Sebha University Faculty of Dentistry

SYLLABUS

Of the courses in the

FACULTY OF DENTISTRY

For

B.D.S Program

SebhaUniversity:

This Syllabus is considered to be valid / effective for all graduates from Sebha University since the foundation of the university until this date.

Introduction:

The Faculty of dentistry, Sebha University was opened in the year 1992 as one of the 9-10 faculties of Sebha University. The intake of students varied between 20-25 students in early years to 50-60 students in the recent years, male and female students are eligible and study together.

The dental faculty is located near the main Sebha university campus and adjacent to the medical faculty in which dental students are taught basic dental sciences. The faculty is near science faculty in which dental students undertake their pre dental course.

The Bachelor of Dental Surgery (B.D.S) course run by the dental faculty is designed as follows:

- Pre dental : one year
- Pre clinical: two years
- Clinical: two years
- Internship: one year

The main building houses the faculty, administrative block, library, lecture rooms, laboratories and nineteen clinical dental units for treatment procedures and an additional 3 units for diagnosis. The adjacent building houses another 12 dental units.

The objectives of the dental faculty are:

1. Producing quality dentists and other oral health personnel.
2. Service to the local and regional community.
3. Undertaking research projects in oral health aspects.
4. Collaboration with similar faculties and institutions including students and teaching staff exchange program.
5. Protecting and enhance the quality of Environment.
6. Conducting Continuing dental education programs and conferences for updating the knowledge and practice of dentistry.
7. Offering postgraduate studies.

The curriculum:

The B.D.S., curriculum is a basic subject oriented curriculum with behavioral objectives for each subject taught. Subjects are integrated vertically and horizontally. The student undertakes continuous assessments through the years of study. English is the medium of teaching except for few subjects.

SYLLABUS for Bachelor of Dental Surgery (B.D.S.) Degree Course

I BDS

1. General Human Anatomy including Embryology, Osteology BD101
2. General Histology BD102
3. General Human Physiology BD103
4. Biochemistry BD104
5. Dental Bio-Materials BD105
6. Dental Anatomy BD106
7. History of science BD107

II BDS

1. General Pathology BD201
2. General Microbiology BD202
3. General and Dental Pharmacology BD203
4. Oral Histology including Embryology BD204
5. Pre-clinical Conservative Dentistry BD205
6. Pre-clinical removable Prosthodontics BD206
7. Pre-clinical fixed Prosthodontics. BD207

III B.D.S

1. General Medicine. BD301
2. General Surgery. BD302
3. Oral Pathology. BD303
4. Orthodontics. BD401
5. Oral diagnosis and radiology BD402
6. Periodontics. BD404
7. Oral and Maxillofacial surgery. BD405
8. Removable prosthodontics. BD406
9. Fixed prosthodontics. BD407
10. Conservative dentistry and endodontics. BD408

11. Preventive and Community dentistry. BD409
12. History of Libya BD304

IV B.D.S.

1. Orthodontics. BD401
2. Oral Medicine, diagnosis and Radiology. BD402
3. Pedodontics. BD403
4. Periodontics. BD404
5. Oral & Maxillofacial Surgery. BD405
6. Removable Prosthodontics BD406
7. Fixed prosthodontics. BD407
8. Conservative Dentistry and Endodontics. BD408
9. Preventive and community Dentistry. BD409

Program courses(Teaching Hours):

PRE-PROFESSIONAL STAGE

Pre-dental year **36 weeks of studying period**

Cours title	*Lectures Hours/week*	*Practical Hours/week*	*Total Hours*
Chemistry	4	2	216
Zoology	2	2	144
Botany	2	2	144
Computer science	2	2	144
Statistics	2	2	144
Physics	4	2	216
English Language	2	---	72

PRE-CLINICAL STAGE

First Dental Year **36 weeks of studying period**

Cours title	*Cours code*	*Lectures Hours/week*	*Practical Hours/week*	*Total Hours*
General Anatomy	BD101	4	4	288
General Histology	BD102	2	2	144
Physiology	BD103	4	2	216
Biochemistry	BD104	4	2	216
Dental materials	BD105	3	2	180
Dental Anatomy	BD106	2	3	180
History of science	BD107	2		72

Second Dental Year **36 weeks of studying period**

Cours title	*Cours code*	*Lectures Hours/week*	*Practical Hours/week*	*Total Hours*
General pathology	BD201	2	2	144
Microbiology	BD202	2	2	144
Pharmacology	BD203	2	2	144
Oral Histology	BD204	2	4	216
Conservative Dentistry	BD205	3	4	252
Removable Prosthodontics	BD206	2	4	216
Fixed prosthodontics	BD207	2	4	216

THE CLINICAL STAGE

Third Dental Year **36 weeks of studying period**

Cours title	***Cours code***	***Lectures Hours/week***	***clinical Hours/week***	***Total Hours***
General Medicine	BD301	2	2	144
General Surgery	BD302	2	2	144
Oral Pathology	BD303	4	2	216
History of Libya	BD304	2	-	72
Orthodontics	BD401	1	2	108
Oral Medicine , Oral diagnosis, Radiology	BD402	1	4	252
Periodontics	BD404	1	4	252
Oral &Maxillofacial Surgery	BD405	1	4	252
Removable Prosthodontics	BD406	1	4	252
Fixed Prosthodontics	BD407	1	4	252
Conservative Dentistry & Endodontics	BD408	1	4	252
Preventive & Community Dentistry	BD409	1	2	108

Fourth Dental Year **36 weeks of studying period**

Cours title	***Cours code***	***Lectures Hours/week***	***clinical Hours/week***	***Total Hours***
Orthodontics	BD401	1	2	108
Oral Medicine ,Oral diagnosis, Radiology	BD402	1	4	252
Pedodontics	BD403	1	4	252
Periodontics	BD404	1	4	252
Oral &Maxillofacial Surgery	BD405	1	4	252
Removable Prosthodontics	BD406	1	4	252
Fixed Prosthodontics	BD407	1	4	252
Conservative Dentistry & Endodontics	BD408	1	4	252
Preventive & Community Dentistry	BD409	1	2	108

Internship Year **44** **weeks period**

Cours title	Duration	Clinical Hours/day
Oral &Maxillofacial Surgery	Two months	6
Oral Medicine ,Oral diagnosis, Radiology	Two months	6
Conservative Dentistry & Endodontics	Two months	6
Orthodontics & pedodontics	One months	6
Fixed Prosthodontics	One months	6
Removable Prosthodontics	One months	6
periodontics	Two months	6

Selective Department	One months	6

Regulations relating to B.D.S Course

I. Duration of the Course:

Five academic years (+ one preparatory year in the faculty of sciences) including compulsory rotatory internship in the final year.

II. Attendance requirement, Progress and Conduct:

75% in lectures and Practicals/Clinicals in each subject in each year.

III. Schedule of Examination

The University shall conduct two examinations annually, a first and a resit examinations. A candidate who satisfies the requirement of attendance, progress, and conduct as stipulated by the university shall be eligible to appear in the final examination.

IV. 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 and IV B.D.S. examination at the end of fourth academic year followed by one year of rotatory internship.

V. Internal Assessment

The internal assessment need not be limited to written tests. It also relates to other requisites such as maintenance of records, participation in seminars, projects, assignments and group discussions as well as proficiency in carrying out practical or clinical skills.

A minimum of two internal assessments will be held in an academic year, along with Continuous assessment (evaluation) of the student which is done throughout the year.

VI. Criteria for Pass in University examination:

For declaration of pass in a subject, a candidate should secure 60% marks in the University examination both in Written and Practical/Clinical examinations separately, as stipulated below:

a. For pass in Written, a candidate should secure 60% marks in aggregate in University written examination i.e. marks obtained in University written examination, viva voce examination and internal assessment combined together.

b. In the University Practical/clinical examination, a candidate should secure minimum of 60% Marks.

c. Above 85%-Excellent, 75%-85%- Very Good, 65%-75%-Good and above 60% it is acceptable, below 60%- Fail.

VII: Prerequisite: The candidate should pass the subjects of the previous year to get promoted to the next academic year.

VII: Extra-curricular activities:

- There will be school oral health education programs by the students and interns in the schools in and around Sebha.
- Sports is conducted amongst the faculty every year.
- Dental Faculty will organize a dental exhibition each year to create awareness of dental health among the public.
- Dental Faculty strives for the overall development of the student.

Regular periodic assessment will be done throughout the course. Examinations be designed with a view to assess not merely the knowledge but also practical and clinical skills, attitudes and values which are necessary for a graduate to carry out professional functions, activities and tasks competently and confidently.

TEACHING STAFF DETAILS

1. Dr **Khaled Awidat Abdalla Salem** , dean of faculty, MDS, specialty in orthodontics Associate prof, Oral biology and orthodontics
2. Dr **Alshame Mohamed Jomah Alshame**, vice dean, MDS, Lecturer, Oral surgery and implantology
3. Dr **Aesa Alzaroug Jaber** PhD Assistant prof Oral surgery
4. Dr **Sumangali Ananad** (INDIAN) , MDS, Assistant prof , conservative dentistry
5. Dr **Abdulgader.E .Abdulhadi Grain,** MDS , Lecturer, prosthodontics(Dental Materials)
6. Dr **Shoaib Yousef albahbah ,** MDS , Lecturer, Fixed prosthodontics
7. Dr **Wisal Mohamed Abdelmajid Alhodiry** , MDS , Assistant Lecturer, Removable prosthodontics
8. Dr **Khalid Mohamed Albaser M. Gondi** , MDS , Assistant Lecturer,(Oral medicine, Periodontology, Oral Diagnosis and Radiology).
9. Dr **WenisaSuliman Mohammed Arrish** , MDS , Assistant Lecturer, Preventive and community dentistry
10. Dr **Halema Hamza Almorabet** , MDS , Assistant Lecturer, Oral pathology
11. Dr **Naima Farag Mohammed Elbreki** , MDS , Assistant Lecturer , (Oral medicine, Periodontology, Oral Diagnosis and Radiology).
12. Dr **Zeinab masaud mohammed altowati** , MDS, Assistant Lecturer , Orthodontic
13. Dr **Sherifa Hamed Omar Ali Jaeidah** , MDS .Assistant Lecturer, Oral and maxillofacial surgery
14. Dr **Ruqiya Hamed Abdesalam** , MDS ,Assistant Lecturer, Oral pathology
15. Dr **Atef Omar Abosalah Eissa** , MDS, Assistant Lecturer , Orthodontic
16. Dr **Abdulsalam Emhmmed Elhaj** , MDS, Assistant Lecturer, Oral surgery and implantology

PR-PROFESSIONAL YEAR

Biology

I. CYTOLOGY AND HISTOLOGY:

1. Introduction to Biological Sciences:
- Manifestation of life.

2. Cell Structure and Function:
- Ultrastructure of cell.
- Cell organelles (ultrastructure and function).

3. Tissue Classification (Structure and Function)
- Epithelial tissue -- Connective tissue.
- Muscular tissue -- Nervous tissue.

