinic; Group practice; Dental Records; Evidence based dentistry. 27. Teledentistry 28. Ethics in dentistry 29. Primary health care		
MCQ'S		20
	Total	70

#### BOOKS RECOMMENDED & REFERENCE:

1. Essential of preventive and community dentistry Soben Peter 4th edition, Arya Publishing Press.
2. Text Book of Preventive and Social Medicine by Park and park, 20th edition.
3. Preventive Dentistry by Murray, 1997.
4. Fluoride in dentistry by Fejerskov 2nd edition, Munksgard Publishers.
5. Dentistry Dental Practice and Community by David F. Striffler and Brain A. Burt, Edn. -1983, W. B. Saunders Company
6. Principles of Dental Public Health by James Morse Dunning, 4th Edition, 1986, Harward University Press.



7. Dental Public Health and Community Dentistry Ed by Anthony Jong Publication By The C. V. Mosby Company 1981
8. Public Health- An Introduction to Community Dentistry. Ed'tion by Geoffrey L. Slack and Brain Burt, Published by John Wrigth and sons Bristol,1980
9. Oral Health Surveys- Basic Methods, 4th edition, 1997, published by W. H. O. Geneva available at the regional office New Delhi.
10. Introduction to Bio-statistics by B. K. Mahajan
11. Primary Preventive Dentistry by Norman. O. Harris. 8th Edition prarson education US.
12. Community Oral Health-A system approach by Patricia P. Cormier and Joyce I. Levy published by Appleton-Century-Crofts/New York, 1981
13. Community Dentistry-A problem oriented approach by P. C. Dental Hand book series Vol.8 by Stephen L. Silverman and Ames F. Tryon, Series editor-Alvin F. Gardner, PSG Publishing company Inc. Littleton Massachuselts, 1980
14. Preventive Medicine and Hygiene-By Maxcy and Rosenau, published by Appleton Century Crofts, 1986.
15. Preventive Dentistry-by J. O. Forrest published by John Wright and sons Bristol!, 1980.
16. Research methodology and Bio-statistics by Kothari
17. Introduction to Statistical Methods by Grewal
18. Text Book Of Preventive And Community Dentistry B. Dr. S. S. Hiremath

# **Enrichment Programme**

## **Communication Skills**

### **PREAMBLE**

*Communication is the key to education, understanding and peace.*

### **Communication**

Oral communication is the process of expressing information or ideas by word of mouth. This book will help you to find out how you can improve your own oral communication abilities while dealing with patients and relatives. Great communication skills are your ticket to success in the clinical work in urban & rural set and academic. But have you ever been overcome by fear or anxiety prior to speaking in front of patients? Knowing when to choose oral communication and polishing your speaking skills can help you at every stage of your career.

‘Communication’ comes from Latin *commûnicâre*, meaning “to share” which is the purposeful activity of information exchange between two or more participants in order to convey or receive the intended meanings through a shared system of signs and semiotic rules.

Communication takes place inside and between three main subject categories: human beings, living organisms in general and communication-enabled devices (for example sensor networks and control systems). Communication in living organisms (studied in the field of biosemiotics) often occurs through visual, auditory, or biochemical means. Human communication is unique for its extensive use of language.

Human language can be defined as a system of symbols (sometimes known as lexemes) and the grammars (rules) by which the symbols are manipulated. The word “language” also refers to common properties of languages. Language learning normally occurs most intensively during human childhood. Most of the thousands of human languages use patterns of sound or gesture for symbols which enable communication with others around them. Languages tend to share certain properties, although there are exceptions. There is no defined line between a language and a dialect. The communication is two way process instead of one way.

The “information communication revolutions”:

1. Written communication first emerged through the use of pictographs. The pictograms were made in stone, hence written communication was not yet mobile.

2. The next step occurred when writing began to appear on paper, papyrus, clay, wax, etc. with common alphabets. Communication became mobile.
3. The final stage is characterized by the transfer of information through controlled waves of electromagnetic radiation (i.e., radio, microwave, infrared) and other electronic signals.

Communication is thus a process by which meaning is assigned and conveyed in an attempt to create shared understanding. This process, which requires a vast repertoire of skills in interpersonal processing, listening, observing, speaking, questioning, analyzing, gestures, and evaluating enables collaboration and cooperation.

Misunderstandings can be anticipated and solved through formulations, questions and answers, paraphrasing, examples, and stories of strategic talk. 'Good Communication is the bridge between confusion and clarity'. Written communication can be clarified by planning follow-up talks on critical written communication as part of the everyday way of doing business. A few minutes spent talking in the present will save valuable time later by avoiding misunderstandings in advance. A frequent method for this purpose is reiterating what one heard in one's own words and asking the other person if that really was what was meant.

'Communication works for those who work at it'.

(compiled from <https://en.wikipedia.org/wiki/Communication>)

## **OBJECTIVES**

1. To formally impart education on communication skills.
2. To enhance the capacity of students in communicating with patients, relatives, colleagues and facilitators.
3. To conduct interactive session and workshop to augment the skills acquired.
4. To develop effective communication skills required in academics, practice of Dentistry and in general.

## **DURATION OF COURSE : 40 Hours**

Course will contain 2 phases

**Phase I** will be conducted during I BDS Course : Total 22 hours.

**Phase II** will be conducted in II BDS : Total 18 hours.

## **ELIGIBILITY**

1. Phase I will be for all I BDS Students.
2. Phase II will be for all II BDS Students.

## **LIST OF MODULES AND COURSE CONTENT**

### **Module I : 6 Hours**

#### **Communications skills**

- Introduction
- Fundamentals of Articulation
- Body Language :
  - i) Types
  - ii) Effects of Body language
  - iii) How to improve body language
- Importance of Grooming

### **Module II : 8 Hours**

#### **Presentation skills & Public Speaking**

- Introduction
- Crucial Elements
- Requisites for Effective Presentation :
  - i) Controlling anxiety
  - ii) Audience centered
  - iii) Accomplished objective
  - iv) Create interest in audience (fun for audience and self)
  - v) Conduct within time frame
- Presentation sequence
- Creating Effective Visual Aids

- Presentation Techniques
- Practice

### **Module III : 8 Hours**

#### **Interpersonal skills**

Ability to convey your point and listen and value others speak

- What are Interpersonal Skills
- Why do Interpersonal Skills matter
- 10 key Interpersonal Skills
 

i) Self confidence	ii) Work ethic
iii) Relationship Management	iv) Receptiveness to feedback
v) Body language	vi) Listening
vii) Collaboration	viii) Showing Appreciation
ix) Positive attitude	x) Work place etiquette

### **Module IV : 10 Hours**

#### **Time management**

- Planning : Understanding the difference between urgent and important
- Time management skill
 

i) Delegate tasks	ii) Prioritize work
iii) Schedule task	iv) Set up deadlines
v) Avoid Procrastination	vi) Avoid stress
vii) Avoid multitasking	viii) Start Early
ix) Take regular breaks	x ) Learn to say no
- Increase in effectiveness and efficiency

### **Module V : 8 Hours**

1. Interactive Session and group activity with Resource Person and participants.
2. Oral presentations by the students.
3. Assessment of Log Book by Resource Person.

**Note :**

**Phase I will consist of modules I, II and III**

**Phase III will consist of modules IV & V**

**Assessment Method**

1. Interactive Sessions will be graded throughout the programme.
2. At the end of Phase I the log book of activities will be assessed and signed off by the Resource Person.
3. At the end of Phase II the log book of activities will be assessed and signed off by the Resource Person and by the Principal.

**About the Resource Person**

Resource person is a well-known trainer on communication and soft skills with deep knowledge and wide experience in areas of business communication, oral presentation and public speaking.

# **DEPARTMENT OF ORAL MEDICINE AND RADIOLOGY**

## **Extra oral Radiographic Techniques**

**Duration- 10 hours**

**Aim :**

To develop proficiency in identifying and interpretation of various extra oral radiographic views, (normal anatomical landmarks with variations and clinical applications of each radiographic projection).

**Course Objectives :**

By the end of this course all interns should be able

1. Identify the radiographic view.
2. Identify the normal anatomical landmarks and pathology.
3. Prescribe right radiograph.
4. Provide radiographic differential diagnosis

### **Course content**

#### **Extra oral radiographic views**

1. Paranasal sinus  
PA Projection  
Standard Occipitomenital view  
Modified Occipitomenital view  
Water's View(PNS)
2. Base of the skull  
Submentovertex
3. Mandible  
PA mandible  
Rotated PA mandible  
Lateral oblique  
-Body  
- Ramus

4. Temporomandibular joint

Transcranial

Transpharyngeal

Transorbital

5. Reverse Towne

6. Skull

Lateral cephalogram

7. Orthopantomograph

**Teaching methods :**

The topics will be covered through videos, demonstrations, handouts, power-point presentations of normal anatomical landmarks and pathologies.