II. PHYSIOLOGY

1.Membrane transport.
- Membrane permeability.
- Simple diffusion and facilitated diffusion.
- Active transport (primary and secondary)
- Exchange of large particles across plasma membrane.
- Osmosis.

2. Nerve and muscle.
- Nerve cell, structure and function.
- Muscle type and structure.
- Neuromuscular junction and blood clotting.

3. Blood cells, Immunity and blood clotting.
- Blood cell: definition, normal count and function.
- Immunity: definition, types, development of immune system and
- Immune mechanism.
- Blood cloning: clotting factors and mechanism of blood coagulation.

a. Heart and circulation
- Organization of circulatory system, roles of arteries, capillaries and veins.
- Structure and function of heart, auto rhythimicity, cardiac innervation and cardiac output.
- Blood pressure and its regulation-regulation of local blood flow by metabolic and products.

b. Respiration

- Mechanism of breathing.
- Transport of oxygen and carbon dioxide.
- Control of breathing.

c. Nutrition and digestion

- Essential components of food and their general functions, caloric requirement and balance diet.
- Secretions of gastro-intestinal tract.
- Digestion and absorption of nutrients.

d. Food as fuel

- Coenzymes.
- Breakdown of glucose.

e. Energy and living cells:

- Chief energy sources; ATP and Phosphocreatine.
- Aerobic versus anaerobic metabolism.
- Biological oxidation and control of energy release in the cell.
- Photosynthesis and respiration.

f. Body fluids and kidney:

- Body fluid-volume and Id composition.
- Structure of a nephron and mechanism of urine formation.
- Kidney functions including body fluid regulation.

10. Endocrines:

- Hormones-type and mode of action.
- Sources and functions of some important hormones.
- Reproduction.

11. Nervous System:

- Organization of nervous system for transfer of information.
- Parts of nervous system brain and main functions of different parts.
- Spinal cord and reflex action.
- Autonomic nervous system.

12. Special senses:

- Eye: parts, visual receptors and image formation.
- Ear: external, middle and internal ear, functions and basic mechanism of hearing.

III. EMBRYOLOGY:

- Male and female genital system.
- Fertilization.
- Cleavage.
- Early embryogenesis, blastulation, gastrulation and neurulation.
- Fetal period.

IV. GENETICS:

1. **Information, coding and transfer:**
   - DNA structure and replication.
   - Structure of chromosomes.

2. **Protein synthesis:**
   - RNA.
   - Transfer RNA.
   - Genetic code
   - Ribosomal RNA.
   - Transcription of DNA to RNA.
   - Protein synthesis.
3. **Cell reproduction:**
   - Chromosome.
   - Cell cycle.
   - Cell division (Mitosis and Meiosis).
   - Garnetogenesis
4. **Cell reproduction**
   - Mendelian methods.
   - Test cross.
   - Gene pairs.
   - Mutations.
   - Mendelian laws (1 and2).
   - Lethaland multiple alleles.
   - Crossing over.

Chemistry

Part One

1. **Chemical elements and atomic structure:**
   - Matter and elements.
   - Atomic structure.
   - Isotope, isobars and atomic weight.
   - Ions.
   - Electrolytes.
   - Free radicals.
2. **Molecules,compounds,and chemical bonds:**
   - Molecules and compound.
   - Chemical formula.
   - Molecular weight.
   - Chemical bonds.
     a- Ionic bond.
     b- Covalent bond.
     c- Hydrogen bond.
     d- Coordinate bond.

3. **Chemical Equation.**
4. **Mixture**.
5. **Soultion, colloids and suspension**
   - Solution
   - Colloids.
   - Suspension.

6. **Measurement of concentration:**
   - Weight per volume.
   - Percentages.
   - Molarity.
   - Electrolyte concentration.
   - Molarity, mole fraction and normality.
7. **Acid, base and pH:**
   - Acid and base.
   - PH.
   - Hydrolysis.

Part Two

1. **Gaseous state:**
   - Boyle's law.
   - Charle's law.
   - Avogadro's law.
   - Dalton's law.
   - The universal gas law.
   - The kinetic theory of gases.
   - Gas equations for ideal non-ideal gases.
2. **Thermochemistry:**
   - Energy change in chemical reactions.
   - Enthalpy.
   - Standard enthalpies for formation of reaction.
   - Hess's law.
3. **Chemical thermodynamics:**
   - The first law of thermodynamics.
   - Entropy and second law of thermodynamics.
   - Gibbs free energy.
   - Thermodynamic and metabolism.
4. **Chemical equilibrium:**
   - The concepts of equilibrium.
   - Equilibrium constant.
   - Homogenous and heterogeneous equilibrium and multiple equilibrium.
   - Factors affecting chemical equilibrium "Le-Chateliers principle".
5. **Chemical kinetics:**
   - The rate of reactions.
   - The rate laws.
   - First-order reaction.

- Second-order reaction.
- Arrhenius equation.

Part Three

1. Difference between organic and inorganic compounds.
2. Hybridized orbitals.
3. Classes of organic compounds.
4. Saturated hydrocarbons.
5. Unsaturated hydrocarbons.
6. Aromatic compounds.
7. Alcohols, ethers, ketones, aldehydes, carboxylic acid, esters, amines, thio- alcohols and phenols.

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English

The aim of the course is to enhance proficiency in English particularly the type of English generally preferred in their specialist subjects, i.e. General Medicine, Dentistry, Pharmacy and Public Health.

I. Language Components:

A. Grammar:

(General revision of the grammatical items studied previously)

(Grammar in medical discourse)

B. Vocabulary:

1. Structure and analysis (parts of speech, affixation).
2. Medical and scientific terminology.

II. Language Skills:

A. Reading:

- Introducing reading skills such as defining, classifying, describing (structure) and cause and effect (process).
  Using authentic texts from different sources.

B. Techniques:

- Skimming, scanning, anaphoric reference and comprehension.
  For Comprehension:
- Making inferences, drawing conclusions, checking facts and giving reasons.
- Transfer of information (text table, diagram, etc.).
- Guessing vocabulary form context using contextual clues.

C. Writing:

- Writing at both the sentence level and paragraph level on topics of general medicine utilizing the theoretical skills introduced in the course.
- Paragraph structure.
- Topic sentence, supporting sentences and concluding sentence.

D. Listening and Speaking:

1. Listening to extract main points.
2. Introducing social language related to medical discourse.
3. Class discussion to topics related to medical profession.

Statistics

Course Objectives:

The objective of this course is to provide medical sciences students with the knowledge and understanding of the methods of statistical analysis, applicable to medical and biological research. The course emphasizes concepts and applications of statistical thinking. Basic probability theory, estimation, testing hypothesis, ANOVA, preparing for the methods of statistical data analysis, along with other quantitative methods and models will be introduced. The course depleted into two parts:

Part I

Introduction: Basic concepts of statistics, the bases of biostatistics, quantitative and qualitative data, Variables, computers and biostatistical analysis.

The Nature of Data: The scale of measurement, nominal, ordinal, interval and ratio scale data.

Summarizing and representing data: Listing numerical data, tabular presentation (frequency tables, frequency distributions and categorical distributions). Graphical presentation (bar charts, histogram, frequency polygon, Ogive and pie chart).

Measures of Central Tendency: Arithmetic mean, median, mode and weighted mean, relation between mean, median and mode, quintiles and percentiles.

Measures of Dispersion: Range, mean deviation, variance, standard deviation and coefficient of variation.

Probability: Rules of probability, objective and subjective, set theory and set notation, counting techniques (combination and permutation), calculating the probability of an event,

Probability distributions: discreet and continuous random variables, binomial, Poisson and normal distributions.

Part II

Population and samples: Concepts of sampling and census, methods of drawing sample, Simple random sampling(SRS), estimation of parameters and their standard errors in case of sampling, sampling distribution and their properties.

Estimation: Point estimation and interval estimation, confidence interval.

Test of Hypothesis: Test of hypothesis about parameters of single and two populations.

Association of attributes, contingency tables, test of independence, Test of Goodness of fit.

Analysis of Variance (ANOVA): One-way and two-way classifications.

Physics

I. Mechanics:

1. Vectors: equilibrium and moment of force (Biomechanics).
2. Kinematics: one dimension, two dimensions, motion on a curve.
3. Circular motion: rolling, simple harmonic motion.
4. Dynamics: Newton's second Law, centripetal, and centrifugal acceleration.
5. Work, energy and power : conservation of energy, conservative forces; work in P-V system, applications; power, units of power, an deficiency.
6. Conservation of linear momentum: impulse, collision, moment of momentum, angular momentum, and conservation law.

II. Properties of matter:

1. Hydrostatics: Units of pressure, gauge pressure, absolute pressure, pressure inside fluid, Pascal principle, Pressure gauge, Buoyancy.
2. Surface tension: Coefficient of surface tension, Liquid drops, bubbles, membranes, cylindrical and spherical membranes.
3. Elasticity: Elastic and inelastic materials, biological material, stress, strain, Hooke's law, Shearing and twisting; Bulk modulus, compressibility, Stress and strain in biological systems, Energy in distortion, elastic constant, elastic membranes, Blood vessels, the Heart and circulatory system.
4. Hydrodynamics: Laminar and turbulent flow, continuity equation, ideal fluid, Bernoulli equation, applications, abnormal blood vessels(stenosis, flutter), nonideal fluids, work done by heart in one beat, viscosity, Poiseuill's Law, flow resistance, vascular beds, sedimentation and centrifugation.

III. Optics:

Wave theory of light, reflection and refraction at spherical surfaces, lenses the optical instrument, the eye; colour blindness, myopia, hyperopia, astigmatism, and glaucoma, microscopes; electron microscope, laser and its application in medicine, spectrophotometry, interference, diffraction, and polarization.

IV. Sound andHeat:

Sound wave, velocity of waves in elastic media, acoustic, impedance, intensity and intensity level, damping, resonance, standing waves, Doppler effect, and ultrasound, the ear and hearing, heat and first law of thermodynamic, heat transfer and thermal properties of gases.

V. Modern Physics:

Atomic structure, X-ray production and abso absorption (photoelectric effect, Compton effect), the nature of radioactive emissions, radioactive decay, isotopes application, dosimeters,

radiation detectors, biological effect of radiation, radiation hazards.

PRE-CLINICAL STAGE

First Dental Year

General Anatomy

The course is designed for undergraduate student. It is concerned with the study of normal structure of the human body with special emphasis on the clinically important points. The development background is presented to give students ability to understand and explain the different congenital anomalies.