**Assessment :**

1. After session - Assessment sheet / checklist

**References:**

1. Oral Radiology- Principles and Interpretation Stuart C White and Michael J Pharoah  
5<sup>th</sup> and 6<sup>th</sup> edition
2. Essentials of Dental Radiography and radiology, 4<sup>th</sup> edition, Author- Eric Whaites



## **DEPARTMENT OF PUBLIC HEALTH DENTISTRY**

### **Preparation for Entrance Examination**

**Duration – 18 hours** during clinical rotations

**Aim :** To sensitize students to the NEET preparation of Public Health Dentistry.

### **Objective :**

By the end of the course at least 90% of the interns will be able to

1. Understand the importance of Public Health Dentistry questions in NEET.
2. Improve their competency level in attempting questions of Public Health Dentistry
3. Recall the correct answers of the MCQ's.

### **Course Content :**

1. Indices
2. Preventive dentistry
3. General epidemiology
4. Survey and planning
5. Epidemiology of dental diseases
6. Biostatistics
7. Fluorides
8. Environment and health
9. Health education

### **Approach:**

Lectures and Demonstrations

### **Assessment and Monitoring :**

MCQ Test

### **Reference Books:**

1. Dental Pulse
2. Gouri Shankar
3. Manish Prabakar
4. Vivek Jain
5. Satish Chandra

## **DEPARTMENT OF PROSTHODONTICS**

### **Smile Designing Principles and Veneer preparation :Hands-on course**

**Duration :8 hours**

**Aim :** To provide knowledge to students for Practical orientation of case selection in Veneer preparation for management and esthetic treatment of patients to improve esthetic smile.

#### **Objectives :**

By the end of the course the Interns should be able to demonstrate competence in the following skills

1. Learn diagnosis and evaluation of patient for Veneers
2. Understand and use of Diagnostic tools
3. Acquire knowledge in model preparation by incorporating smile design principles
4. Learning in detail the techniques of Veneer preparation on study models

#### **Approach :**

- Module - 1 Introduction to case selection, use of Diagnostic tools, Veneer preparation (2 hours)
- Module - 2 Soft Tissue management, Impression making, Temporization. (2 hours)
- Module - 3 Wax pattern fabrication, Temporization cementation procedures (2 hours)
- Lectures and demonstrations

#### **Course Content :**

1. Case selection
2. Use of Diagnostic tools
3. Veneer preparation on Study models
4. Wax up
5. Soft Tissue management
6. Impression making

7. Temporization
8. Cementation procedures.

**Assessment :**

By conducting Objective Structured Clinical Examination (OSCE)

**Reference Books :**

1. Esthetic in dentistry by R. E. Goldstein, 3<sup>rd</sup> Edition Vol 1 & 2 willey Publisher
2. Science and art of Porcelain laminate Veneers by Galip Gurel Quintessence publishing 1<sup>st</sup> Edition.
3. Change your smile by Ronald E. Goldstein, 4<sup>th</sup> Edition Quintessence publishers

# **DEPARTMENT OF ORAL PATHOLOGY & MICROBIOLOGY**

## **Hematological Interpretations**

**Course duration:** 15hrs (One hour every day for 15 days)

**Aim:** To make interns training programme in clinical pathology effective so as to develop independent capabilities in a student to learn and apply the knowledge of hematology through interpretation of test results in identifying blood related problems and their diagnosis.

### **Objectives:**

1. To train a student so as to ensure higher competency in clinical pathology dealing with blood (blood related diseases, their causes, processes and effects).
2. He/she is expected to perform collection of blood from different sites depending on age of patient and procedures to be done.
3. He/she is expected to perform routine haematological evaluation such as complete blood count (haemoglobin estimation, bleeding time, clotting time, Random blood sugar, total RBC count, total WBC count and Differential WBC count) of collected blood samples.
4. He/she is expected to have an understanding of collection and interpretation of data. He/she is expected to have an understanding of normal ranges and altered values, diseases in which they are altered and processes involved.
5. He/she is expected to deal with correct professional handling, examination, interpretation.

### **Skills:**

1. To develop confidence in graduate students to handle and to manage laboratory and research responsibilities in future.

### **Course Content:**

- I. Introduction and scope of hematology
- II. Physiology of Blood
  - a. Blood cells
    - i. RBC
    - ii. WBC
    - iii. Platelets
  - b. Plasma

III. Hematology Tests: complete blood count tests

IV. Interpretation of complete blood count tests

a. Normal values

b. Altered values

i. Conditions in which values are increased

ii. Conditions in which values are decreased

V. Blood disorders and disease processes

**Approach:** Topics to be covered as didactic lectures, demonstrations and seminars.

**Assessment and monitoring:**

1. Log books.
2. Objective structures clinical examination (on patients) with checklist.
3. Objective structures practical examination (using previously stained slides of blood smears and questions framed relating to the interpretation).

**Reference Books:**

1. Textbook of Haematology by Tejindar Singh
2. Bethesda Handbook of Clinical Hematology 3rd Edition
3. Hematology for Students and Practitioners by Ramnik Sood
4. Practicals and Quick Review by Ganga S. Pilli
5. For Applied aspects : Textbook of Oral Pathology by Shafer
6. Text book of human physiology by Chatterjee

# **DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY**

## **Trans-alveolar method of Tooth Extraction and IM/IV Demonstration**

### **I. Trans-alveolar method of tooth extraction**

**Duration : 6 hours**

#### **Objectives:**

By the end of the course all the interns will be able to

1. Understand the indications for transalveolar extraction.
2. Identify instruments required for trans-alveolar extraction.
3. Understand the principles of incision and flap design, methods of bone cutting, tooth removal, suturing.
4. Perform transalveolar extraction (open extraction) on patients.

#### **Course Content : -**

1. Introduction and indications of trans-alveolar extraction
2. Principles of incision and flap design
3. Methods of bone removal, tooth division, socket toilet
4. Suturing and aftercare

#### **Approach :**

1. Lectures
2. Video demonstration
3. Live demonstration of transalveolar extraction

#### **Assessment and monitoring**

1. Assessment while performing on patients using checklist

### **II. IM/ IV injection Techniques**

**Aim :** To train the students perform IM/ IV injection

**Objective:-** At end of the course, students should be able to explain how to give IM/ IV injection and individually perform IM/IV injections

**Duration:** – 6 hours

1 hour : power point presentation and Video demonstration

1 hour : demonstration on the patient

4 hours : for students to perform on patient

**Course contents:-**

- 1.Introduction and Brief anatomy at the area of injection.
2. Technique of IM/IV injection - theoretic knowledge and demonstration

**Approach :**

1. Power point presentation of IM/IV techniques
2. Video demonstration
3. Live demonstration of IM/IV techniques

**Assessment of students** – To assess how much each student has understood about the course by observation and checklist.

**Reference Books :**

1. Clinical Surgery – Michael H.
2. Fundamental of Nursing Potter and Perry and Jeoffrey Thomson

## **DEPARTMENT OF PEDODONTICS AND PREVENTIVE DENTISTRY**

### **Stainless Steel Crown in Primary Molars of Children**

**Duration : 16 hours**

**Aims :**

The interns should acquire adequate knowledge and necessary skills towards placement of a Stainless Steel Crown also understand the basic concepts in occlusion.

**Objectives :**

The interns should acquire the following during the period of training:

1. Knowledge about Anatomy of primary and permanent teeth
2. Attributes, Indications and contraindications for stainless steel crowns.
3. Demonstrate Crown Preparation methods for Stainless steel crowns.

**Skills :**

1. Able to differentiate indications and contraindications for placement of Stainless Steel Crown.
2. Acquire skills to prepare a tooth for receiving a Stainless Steel Crown.
3. Select an appropriate size crown.
4. Skills to maintain occlusal relation and to identify any occlusal disharmony and take measures to correct it if any need arises.

**Course Content :**

**Week 1:**

1. Introduction to anatomy of primary and permanent teeth in brief and different crowns in Pediatric Dentistry
2. Introduction to stainless steel crowns.
3. Indications and contraindications for stainless steel crowns.
4. Crown Preparation for Stainless steel crowns.

**Week 2:**

1. Methods of Placement of Stainless steel crowns.
2. Demonstration of Placement of Stainless steel crown on typhodont/ extracted teeth by the faculty.