Course Objectives:

- Providing the students with knowledge concerning the normal structure of the human body at the level of the anatomical regions and organs.
-The study of the normal growth and development relevant to anatomical topics.
To correlate anatomical facts with their clinical applications
- Describe the surface landmarks of the underlying bones, muscles and tendons, and internal structures (main nerves, vessels and viscera).
- Describe the basic anatomical principles of the structure and relations of the different anatomical regions, organs and systems of the human body.
- Explain the different stages of human development, evolution and growth.
Outline major clinical applications of anatomical facts.
- Interpret the normal anatomical structures on radiographs and ultrasonography.

Practical Objectives:

By the end of the course, student should be able to:

Identify the different surface markings of internal structures and organs on the living subject.
Identify the different internal structures in cadavers and preserved specimens.
Apply the anatomical facts while examining the living subject in order to reach a proper diagnosis.

GENERAL ANATOMY: Definition of Anatomy, history of Anatomy and the importance of Anatomy.

I. Level of organization.
II. Methods to study Anatomy.

III. Anatomical positions.

IV. Basic anatomical concepts:

1. Body planes: Median, sagittal, paramedian, coronal and transverse.
2. Descriptive anatomical terms:
   a. Terms related to positions.
   b. Terms related to movements.

V. Basic anatomical structures:

1. **Skin:** skin types, skin functions, skin appendages (nail, hairs, hair follicles, sebaceous glands, sweat glands), skin lines and skin creases.
2. **Fasciae:** types, functions.
3. **Muscles:** types; skeletal, smooth and cardiac muscles.
   - Skeletal muscles:
     a. Parts.
     b. Morphological classification.
     c. Classification according to their actions.
     d. Nerve supply.
     e. Motor unit, motor fibres.
     f. Muscle and tendon spindles.
     g. Simple reflex arc.
   - Smooth muscles.
   - Cardiac muscles.
4. **Bones:** types, classification, functions.
5. **Cartilage:** types, examples for each type.
6. **Joints:** Definition, types, stabilizing factors
   a. Synovial joints: structure, types and movements.
   b. Solid joints: types and examples.
7. **Ligaments:** types, examples for each type.
8. **Blood vessels:** Arteries, veins, capillaries.
9. **Lymphatic tissue:** lymph node, spleen,…
10. **Synovial sheaths, bursa.**
11. **Mucous membranes, serous membranes.**
12. **Nervous tissue and nervous system.**
    a. Definition.
    b. Structure.
    c. Anatomical classification.
    d. Physiological classification.
    e. Brain: cerebrum, diencephalon, brain stem.
    f. Spinal cord.
    g. Cranial nerves.
    h. Spinal nerves.
    i. Plexuses: somatic and visceral plexuses.
    j. Dermatomes, myotomes.
13. **Autonomic nervous system:** sympathetic and parasympathetic.

HEAD AND NECK

1. **Bones:** skull, mandible and cervical vertebrae**.**
2. **The head:**
   a. Scalp: layers, nerve supply, arterial supply, venous drainage and lymphatic drainage.
   b. Face: muscles (buccinators, orbicularis occuli, orbicularis oris), nerve supply, arterial supply, venous drainage and lymphatic drainage.
   c. Temporal and infratemporal fossa:boundaries, muscles of mastication, mandibular nerve, maxillary artery, pterygoid plexus of veins, optic ganglion and spheno-palatine ganglion.
   d. Parotid gland.
   e. Cranial cavity: meninges, dural venous sinuses and pituitary gland.
   f. Orbit: eye lid, lacrimal apparatus, extra-occular muscles, nerves and vessels of the orbit, ciliary ganglion and orbital fascia.
3. **The neck:**
   a. Fascia (superficial and deep).
   b. Triangles of the neck (divisions), sternomastoid muscle.
   c. Posterior triangle (boundaries and contents) and suboccipital triangle (boundaries and contents).
   d. Submandibular region (submandibular gland, digastric muscle, mylohyoid muscle, hyoglossus muscle, geniohyoid muscle, lingual nerve, hypoglossal nerve, submandibular ganglion and sublingual gland).
   e. Muscular triangle: infrahyoid muscles and ansa cervicalis.
   f. Thyroid gland and parathyroid glands.
   g. Scalene muscles.
   h. Big arteries in the neck: subclavian and carotid system (common carotid, external carotid and internal carotid).
   i. Veins in the neck: subclavian, internal jugular and external jugular veins.
   j. Nerves in the neck: cranial nerves, cervical plexus and cervical sympathetic chain.
   k. Nasal cavity (walls, nerve supply, blood supply and lymphatic drainage) and paranasal sinuses (names and drainage).
   l. Oral cavity: teeth, tongue and palate (soft and hard).
   m. Pharynx: walls, muscles, cavity, nerve supply, blood supply and lymphatic drainage.
   n. Larynx: structure, cavity, nerve supply, blood supply and lymphatic drainage.
   o. Cervical part of trachea and oesophagus.
   p. Ear: external, middle and inner.
   q. Joints: temporo-mandibular, atlanto-axial and atlanto-occipital joints.
   r. Lymphatics of the head and neck.

Embryology:

a. Gametogenesis - spermatogenesis and oogenesis, fertilisation 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, tongue, palate, nasal cavity, paranasal air sinuses,

salivary glands, thyroid gland, hypophysis cerebri, temporo-mandibular joint.

Neuroanatomy:

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.

Practical :

- Introduction-Anatomical position, planes,interpretation of

anatomical terms,elements of anatomy including fascia,

muscles, blood vessels, nerves, joints and lymph vessels

-Osteology of head and neck:

Skull-exterior, norma and vault, interior-cranial fossae, individual bones- mandible, maxilla, frontal, parietal, occipital, temporal, cervical vertebra

-Surface anatomy

BOOKS RECOMMENDED

1. GRAY'S ANATOMY to be used as a reference book

2. CUNINGHAM'S MANUAL OF PRACTICAL ANATOMY

HISTOLOGY

Course Objectives:

- Providing the students with knowledge concerning the basic histological structure and ultrastructure of the cell with correlation to biological cellular activities, and basis of cytogenetic.
- Teaching the students the normal histological structure of different tissues of human body in addition to some of its systems, and how to identify them under the microscope, with functional and clinical correlation whenever possible.
- To enable students to know the histological structure of various organs and systems of the body and to correlate between the structure and function with relevant clinical notes whenever possible.

Practical Objectives:

By the end of this course, students should be able to:

- Name the instruments and techniques used to prepare and study histological specimens.
- Use the microscope efficiently.
- Recognize different cellular and intracellular components in electron photomicrographs.
- Recognize and differentiate between types of cells and tissues in histological slides.
- Recognize and differentiate between different organs in histological slides seen under the microscope.

- Identify the structural features and different tissue elements of each organ under the microscope.
- Know the basic steps in preparing specimens for light and electron microscopy.
- Understand the basis of cytogenetic and chromosomal aberrations.
- Know the structural characteristics of the four basic tissue types.
- Describe the normal histological structure of various body systems.
- Know the distinguishing structural features of organs, regions and cell types present in each system and relate the structural variations to differences in organ function.
- Correlate between histological structure and function of different organs of all studied systems.
- Understand the relation between the endocrine system and other systems, especially the male and female reproductive systems.
- Have an integrated knowledge regarding histological structure, anatomy and physiology.

I. Microtechniques:

- Methods of studying living cells and tissues.
- Preparation of tissues for microscopic examination.
- Chemical basis of staining.
- Radio autography and cell fractionation techniques.
- Histochemistry and cytochemistry.
- Problems in interpretation of tissue sections.
- Microscopy and types of microscopes.

Practical:

- Light microscope;
- Parts.
- Handling.
- Care.
- Demonstration of;
- Paraffin embedding.
- Section cutting & staining.
- Staining of teased material.
- Appearance of diff. structures in diff. sectional plane.

II. The Cell:

- Cell structure and function.
- Cell organelles and inclusions.
- Nucleus structure and function.
- The cytoskeleton.
- Cell inclusions.
- Nucleus.
- Mitosis & cell cycle.
- Meiosis.

Practical:

- Light microscopic demonstration of;
- Microvilli.
- Cilia.
- RER & SER.

- Inclusions.
- Electron photomicrographs.

III. Cytogenetics:

- Cell cycle.
- Cell divisions and their anomalies.
- Chromosomes and their structural and numerical anomalies.

IV. Epithelial Tissues:

- General characteristics.
- Specializations of cell surfaces.
- Basement membrane and basal lamina.
- Classification of Epithelia.
- Glandular epithelium.
- Types of covering epithelium.
- Surface modification:
- Microvilli, Cilia, Stereocilia and Flagella.
- Cell functions.
- Ultrastructure & function of main types of epithelial cells.

Practical:

- Simple epithelia.
- Stratified epithelia.
- Glandular epithelia.

V. Connective Tissues:

- Components of the connective tissue.
- Classification of connective tissues: embryonic, proper, and specialized
- Connective tissues.
- Adipose tissues; unilocular and multilocular.
- Fibres.
- Inflammatory cells.

Practical:

- Tendon.
- Ligamentum nuchae.
- Reticular conn. Tissue (in spleen, lymph node, Kidney, Liver).
- Loose areolar connective tissue, mucoid connective tissue.

VI. Cartilage:

- Cells.
- Ground substance.
- Types of cartilage; hyaline, elastic, fibrocartilage.
- Intervertebral disks.

Practical:

- Hyaline cartilage e.g. trachea & costal cart..
- Elastic cartilage in ear pinna.
- Fibrocartilage, intervertebral disc.

VII. Bone:

- Bone Cells.
- Matrix.
- Periosteum and endosteum.
- Types of bone: compact & spongy bone.
- Growth and remodelling of the bone.
- Fracture repair.
- Joints.
- Ossification: intracartilagenous, intramembranous.

Practical:

- Compact bone.
- Spongy bone.
- Growing bone.

VIII. Blood:

- General, cells, plasma common stain used.
- Erythrocytes.
- Granulocytes.
- Agranulocytes & platelets.
- Bone marrow & erythropoiesis.
- Leukopoiesis & thrombopoiesis.

Practical:

- Making blood film.
- Differential leucocytes Count.
- Bone marrow.
- Haemocytometry (RBCs & WBCs count).

IX. Muscular Tissues:

- Types of muscular tissue.
- Ultrastructure of muscle fibres in relation function.
- Neuromuscular junction.
- Regeneration muscular tissue.
- Cardiac muscle.

Practical:

- Skeletal muscle (LS & TS).
- Motor end plate.
- Smooth muscle (GIT).
- Cardiac muscle moderator band.

X. Nervous Tissue:

- Neurons: types, structure, and function.
- Synapses.
- Neuroglial cells & mylination.
- Central nervous system: cerebrum, cerebellum, and spinal cord.
- Meninges, Choroid Plexus, Cerebrospinal Fluid.
- Peripheral nervous system: nerve fibres, ganglia, and autonomic nervous system.
- Degeneration and regeneration of the nervous tissue.

- Autonomic nervous system and ganglia.
- Spinal cord.
- Cerebrum, cerebellum, meninges & choroid plexus.

Practical:

- Types of neurons.
- Neuralgia.
- Section of sp. Cord cerebellum.

XI. Cardiovascular System:

- General structure of blood vessels.
- Types of blood vessels; arteries, veins, and capillaries.
- Microcirculation.
- Lymphatic vessels.
- Heart structure and autonomic conducting system.

Practical:

- Elastic artery.
- Muscular artery.
- Arterioles & venules.
- Medium sized vein.
- Large vein.
- Capillaries.
- Umbilical & Coronary veins.

XII. Lymphatic System:

- Lymphoid Tissue.
- Thymus.
- Lymph Nodes.
- Spleen.
- Tonsils.
- Reticuloendothelial system.
- Immune system, develop, overview, types of immune.

Practical:

- Thymus.
- Lymph node.
- Spleen.
- Tonsils.

XIII. Skin:

- Skin structure.
- Types of skin.
- Hair.
- Nail.
- Glands.
- Melanocytes & melanin synthesis.
- Dermis &epidermis.

Practical:

- Thick skin.

- Thin skin.

I. Digestive System:

- Oral cavity.
- Teeth.
- Tongue.
- Pharynx.
- Esophagus.
- Stomach.
- Small Intestine.
- Large Intestine.

II. Digestive glands:

- Salivary Glands.
- Pancreas.
- Liver.
- Gall Bladder.

Practical:

- Lip.
- Lingual papillae.
- Tooth.
- Esophagus.
- Salivary and pancreatic glands.
- Liver and gall bladder.

III. Respiratory System:

- Nasal Cavity.
- Paranasal Sinuses.
- Nasopharynx.
- Larynx.
- Trachea.
- Bronchial Tree.
- Alveoli.
- Pleura.

Practical:

- Epiglottis.
- Trachea.
- Intrapulmonary bronchus.
- Lung.

IV. Urinary System:

- Kidneys: structure and ultrastructure.
- Bladder.
- Urinary Passages.

Practical:

- Kidney.
- Ureter.
- Urinary bladder.

V. Endocrine System:

- Pituitary gland.
- Adrenal glands.
- Thyroid gland.
- Parathyroid gland.
- Pineal gland.

Practical:

- Pituitary.
- Thyroid & parathyroid.
- Adrenal.
- Pineal.
- Islets of Langerhans.

VI. Sense Organs:

- Receptor of general sensibility.
- Chemoreceptors, taste, & olfaction.
- Eyeball, general development.
- Outer fibrous &middle vasecular coat.
- Retina.
- Refractive media, eyelid, lacrimal apparatus.
- Ear, external, and middle.
- Inner ear: Organ of corti, crista ampularis, macula.

IX. C.N.S. :

- Spinal cord, cervical, thoracic, lumbar and sacral levels.
- Medulla oblongata, sensory, motor, open.
- Pons, superior, middle and inferior levels.
- Mid brain.
- Cerebellum.
- Cerebrum.

HUMAN GENETIC:

- Introduction: Genetics and the Organism, the Structure of Genes and Genomes.
- Normal human chromosome, karyotype (Male, Female), classification and Cell division.
- Gene Function,the Transmission of DNA at Cell Division, inheritance of Single-Gene.
- Genetic Recombination in Eukaryotes, recombination in Bacteria and Viruses.
- Recombinant DNA and Genetic Engineering, Genomics, gene Mutation: repair Processes.
- Mutational Dissection, regulation of Gene Transcription from Gene to Phenotype.
- Regulation of Cell Number: normal and cancer Cells, the genetic basis of development.
- Cell division and gamietogenesis, modes of inheritance,single gene disorders.
- Chromosomal disorder1, 2, Polygenic inheritance, intersex, Inborn errors of metabolism.
- Prenatal diagnosis, genetic counselling, abnormal Karotybes, trisomies, transloe.

REFERENCES:

- Textbook of histology. By Don W. Fawcet.
- Histology; Text & Atlas; Ross et al.
- Wheater's Functional Histology; Text & Atlas.
- Concise Histology; Bloom & Fawcett.
- Atlas of Histology; Di Fiore.
- Text and colour Atlas by Wheater, Burkitt and Daniels.

PHYSIOLOGY

Course Objectives:

This course aims to enable students to:

- Acquire an appropriate functional background of cells, tissues, organs & systems.
- Integrate physiological data & mechanisms with the on-going basic sciences: Anatomy, histology & biochemistry and clinical applications.
- Explore in detail the functions of the autonomic, neuromuscular, respiratory and cardiovascular systems as well as their integration to achieve homeostasis.

Practical Objectives:

By the end of this course, students should be able to:

- Perform hematological tests; estimation of blood Hb, determination of the hematocrit value, the bleeding & clotting times and blood groups.
- Perform the most important respiratory function tests.
- Perform the measurement of the arterial blood pressure.
- Manipulate a stethoscope for hearing heart and respiratory sounds.
- Present physiological scientific data in a graphical form.

I. Introduction: Cell Physiology:

- The cell transport mechanism.
- Cell membrane: morphology of cell & transport of substances across the cell membrane.
- Forces affecting the transport.
- Body fluids: composition and compartments.
- Ionic channels.
- Homeostasis and internal environment, forces responsible for movement of substances between compartment, regulation of ECF volume.

II. Autonomic nervous system:

- Division of the autonomic nervous system.
- Autonomic ganglia.
- Sympathetic distribution all over the body.
- The adrenergic receptors, types and drugs acting on.
- Parasympathetic nervous system:
- Autonomic tones.
- Autonomic denervation.
- Blood the plasma proteins, types, separation, functions of plasma proteins.

III. Blood and immunity:

- Physical properties.
- Blood coagulation, Homeostasis, Mechanism of blood coagulation.
- Blood platelets.
- Anticoagulants.
- Bleeding and thrombotic disordered diseases.
- Red blood corpuscles.
- Functions of hemoglobin.
- Haemopoiesis & Factors affecting erythropoiesis.
- Haemolysis.
- Blood indices.
- Anemia.
- Hematocrit.
- Sedimentation rate.
- Blood transfusion.
- Blood groups & OAB system, blood typing, transfusion reaction, Rh blood groups, Rh immune response.
- Red blood cells: production of RBC, types and formation of haemoglobin, iron metabolism, reticule- endothelial, anaemia and jaundice, polycythemia.
- White blood cells: Types, site of formation, functions, physiological and pathological variations, leukaemia, leukopenia, leukocytosis.
- Functions of spleen.
- Immunity: immune response, humeral immunity, cellular immunity, types of acquired immunity.

IV. Nerves and Muscles:

A. Nerves:

- Structure, function and types of nerves.
- Degeneration & regeneration of nerves.
- Resting membrane potential.
- Types of stimuli.
- Action potential.
- Excitability: metabolic and thermal changes.
- Neuromuscular transmission, end-plate potential, drugs affecting on neuromuscular junction, Myasthenia gravis.
- Properties of mixed nerves.

B. Muscles:

- Structure and function of different types of muscle tissues, different between
- skeleton, smooth and cardiac muscle.
- Source energy for muscle contraction and role of calcium strength duration curve.
- Mechanism of muscle contraction.
- Electrical, excitability, metabolic, mechanical and thermal changes.
- Types and function of smooth muscle twitch and affecting factors.
- Summation of contraction, tetanus & clonus, isotonic and isometric contraction, muscle fatigue, tetanus twitch and clonus, muscular atrophy and hypertrophy, electromyography.
- Muscle circulation.

V. Cardiovascular system:

- Physiological anatomy.

A. The heart:

- Innervation of the heart.
- Normal and abnormal properties of the heart.
- Regulation of cardiac function: intrinsic auto-regulation of cardiac pumping.
- Cardiac cycle
- Ventricles and aorta jugular venous pressure heart sounds and their causes.
- Cardiac output and venous return
- Haemodynamic
- COP measurement and regulation.
- Heart rate and electrophysiology of cardiac muscle
- Cardiac reserve.
- Mechanical efficiency of the heart, origin and conduction of cardiac impulse.

B. Vascular system:

- Arterial and Arteriolar circulation,
- Arterial blood pressure and its regulation
- Capillary circulation
- Coronary circulation and ischemic heart disease
- Microcirculation and its regulation
- Vasomotor centre
- Venous circulation, venous pressure, venous pump cardiac catheterization, central venous pressure.
- Pulmonary circulation
- Cerebral circulation, measurement and control of blood flow.
- Lymphatic circulation and function of lymphatic system.
- Cardio vascular changes in health and disease:
  1. Effects of muscular exercise
  2. Hypertension, hemorrhage & shock
  3. Heart failure.
  4. Ischemic heart disease

VI. Respiration

- Physiological anatomy of the respiratory system
- Definition, structure, units, symbols, laws, measurement of gas volumes & concentrations.
- Intrapleural pressure, lung volume, static lung compliance, chest wall compliance, total thoracic compliance.
- Types of airflow, airway resistance, work of breathing.
- Blood flow in lungs, regional distribution of blood flow, control pulmonary blood flow.
- Respiratory cells.
- Types of respiration.
- Respiratory cycle and mechanism of respiration.
- Surfactant, compliance.
- Lung volumes and capacities.
- Pulmonary function tests; static and dynamic.
- Exchange of gasses:
- Respiratory function of blood:
- Regulation of respiration:
- Metabolic functions of the lung.
- Effects of muscular exercise on respiration:

I. Central nervous system:

- Introduction, review of gross anatomy and functions of CNS, formation and composition of CSF, blood –brain barrier (BBB).
- Receptors.
- Somatic sensations:
    1. Mechanoreceptors senses
    2. Pathway of thermal sense.
- Pain sensation:
- Sensory disturbances.
- Synapse, definition, structure, types, transmission and potentials.
- Reflex action
- Stretch reflexes; pathway, types, properties and functions.
- neurons.
- Motor disturbances.
- Cerebellum.
- Basal ganglia.
- Thalamus.
- Motor functions of CNS
- Hypothalamus.
- Eletroencephalogram.
- The cerebral cortex.
- Postural relaxes and equilibrium.
- The brain stem.
- The spinal cord.

A. Special senses:

B. Vision:

- Introduction, physiological anatomy of the eye eyeball & accessory organs.
- Cornea.
- Sclera.
- Aqueous humour.
- Intraocular pressure, glucoma.
- Middle vascular layer.
- Pupillary light reflex
- Retina, optic nerve & lens
- Colour vision & visual fields
- Visual pathway & lesions.
- Neurophysiology of vision

C. Hearing:

- External, middle & inner ear.
- The sense of hearing
- The cochlea
- Mechanism of hearing.
- General auditory mechanism
- Abnormalities of hearing

D. Taste:

- Adoption, importance.
- Mechanism of taste sensation.
- Pathway of taste sensation, transmission of taste, signal into CNS.
- Disturbance of taste sensation.