3. Placement of Stainless steel crown on typhodont/ extracted teeth by the Interns.

Week 3:

1. Live Demonstration on placement of Stainless steel crown on patient by faculty.
2. Placement of Stainless steel crown on extracted tooth by interns.

**Approach :**

1. Lectures and demonstrations
2. Hands-on training with dummy models.

**Assessment :**

Review of Performance by the Interns

**References Books :**

1. Mathewson R. J. Fundamentals of Pediatric Dentistry, 3<sup>rd</sup> Edition. Boston : Quintessenec Books, 1995
2. Kennedy DB, Roberts JF, Curzon ME, J Kennedy's Pediatric Dentistry, 4<sup>th</sup> edition, Oxford Wright, 1997
3. Tandon S. Textbook of Pedodontics. 2<sup>nd</sup>Eition. Hydrabad : Paras Publications 2009

# **DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS**

## **Molar Endodontics for Interns**

**(Root Canal Treatment on Extracted molar tooth using hand instruments)**

**Duration of Course : 5 Hours Maximum**

**Aim :** To provide basic knowledge about molar root canal therapy to aid in clinical practice

**Objectives :-**

By the end of this course all the interns should be able

1. To know the root canal anatomy of molar teeth.
2. To identify and use endodontic hand instruments and material required for the procedure.
3. Perform all the steps involved in Molar Endodontics
4. Perform RCT on extracted molar using endodontic hand instruments.

**Course Content :**

1. Access Opening
2. Working Length
3. Cleaning and Shaping
4. Irrigation Protocol
5. Master Cone
6. Obturation
7. Core Buildup

**Approach:**

Discussion and Demonstrations

**Assessment and Monitoring :**

1. Observation using check list
2. The Faculty on intern duty will be monitoring the work done by interns.

**Reference Books :**

1. Grossman's Endodontics Practice – 12<sup>th</sup> Edition B. Suresh Chandra V. Gopic Krishna
2. Ingle's Endodontics 6<sup>th</sup> Edition Ingle, Bakland, Baumgartner.

# **DEPARTMENT OF ORTHODONTICS**

## **General & Clinical Photography**

**Duration :15 hours**

**Aim :—**

1. To train to students in clinical dental Photography

**Objectives :-**

By the end of the course at least 80% of the Interns will be able to

1. Recall Theoretical , practical, esthetic aspects of photography
2. Recall concepts in Medical and Dental photography
3. Demonstrate proficiency in Dental photography

**Course Content :-**

### **1. Applications of Photography for**

- i. Documentation and record
- ii. Progress of the case
- iii. Education, Teaching, Presentation
- iv. Publication, Communication, Teledentistry
- v. Marketing

**Approach :**

Lectures and demonstrations

1. Specific lenses
2. Standardized views
  - a. Extra-oral
  - b. Intra-oral
  - c. Single tooth
  - d. Pathology

## **Assessment**

3 rounds of Practical assessment

1. Extraoral front photograph
2. Extraoral lateral photograph
3. Extraoral 3/4<sup>th</sup> photograph
4. Intraoral front photograph
5. Intraoral right lateral photograph
6. Intraoral left lateral photograph
7. Intraoral upper occlusal photograph
8. Intraoral lower occlusal photograph

## **Reference Books :**

1. Clinical photography in Dentistry – A new perspective – Peter Sheridan

# **DEPARTMENT OF PERIODONTICS**

## **Minor Surgical Periodontics**

**Duration : 41 hours**

### **Objectives :-**

Should be able to

Recall, understand and perform procedure of Gingivectomy, Gingivoplasty, Frenectomy&frenotomy

### **Course Content :**

1. Nonsurgical
2. Root Planning
3. Treatment
4. Local Drug Delivery
5. Subgingival irrigation
6. Treatment of dentinal
7. Hypersensitivity
8. Use of ElectrocauteryFrenotomy
9. Frenectomy
10. Gingival depigmentation
11. Hemostasis
12. Use of Laser Frenotomy
13. Frenectomy
14. Gingival depigmentation

### **Approach**

Lectures and demonstrations

### **Assessment**

Observed assessment

**Reference Books :**

1. Carranza's Clinical Periodontology – 13<sup>th</sup> edition
2. Clinical periodontology and implant dentistry volumn 1 and volume 2 – 6<sup>th</sup> edition
3. Decision making in periodontology 3<sup>rd</sup> edition
4. Periodontal medicine - 2000