E. Smell sensation:

- Importance of smell sensation.
- Olfactory mucosa, olfactory receptors, olfactory membrane, stimulation of olfactory cells.
- Olfactory pathway & transmission of smell into CNS.
- Sniffing.
- Disturbance of smell sensation.

II. Endocrinology:

A. Introduction: definition, types of hormone, chemistry, mechanism action of hormones.

B. Pituitary gland:

- The anterior pituitary gland (morphology, histology &chemistry).
- Hormones secreted by the anterior part of pituitary gland.
- Regulation of secretion, their action and their sources.
- Growth hormone; effects, actions, & regulation.
- Disturbance of anterior pituitary secretion (disorders of growth hormone secretion).
- The posterior pituitary gland (morphology, histology & chemistry), mechanism of action and control of secretion.
- Oxytocin hormone.
- Vasopressin hormone.
- Diabetes insipidus.

C. **Thyroid gland:**
   - Morphology, histology &chemistry.
   - Thyroid Hormones, biosynthesis & secretion transport and metabolism of the hormones.
   - Actions & regulation of secretion.
   - Goiter.
   - Disease of thyroid gland & antithyroid drug.

D. **Parathyroid gland:**
   - Morphology, histology &chemistry.
   - Parathyroid hormone; action, effect, source & regulation.
   - Diseases of parathyroid.
   - Hormones controlling blood calcium, phosphorus level.
   - Thyrocalcitonin hormone; effects & regulation.

E. **Pancreas:**
   - The endocrine function of pancreas; secretion, actions, source& regulation.
   - Insulin; secretion, actions, & regulation.
   - Somatostatin.
   - Diabetes mellitus.

F. **Adrenal gland:**
   - Morphology, histology &chemistry.
   - The mineralocorticoids hormones; action & regulation.
   - The ghucocorticoids hormones; action & regulation.
   - The sex hormones.
   - Disorders of suprarenal cortex.

G. **Pineal gland.**

III. <u>Digestion</u>:

- Introduction: function anatomy & regulation of gastrointestinal functions.
- Mouth & esophagus: salivary secretion, composition and function of saliva, mastication, deglutition and digestion.
- Stomach:
  1. Nerve supply and function, gastric gland, mechanism of gastric secretion, gastric juice, HCL secretion motility.
  2. Vomiting, types and mechanism consequences of vomiting.
- GIT mobility, types, functions and mechanism.
- Pancreas: pancreatic juice, control of pancreatic secretion, and function.
- Liver:
  1. Bile & gallbladder, functions, bile secretion, bile salts &pigments, cholertics & cholagous.
  2. Jaundice, bile pigments, jaundice cholecystography.
  3. The liver functions, Composition of bile salts and their functions, enterohepatic circulation of bile salts and bile acid.
- Small & large intestine:
  1. Intestinal secretions & motility.
  2. Defecation, constipation, & diarrhea.
- Absorption in GIT

- GIT hormones and their functions.

IV. Kidney and acid-base balance:

- General function of kidney & nephron renal blood flow.
- The renal glomeruli, glomerular filtration rate
- Renal conservative of sodium
- The renal tubules:
  1. Functions
  2. Tubular reabsorption
  3. Mechanism of formation of concentrated and diluted urine
- Dieresis and diuretic drugs
- Acid- base balance:
  1. Acids and bases: definition and meanings.
  2. The function of acid-base buffers
  3. Regulation of acid-base balance.
  4. Acidosis & alkalosis.
- Renal failure.
- Renal dialysis
- Body fluids; water balance, dehydration, hydration & eodema.

Practise:

-Study of Microscope and its uses

-Collection of blood and study of haemocytometer

-Haemoglobinometry

-Determination of RBC count

-Determination of WBC count

-Determination of blood groups

-Calculation of blood indices

-Determination of bleeding time

-Determination of clotting time

-Blood pressure recording

-Auscultation of Heart sounds

REFERENCES:

- Review of Medical Physiology; Ganongn.
- Medical Physiology; Guyton & Hall.
- Medical Physiology; Best & Tailor.

BIOCHEMISTRY

Course Objectives:

This course aims to enable students to:

- Understand the basic chemistry of carbohydrates, lipids, and proteins.
- Become familiar with structure, classification, function and mode of action of various chemical compounds in the living cell.
- Understand the structure of biochemical membranes.
- Understand the structure, classification, and function of the nucleic acids (DNA&RNA).
- Know the structure of vitamins, enzymes, body fluids, and minerals.
- Define the metabolic pathways of carbohydrates, lipids, proteins, nucleotides and their micro-molecules and determine the site of each.
- Point out the functions of hormones and minerals, their biochemical, clinical and laboratory importance and deficiency manifestations.
- Understanding the role of antioxidants in prevention and treatment of chronic diseases.
- Interpret symptoms, signs and biochemical laboratory findings of some metabolic disorders.
- Point out the clinical significance of determination of plasma levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid.

Practical Objectives:

- Identify the physical and chemical characters of normal urine under different physiological conditions.
- Perform chemical tests to detect abnormal constituents of urine.
- Estimate serum levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid by colorimetric methods.
- Assess glucose tolerance by glucose tolerance test.
- Become familiar with the structure and types of carbohydrates, lipids, proteins

I. Introduction:

the biochemical characteristics of living matter. The scope of medical biochemistry.

II. Enzymes:

1. Defintion, classification, localization of enzymes, isolation and purification of enzymes.
2. Enzymes, cofactors and coenzymes.
3. Proenzymes and isoenzymes
4. Measurment of enzyme activity.
5. Specificity, enzmes as catalysts.
6. Mechanism of enzyme action, key and lock theory, induced fit theory (koshland) the catalytic step

7. Elementry principles of enzyme kinetics, enzyme inhibitors (irreversible, reversible uncompetitive and non-competitive), and regulation of enzyme activity (allosteric enzyme, covalent modification),Induction & repression Koshland and Monod models.

III. Amino acids and proteins:

1-definition, classification and chemical reactions.

2- amino acids composition, structure and biological function.

IV. Vitamins and coenzymes:

Definition of coenzymes

1. Coenzymes involved in major electron carrier in the oxidation reduction NAD, FMN, lipoic acid.
2. Coenzymes participating in group transfer reactions, TPP, PLP, FH, cobamide coenzyme, biotin, co-enzyme A, adenylic coenzymes ATP,UDP,FAPS,L-ascorbic acid.
3. Metallo enzymes.
4. Conversion of pyrovic acid to acetyl Co.A (as an example of involvement of coenzyme in multienzyme system).

V. Lipids (Chemistry and metabolism):

1.Definition, function and classification of lipids.

2. Structures, general properties, sources of the fatty acids.

VI. Nutrional biochemistry:

A. Mineral metabolism: metabolism of CA, NA, K, CL, sulpur + Mg.

B. Metabolism of trace elements like copper, zinc, iron, fluorine, iodine, and manganese.

VII. Cell membrane and ion transport:

A. The major chemical components of the cell membrane, structural organization, disorders of membranes.

B. Ion transport: differentiate among nonmediate (passive transport), passive mediated transport and active transport, how energy metabolism is coupled to ion transport in the cell. Na-K-ATPase. Transport of glucose and amino acid.role of antibiotics in ion transport.

VIII. Immunochemistry:

Introduction: the combining sites of the antibodies are like the active sites of the enzymes, classes of antibodies, light and heavy chains and biological activity.

IX. Proteins and amino acid metabolism:

.Essential amino and nonessential amino acids, glycogenic and ketogenic amino acids.

. Biochemistry of collagen and elastine: amino acids composition, structure and biological function.

II.Body fluids and acid-base balance:

A. Urine:
B. Blood:
C. Cerebrospinal fluid (CSF).
D. Acids.
E. Bases.
F. PH.
G. Buffers.

H. Acid-base balance.
I. Alkalosis and acidosis.

I. Nutritional biochemistry:

A. Basal metabolism, measurement of energy requirements, specific dynamic action, recommended daily allowance, nutritional aspects of proteins and amino acids, nutritional aspects of lipids and carbohydrates (nutritional disorders).

II. Biological role of nucleic acids (protein biosynthesis):

A. Storage of genetic information
B. Transmission of genetic information
C. . The transcription process and The translation process.
D. Phases of protein biosynthesis:
   1. Initiation.
   2. Elongation.
   3. Termination and release. Inhibitors of protein synthesis.

III. Hemoproteins, porphyrins and hemoglubin variants:

A. Chemistry: types and structures, physical and chemical properties of Hbs, myoglobin, catalase, peroxidases, and cytochromes.
B. Metabolism: biosynthesis of porphyrin ring system, catabolism of Hb and porphyrin, formation of bile pigments.
C. Hb. variants: normal Hb, adults newborns and embryonic Hb, the organization of human Hb genes. Abnormal Hb, mutations: e.g. Hb. S, Hb M, thalassemia.

IV. Biochemistry of hormones:

A. Steroid hormones
B. Parathyroid hormone
C. Thyroid hormone
D. Pituitary hormones
E. Cathecolamines

V. Carbohydrate chemistry and metabolism:

1.Definition , classification and chemical reactions.

2. Digestion and absorption of carbohydrates: enzymes, active transport mechanism, fate of absorbed sugars. 3.Intermediary metabolism: survey on major pathways.

4. Metabolism of hexon hexones: initial phosphorylaiton reactions, enzymatic interconversion of hexoses, formation and degradation of glycogen, liver glycogen degradation (glycogenolysis), liver and muscle regulation of glycogen metabolism.
5. Glycolytic pathways: anaerobic glycolysis, formation of pyruvic acid, lactic acid and alcohol, inhibition, energetics, regulatory mechanisms.
6. Oxiditive decarboxylation of pyrovic acid: formation of acetyl Co-A.
7. Tricarboxylic acid cycle: reactions of the cycle, inhibitors, energy production formation of ATP, carbon dioxide fixation reactions, integration of carbohydrages, lipids and proteins metabolism trough rricarboxylic acid cycle.

8. Alternative pathways of carboyhydrate metabolism : hexose monophosphate shunt (HMP), the uronic acid pathway, metabolism of fructose, galactose.
9. Gluconeogenesis: metabolic pathway involved in lguconeogenesis.
10. Regulation of carbohydrate metabolism: source and concentration of blood glucose, hormonal regulation.

VI. <u>Lipids (chemistry and metabolism):</u>

Part I:

1. Digestion and absorption of lipids:
   a. Bile, hydrolytic enzymes (pancreatic lipase)
   b. Absorption and re-esterification.
   c. Chylomicrons, adipose tissue.

Part II:

1. Fatty acid oxidation:
   a. B-oxidation of F.A.
   b. B-oxidation of unsaturated fatty acids.
   c. B-oxidation of odd chain fatty acids.
   d. Omega-oxidation and alpha oxidation.

Part III:

1. Sources of acetyl-CoA.
2. Formation of malonyl CoA.
3. Acyl carrier protein.
4. Fatty acid synthase reactions.
5. Forces of NADPH for R.A synthesis.
6. Elongation of fatty acids.
7. D-saturation of fatty acids.
8. Integration-archidenote synthesis.
9. Prostaglandin synthesis.

Part IV: Triacylgleceroles metabolism:

1. Alpha glycerol phosphate pathway.
2. The monoglyceride pathway.
3. The dihydroxy acetone –P-pathway.
4. Breakdown of TG**.**

Part V: Phosphoglyceride biosynthesis:

1. Phospholipids.
2. Sphingolipid biosynthesis (glycosphingolipids storge disorder).

Part VI: Cholesterol:

1. Occurence, chemistry, biosynthesis.
2. Products of cholesterol metabolism (E.G bile).
3. Role of cholesterol in arteriosolexossis and atherosclerosis.

Part VII: Lipid transport:

1. Plasma lipid.
2. Plasma lipoproteins.
3. Hyper and hypolipoproteinemia.

Part VIII: Ketone body metabolism:

1. Synthesis and utilization.

2. Ketosis (ketouria, ketonemia).

VII. Proteins and amino acid metabolism:

1. Biological role of proteins (hormones, enzymes, etc.).
2. Digestion of proteins and absorption of aminoacids, proteolytic enzymes, secretion of hydrolytic acid in the stomach, glutamyl cycle for amino acid transport.
3. Metabolic pathways of amino acids: oxidative deamination, transamination, transdeamination, transmethylation, decarboxylation, transport of ammonia, fixation of ammonia, urea cycle, synthesis and metabolism of creatinine and creatin, metabolism of the carbon moiety, interconversion of amino acids, biosynthesis of nonessential amino acids.
4. Metabolism of certain individual amino acids, glycine, serine, aspartic and glutamic acids, and glutamine, arginine, histadine, phenylalanine, tryptophan, cystine and methionine, conversion of amino acids to specialized products.
5. Normal control of amino acid metabolism.
6. Disorders of amino acids metabolism, inborn error of amino acid metabolism.

VIII. Nucleic acids and nucleoproteins metabolism:

1. Nucleoproteins: types (nucleoprotamines, nucleohistones), hydrolysis products.
2. Nucliec acids: types (DNA, m RNA, rRNA, tRNA), intracellular localization, purine and pyrimidine, sugars.
3. Nucleotides and nucleosides: nomenclature, structure, biologically important free nucleotides and nucleosides.
4. The three dimension structure of the DNA, primary, secondary and tertiary structure, internucleotide linkage, molecular weights, double helical structure, base – pairing rule, structure of DNA (physical properties, effects of agents).
5. Three dimensional structure of RNA (m, r, t, RNA), amino acid specificity of RNA, anticodons of t RNA.
6. Metabolism of purines and pyrimidines: digestion of nucleoproteins and nucleic acids, absorption, and fate of the bases, biosynthesis, and degradation, purines and pyrimidines, uric acid metabolism and excretion.

IX. Integration and regulation of metabolism:

metabolic pathways, carbohydrates, lipids and proteins and their metabolism integration and regulation.

X. Pracical Biochemistry and Molecular Biology

Laboratory Practicals

1. Introduction to use laboratory facilities / equipment's
2. Basic techniques and fundamental informations
3. Preparation of solutions-Normal solution and Normal saline
4. Experiments on Carbohydrates qualitative analysis
5. Experiments on proteins- qualitative analysis
6. Experiments on Fats- qualitative analysis
7. Chemical analysis of Urine-Normal

Dental Materials

PROSTHETIC SYLLABUS:

Introduction to Dental Materials

a) History of Dental Materials

b) Scope

c) Standardization of Materials

Bio-compatibility of Materials

a) Tests for evaluation of Biocompatibility

b) Allergic responses to Dental Materials

d) Pulp responses to Experimental & clinical procedures

Physical Properties

a) Abrasion & Abrasion Resistance

b) Viscosity

d) Creep & flow

e) Color & color perception

f) Thermo physical properties

Mechanical Properties

a) Stress & Strain

b) Mechanical properties (Elastic deformation, elastic modulus, flexibility, resilience, poisson'sratio)

c) Strength Properties (Proportional limit, elasticlimit, yield strength, tensile strength, flexure strength, fatigue strength, impact strength)

d) Ductility & malleability

e) Hardness, Toughness, Brittleness

Hydrocolloid impression materials

a) Classification & colloids

b) Agar (Reversible Hydrocolloid)

c) Manipulation of Agar imp. Material

d) Alginate (Irreversible Hydrocolloid)

e) Manipulation of Alginate imp. Material

f) Care & properties of Hydrocolloid impression

Rigid impression materials

a) Impression plaster

b) Impression compound, composition, manipulation & properties

b) Zinc oxide-Eugenol Impression Paste

c) Physical and Mechanical Properties of Zinc Oxide-Eugenol impression paste

d) Noneugenol paste

Elastomeric Impression Materials

a) Overview of Elastomeric Impression Materials

b) Polysulfide Impression Material

c) Condensation Silicone Impression Material

d) Addition Silicone Impression Material

e) Polyether Impression Material

g) New Advances in Impression Materials

h) Infection Control Concerns

Gypsum Products

a) Types of Gypsum Products

b) Uses of Gypsum in Dentistry

c) Setting of Gypsum Products

d) Tests for working, Initial Setting, and Final Setting Times

d) Control of the Setting Time

e) Setting Expansion

f) Accelerators and Retarders; Practice and Theory

i) Strength

j) Infection Control Concerns

Dental Resins

a) Classification of Resins

c) Requisites for Dental Resin

d) Cold cure denture base resins

d) Heat-activated denture base resins

e) Compression- molding Technique

f) Injection molding technique

Dental casting alloys

a) Historical Perspective on Dental Casting Alloys

b) Desirable Properties of Casting Alloys

d) Classification of Dental Casting Alloys

e) Alloys for All-metal Restorations

f) High Noble Alloys for Metal –ceramic Restorations

h) Base Metal Alloys for Cast Metal and Metal ceramic Restorations

Die & Die materials

a) Definition, Classification, Ideal requirements

b) Types of die material, Advantages & Disadvantages

Dental Waxes

a) Types of waxes

b) Composition

c) Desirable Properties

d) Flow

e) Thermal Properties
f) Wax Distortion
g) Manipulation of Inlay Wax
h) Other Dental Waxes

Investment materials

a) Gypsum –bonded Investments
b) Phosphate-bonded Investments
c) Ethyl Silicate- bonded Investment & their properties

Casting procedures

a) Introduction
b) Preparation of the master die
c) The sprue former
d) Casting ring liners
e) Investment procedure
f) Casting procedure
g) Compensation for solidification shrinkage
h) Causes of Defective castings

Tarnish & Corrosion

-Introduction
-Causes of Tarnish and Corrosion
-Classification of Corrosion
-Electrochemical Corrosion
-Corrosion of Dental Restorations
-Clinical Significance of Galvanic Currents

Dental ceramics

a) Historical perspective on ceramic
b) Classification of dental ceramics
c) Methods of strengthening ceramic
d) Metal ceramic restoration
e) All-ceramic restoration

CONSERVATIVE DENTISTRY SYLLABUS:

-Introduction to Material Science

-Dental Amalgam

-Definition, History, Classification
-Manufacturing, Composition, Roll of each ingredients
-Low Copper & High Copper – Setting Reaction
-Properties
-Manipulation
-Mercury toxicity and hygiene

-Dental Cements

-Introduction and Classification

-Cavity Liners, bases and Varnishes

-Calcium Hydroxide

-Zinc Phosphate

-Zinc Polycarboxylate

-Zinc Oxide Eugenol and its modifications

-Glass Ionomer cements and its modifications

-Resin Cements

Application, Classification, types, setting reaction, mode of supply, properties, factors affecting setting, manipulation, biocompatibility, advantages,

-Disadvantages, uses and all other relevant information about above individual cements

-Restorative Resins – Composite Resins

-History, Classification, Composition

-Polymerization, Filled and unfilled, Other types

-Properties, Biocompatibility

-Acid Etching in detail

-Dentin Bonding Agents-Generations, Concepts

-Sandwich technique

-Pit & Fissure Sealants

-Clinical Implications

-Root Filling materials

-Gutta Percha

-Sealers

-Direct Filling Gold

-Types

-Degassing

-Properties

-Compaction

-Clinical Considerations

PRACTICAL

Impression material

Manipulation and making impression and identifying setting time and defects.

Gypsum products

Dental Anatomy

Introduction

- Definitions and Nomenclature in Dental Anatomy
- Tooth numbering systems
- Differences between permanent and deciduous dentition
- Definition of elevations and depressions on the tooth
- Different Traits

Maxillary Incisor

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Mandibular Incisor

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Maxillary / Mandibular Canine

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Maxillary Premolar

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Mandibular Premolar

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Maxillary molar

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Mandibular molar

- Introduction
- Chronology
- Crown morphology
- Root morphology
- Pulp morphology

Occlusion

- Development of occlusion
- Concepts
- Theories
- Keys to occlusion
- Teeth & jaw associated factors
- Occlusion in dentures

Morphology of individual deciduous tooth (suggested)

PRACTICAL

Carving on wax blocks:-

a. Cube, rectangle, cone and cylinder

b. Individual tooth - Only permanent teeth of both arches.

- Central, Incisors, Lateral, Canines, Premolars and 1st molar

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Second Dental Year

GENERAL PATHOLOGY

Course Objectives:

This course has been designed to:

- Provide students with the concepts of aetiology, pathogenesis, microscopic and gross morphology, complications, and clinic-pathologic correlation of human diseases through general and system based approaches.
- Focus on gaining competency in medical knowledge, with specific emphasis on core discipline and problem-solving competencies.

Practical Objectives:

By the end of this course, students should be able to:

- Understand and analyse the pathologic features of a disease (gross and microscopic to know the diagnosis).
- Know the functional consequences and prognosis of pathologic processes.
- Understand the relationship between laboratory and morphological changes in diseases states.
- Anticipate the natural course of disease.

- Learn how pathology applies to the practice of medicine.
- Understand possible avenues of medical or surgical therapy.

I- General Pathology:

1. Introduction:

- Applications of pathology, cause of disease, course of disease, pathogenesis, signs, symptoms, complication, prognosis, why and how to learn pathology.
- Diagnostic histopathology and cytology.
- Genetic diseases: mutation, mendelian disorder (diseases caused by single-gene defect); disorders with multifactorial inheritance, cytogenic disorder.

2.Adaptation,Cell Injury &Cell Death:

- Adaptation: atrophy, hypertrophy, hyperplasia, metaplasia.
- Cell injury: reversible and irreversible (necrosis&apoptosis).
- Intracellular accumulations.
- Pathological calcifications: Dystrophic &metastatic calcifications.
- Cellular aging.

3.Inflammation and Repair:

- Acute inflammation: Features, events &outcomes of acute inflammation.
- Chronic inflammation:
  a. Features of chronic inflammation.
  b. Granulomatous inflammation.
- Systemic effects of inflammation.
- Mediators of the inflammatory response.
- Tissue repair:
  a. Regeneration and fibrosis.
  b. Healing of skin wound healing.
  c. Pathologic aspects of repair.

4.Hemodynamic Disorders:

- Hyperemia and congestion; Edema & Hemorrhage.
- Thrombosis: Aetiology, pathogenesis, morphology, types, clinical correlation &fat of a thrombus.
- Embolism: Classification & specific types (air, fat &amniotic fluid embolism), pulmonary and systemic thromboembolism.
- Infarction: Types, factors affecting its development & clinical correlation.
- Shock: Classification, pathogenesis & staging.
- Gangrene: causes, classification and types.

5.Pathology of the Immune System:

- Innate immunity & Adaptive immunity.
- Immunologic mechanisms of tissue damage (Hypersensitivity reactions).
- Transplant rejection: hyperacute, acute &chronic rejections.
- Autoimmune diseases: types, aetiology, pathogenesis, clinical features.
- Immunodeficiency disorders: Primary & Secondary.
- Amyloidosis: definition, classification, aetiology, clinical correlation.

6.Neoplasia:

- Nomenclature, characteristics of benign and malignant neoplasms, etiology, premalignancy.

- Clinical effects of tumors.
- Pathological diagnosis of tumors.
- Tumor staging and grading.
- Carcinogenesis.

7.Developmental and Genetic Diseases:

- Classification of developmental and genetic diseases.
- Errors of morphogenesis: clinically important malformations.
- Chromosomal abnormalities.
- Single-gene abnormalities.

8.General Pathology of Infectious Diseases:

- Categories of infectious agents.
- Pathogenesis of infectious diseases.
- Inflammatory response to infectious agents.
- Bacterial infection (toxaemia, bacteraemia, septicemia, pymáemias), fungal, parasitic.
- Granuloma: definition, classification; Tuberculosis (causative organism, route of infection, reaction of the body, spread), Syphilis: congenital and acquired type, Leprosy, Actinomycosis, Rhinoscleroma and Bilharziasis.

9.Environmental and Nutritional Diseases:

- Air pollution, tobacco smoke, pneumoconiosis.
- Alcohol and radiation effects and chemical injury (Toxic and nontoxic agent).
- Physical injury (thermal, electrical).
- Protein-energy malnutrition.
- Vitamin deficiencies.
- Obesity.
- Growth disturbance: definition, atrophy, hyperatrophy, hyperplasia, hypoplasia, aplasia, agenesis, atresia, metaplasia and dysplasia.

II-Systemic Pathology:

1.Cardiovascularpathology:

- Diseases of arteries:
  a. Hypertension, arterosclerosis, atherosclerosis.
  b. Vasculitis as polyarteritis nodosa, wegener´ granulomatosis Polyangiitis, thromboangitis obliterans, aneurysm.
- Diseases of lymphatics : Lymphangitis and lymphedema.
- Diseases of venous: varicose veins, thrombophlebitis, phlebothrombosis, obstruction of Superior and inferior vena cava.
- Vascular tumors: hemangiomas, glomangioma, angiosarcoma, hemangioendothelioma, Kaposi´s sarcoma.
- The heart
  a. Heart failure &Ischemic heart disease.
  b. Endocarditis (bacterial &non-bacterial).
  c. Rheumatic heart (valvular) disease and Rheumatic fever.
  d. Cardiomyopathies.
  e. Myocarditis (infective &non-infective).
  f. Pericardial effusions &Pericarditis.
- Congenital heart disease: cyanotic & acyanotic congenital heart disease.

- Tumors of the heart and pericardium.

2.Respiratorysystem:

- Diseases of the upper respiratory tract:
  a. Allergic rhinitis, nasal, sinuses and paranasal polyps & tumors.
  b. Laryngeal oedema & tumors as nasopharyngeal carcinoma, laryngeal tumors, non-malignant lesion.
- Diseases ofthe Lung:
  a. Atelectasis (collapse).
  b. Obstructive & Restrictivelung diseases: Asthma, emphysema, chronic bronchitis, bronchiectasis &acute, chronic restrictive diseases.
  c. Pulmonary infections: Pneumonias: Lobar, Bronchopneumonia & Interstitial pneumonia, primary.
  d. Pulmonary TB, Fungal infections.
  e. Occupational lung diseases: coal worker's pneumoconiosis, asbestosis, silicosis, hypersensitivity pneumonitis.
  f. Pleural lesions: malignant mesothelioma, pleural effusion and pleuritis, hemothorax, chylothorax, pneumothorax.
  g. vascular lung diseases: pulmonary thromboembolism, hemorrhage, infarction and vascular sclerosis.
- Tumors of lung.
- Diseases of the pleura: Pneumothorax, Pleural effusions & Tumors.

3.Digestive System:

- Oral cavity: ulcerative and inflammatory lesions & tumors.
- Salivary glands diseases: sialadenitis & tumors.
- Esophagus: anatomic and motor disorders: hiatalhernia, achalasia, diverticula, varices, esophagitis, Barrettesophagus, laceration, Tumors &tumor-like lesions.
- Stomach:
  a. Gastritis: acute & chronic.
  b. Gastric ulceration: acute &chronic peptic ulcers.
  c. Gastric neoplasms &polyps.
- Small and Large intestine:
  a. Developmental anomalies: congenitalmega colon, hischsprung disease.
  b. Vascular disorders
  c. Malabsorpotion diseases, diarrhea and dysentery, infectious enterocolitis.
  d. Idiopathic inflammatory bowel disease.
  e. Colonic diverticulosis.
  f. Bowel obstruction.
  g. Tumors.
- Appendix: Acute appendicitis, mucocele & tumors.
- Liver and Biliary system:
  a. Inflammatory and infectious disorders
  b. Alcoholic liver disease.
  c. Intrahepatic biliary tract diseases
  d. Metabolic &Inherited diseases
  e. Circulatory disorders
  f. Hepatic failure.

g. Liver Tumors (benign &malignant).
h. Gallbladder and Extrahepatic Biliary System: cholelithiasis (bile stones), acute &chronic cholecystitis, Secondary biliarycirrhosis & Tumors (benign, malignant include ampole of vater), ascending cholangitis, choledochlithiasis, extrahepatic biliary atresia.

- Pancreas: acute and chronic pancreatitis & tumors.
- Insel cell tumor: hyperinsuluism
- Peritoneum: peritonitis and tumors.

4.Urinarysystem:

- Kidneys:
  a. Clinical syndromes, acute &chronic renal failure.
  b. Congenital anomalies.
  c. Cystic diseases.
  d. Glomerular diseases: Acute &chronic glomerulonephritis & glomerulopathies.
  e. Tubulopathies (diseases of the tubules).
  f. Interstitial nephritis.
  g. Vascular diseases: arteriosclerosis &arteriolosclerosis.
  h. Tumors (benign &malignant)
- Urinary tract and bladder:
  a. Congenital anomalies.
  b. Inflammations: acute & chronic urocystitis.
  c. Obstructive lesions of the urinary tract.
  d. Urolithiasis (renal stones).
  e. Tumors (benign &malignant).

7.Endocrine system:

- Pituitary:
  a. Hypofunction and hyperfunction.
  b. Tumors.
- Thyroid:
  a. Hypofunction, hyperfunction & inflammations.
  b. Tumors.
- Parathyroid: hypofunction &hyperfunction.
- Adrenal:
  a. Hypofunction and hyperfunction.
  b. Tumors.
  c. Multiple endocrine neoplasia; MENI& Multiple endocrine neoplasias; MENII.

8. Lymphoreticular System & Bone marrow:

- Lymph nodes:
  a. Inflammation (acute &chronic).
  b. Non-Hodgkin's lymphoma &Hodgkin's lymphoma.
- Thymus:
  a. Thymic enlargement.
  b. Tumors.
- Spleen: splenic enlargement&hyposplenism.
- Bone marrow:
  a. Red blood cells disorders(anemias).
  b. White blood cells disorders (leukemias).

9.Nervous system:

- Congenital malformation.
- Cerebral oedema, Hydrocephalus &Herniation.
- Inflammations; meningitis, encephalitis &cerebral abscess.
- Vascular disturbances; Stroke &hemorrhage.
- Demyelinating diseases; multiple sclerosis.
- Degenerative diseases; Alzheimer's disease &Parkinsonism.
- Brain Tumors.
- Peripheral nervous system; inflammation and tumors.

10.Locomotorsystem:

- The bones:
  a. Congenital disorders.
  b. Inflammations; osteomyelitis.
  c. Metabolic diseases; osteoporosis, rickets, osteomalacia, osteitis fibrosa cystic &Paget's disease of the bone.
  d. Tumors.
- The joints:
  a. Inflammations; arthritis, suppurative, rheumatoid and tuberculous &ankylosing spondylitis.
  b. Degenerative conditions; Osteoarthritis.
  c. Metabolic diseases; Gout.
  d. Tumors.
- Skeletal Muscles:
  a. Muscle atrophy.
  b. Muscle Dystrophy.
  c. Myopathy.
  d. Myasthenia Gravis.
  e. Tumor.

III- Pathophysiology:

- Introduction to pathophysiology.
- Cardiac Pathophysiology.
- Pulmonary Pathophysiology.
- Musculoskeletal pathophysiology.
- Neurological Pathophysiology.
- Development pathophysiology.
- Pathophysiology basics.
- Endocrine System pathophysiology.
- Special Senses pathophysiology.
- CSF Physiology and Pathophysiology of Hydrocephalus.

THE PRACTICAL

identify and describe the different microscopic pathological slides.

1-Acute Inflammation
2-Chronic Inflammation

3-Cell Injury

6- Granuloma

8. Disorder of growth

9.Malignant tumors

10.Development diseases

11.Bone

REFERENCES:

Essential Books:

- Basic Pathology ;Kumar, Cotran &Robbins.
- General pathology ;Walter &Israel.
- Pathology Illustrated
- Atlas of Histopathology.

MICROBIOLOGY

Objectives of Course:

- Enabling students to learn the basic concepts of microbiology: bacterial, viral and fungal morphology, metabolism, physiology, genetics, and induced diseases, especially endemic in the locality: their transmission, laboratory diagnosis, treatment, prophylaxis and control in vivo and in vitro and molecular biology.
- It also aimed at helping the students know and understand the effect of different antimicrobial agents on each organism as well.
- Provide students with the essential knowledge of the structure and function of the immune system, mechanism of immunity and immune mediated diseases as well as the different methods used to diagnose and control such diseases.
- One of the targets of this course is to make students aware of the different nosocomial infections and their mode of transmission and to familiarize students with the different principles and measures of infection prevention and control.

Practical Objectives:

- Microscopic stained preparations of the most medically important bacteria, also identify culture media (with and without growth), and the different biochemical and serological tests and antibiograms used to identify bacteria and diagnose the disease.
- They must be able to perform: Simple stain, Gram stain and Zeihl-Neelsen stain of bacteria.
- Students should know how to practice the basic infection control measures as hand wash, use of different methods of sterilization and disinfection.

Learning outcomes:

- General (bacterial, viral, fungal) morphology, physiology and genetics.
- The principles of growing and cultivating microorganisms and the scientific basis of using antimicrobial agents, their mode of action, application and complications in vivo and in vitro.
- The host parasite relationship and microbial virulence and pathogenesis.

- The immune system, its structure, normal function, beneficial and harmful or deleterious behaviour or reactions (Immunopathology).
- Microorganisms of medical importance with emphasis on: morphology, culture, antigenic structure, virulence, pathogenesis, clinical diseases they caused, diagnosis, treatment, prevention and control.
- Nosocomial infections, principles and methods of decontamination and infection prevention and control.
- The clinical manifestations of systemic infections and different organisms causing them, and how to reach a diagnosis.

I. General Microbiology:

- Introduction to medical microbiology.
- Morphology and structure of microorganisms (bacteria-viruses and fungi):
  - Difference between Eukaryotic and Prokaryotic cells.
  - Basic bacterial structure.
  - Methods of microorganism staining.
  - Structure of viruses and fungi.
- Classifications of microorganisms.
- General characteristics of disease.
- Microbial physiology.
- Sterilization and disaffection:
  - Methods of sterilization.
  - Methods of disaffection & Antiseptics.
- Bacteriophages; nature, replication and importance, growth requirement for bacteria & bacteria growth cycle.
- Principles of bacterial genetics:
  - Bacterial chromosomes.
  - Variation; mutation, genetic transfer between bacteria i.e., transformation, transudation& conjugation.
  - Genetic engineering.
- Plasmids and drug resistance.
- Antimicrobial chemotherapy: Mechanism, drug resistance & antibiotic policies.

II. Immunology:

- Introduction.
- Natural & Acquired Immunity:
  - Natural Immunity: physical barriers, chemical barriers, phagocytosis.
  - Acquired Immunity: lymphocytes, antigen presenting cell.
- Antigens and antibiotics:
  - Antigen, hasten, haptens, adjuvants & antigenic determinants.
  - Immunoglobulins (structure, classes, characteristics, functions, antigen-antibody reaction).
- Antigen - antibody reactions and their dictation:
  - Invite: protection against pathogenic organisms.
  - Invite: precipitation, agglutination, hemoagglutination, immunoelcetrophoresis, class test etc.
- The immune response:

- o Humoral response.
- o Cell- mediated response.
- o Cell- involved in the immune response.
- o Factors affecting the immune response.
- o Primary & secondary immune response.

• The complements system:
- o Definition, Opsonization.
- o Activation: Classical and alternative pathways.
- o Control of complement activation.
- o Mechanism and functions of complement.
- o Complement and diseases.

• Red cell antigens and antibodies & their interactions:
- o Definition, distribution & important.
- o The ABO system (chemistry and genetics).
- o The Rh antigens and hemolytic disease of the newborn.
- o Blood transfusion reactions.
- o Other blood group systems.

• Hypersensitivity reactions:
- o Mechanism.
- o Classification: type I, II, III (antibody mediated) & type IV (cell- mediated).
- o Anaphylaxis, atrophy & cytotoxic reactions.
- o Allergies of infections & contact dermatitis.

• Immunology of transplantation:
- o Types of grafts.
- o Allograft reaction and mechanism.
- o Graft versus host reaction.
- o Histocompatibility antigens.
- o MLR, suppression of allograft reaction.
- o Tolerance.

• Tumor immunology:
- o Evidence of tumor immunity.
- o Tumor specific antigen.
- o Once - fetal antigen.
- o Tumor rejection.

• Autoimmune diseases:
- o Mechanisms, hidden antigens, glomemlonephritis.
- o Uveitis, Microorganisms modification of antigens.
- o Post measles encephalomyelitis.
- o Cross reacting antigens (rheumatic fever).

• Primary and secondary defects.

• Infection and immunity.

III. Systematic Microbiology:

- Bacterial pathogenicity.
- Isolation and identification of disease producing bacteria.
- Phylogenic cocoa: Staphylococci, Streptococci & Neisscriae.
- Gram positive non-sprouting Coryncbacteria,Mycobacteria, Actinomyces, Nocardia.

• Gram positive sprouting bacilli: Aerobic (Bacillus species) &Anaerobic(Clostridium species) spore-forming bacilli.
• Bacteroids.
• Indigenous microbial flora.
• Entire gram negative microorganisms: Coliform bacteria, Protease, Salmonellae, Shigellae, Vibratos, klebsiella, serratia, Citrobacter, Enterobacter.
• Other gram negative bacilli: Brucellae, Yersiniae & Homophiles,Campylobacter species and Helicobacter pylori
• Spirochetes: Treponimae & Borreliae.
• Mycoplasma.
• Rickcttsiae.
• Chlamydiae.
• Legionellae.

IV. Medical Mycology:

• Characteristics of fungi and isolation of pathogenic species.
• System mycoses.
• Susbcutaneous mycoses.
• Superficial mycoses.
• Opportunistic mycoses.
•Fungal chumman, immunity, prognosis, diagnosis ,treatment, epidemiology and prevention.

IV. Virology:

•Introduction to virology: Morphology, Classification and Chemistry.
•Biology of viruses: Genetics interferes in viral infections- pathogenesis, spread host defense-immunity.
•Viral respiratory infections: History, importance, etiologic agents, diagnosis, treatment, epidemiology & prevention.
•Selected respiratory viruses: Rhinoviruses, Corona viruses, influenza and respiratory syncytial versa.
•Cutaneous viral infections:
o Introduction and definitions.
o Generalized: Rubella, measles, varicella, foster, smallpox and enteroviruses.
o Localized: Herpes simplex, and miller's nodules, molluscum contagious & warts.
•Viral hemorrhagic fevers: Arboviral causing agents.
•Viral ontogenesis: History, definitions, evidence of virus in transformed cells engines DNA viruses (adenoviruses, types 12, 18 and 21, popover as polymer and molluscum contagious, herpes virus, virus and molluscum contagious, herpes viruses as capstan- barer burrito's lymphoma, nasopharyngeal carcinoma, and herpes simplex2. nonhuman as monkey lymphoma, oncogenic RNA viruses, and oncogene theory.
•Aids and HIV (Acquired immunodeficiency); 1& 2 human immunodeficiency viruses.
• Glandular viral diseases:
o Viruses and target organs, mumps, cytomegalovirus.
o Infectious mononucleosis.
• Viruses associated with hepatitis:
o Causing agents: Hepatitis A, Hepatitis B, C, D, and E.
o Yellow fever.
• Viral gastrointestinal diseases:
o History, viruses involved epidemic gastroenteritis & sporadic infantile

gastroenteritis.

- Viral infection of the eye:
  - Adenovirus: Newcastle disease, herpes simplex enter virus, & rubella (congenital).

V. Special Topics:

- Hospital infections.
- Infections in immunocompromised patients
- Social Hygiene.
- Public health.

PHARMACOLOGY

Objectives of Course:

- To help the students for clear understanding the basic knowledge about commonly used groups of drugs, pharmacokinetics, mode of actions, pharmacological actions, and their therapeutic applications in various diseases.
- To assure full understanding safe usage through learning their adverse effects including toxicity, contraindications and drug interactions.

Practical Objectives:

- Practical experimental skills mainly on animals in vivo and in vitro (observe, record and analyse the effect of drugs on biological tissues) with illustration of different techniques of drug administration.
- Write a prescription for selected important diseases.
- Audit prescriptions citing multiple drugs.

Learning outcomes:

By the end of the course, student should be able to:

- Discuss the pharmacokinetics, pharmacodynamics and pharmacotherapeutics of different groups of drugs.
- Sound awareness about the adverse effects including acute and chronic toxicity of commonly used groups, and their management.
- Full awareness of limitations to the use of drugs such as contraindications and drug interactions.
- Awareness about variations during drug application with regard age, sex and genetic related variations that affect response to drugs.
- Good understanding the mechanism of action of drugs with regard pathophysiology of diseases which is essential for further proper choice of drugs.
- Discuss the impact of preventive pharmacology in prevent illness.
- Discuss the role, prevalence and limitations of alternative and complementary therapies commonly in use.

1. General Pharmacology :

- Definitions of relevant terms
- Route of drug administration

2. Pharmacokinetics

- Absorption
- Distribution
- Metabolism
- Elimination

3.Factors affecting responses to drug

4. Pharmacodynamics :

- Mechanism of action,
- Drug receptor
- Dose –response relationship

5.Pharmacogenetics

6. Unwanted effect of drugs

Autonomic nervous system :

Introduction

1.Anatomy & Physiological consideration

2.Neurohumoral transmission

Cholinergic system and related drugs

1.Cholinergic agonist

2.Anticholinesterases

3.Drug acting autonomic ganglia

4.Drug acting neuromuscular junction

Drug acting adrenergic system

1.Adrenergic agonist [Sympathomimetics]

2.adrenergic blocking drugs

3.Alpha adrenoreceptor blockers,

4.Beta adrenoreceptor blockers

5.Adrenergic neuron blockers

CVS drugs

1. Antihypertensives.
2. Antianginal drugs
3. Anti arrhythmic agents
4. Digitalis

Diuretics

Autocoids

1.Histamine and histamine antagonist

2.5-HT and 5-HT antagonist

3.Angiotensin, bradykinin and their antagonist

4.Eicosanoids

5.Analgesic, antipyretic and anti-inflammatory [NSAIDs] drugs

6.Drugs used in rheumatoid arthritis

7. Drugs used in gout

Central nervous system

- General anesthetics& Preanaesthetic medication.
- Local anesthetics.
- Alcohol
- Sedative hypnotics
- Narcotic analgesics
- Antiepileptic
- Antiparkinsonism
- Antipsychotics & antidepressants,
- Anxiolytics.
- CNS stimulants
- Drugs dependence and drug abuse
- Pharmacology of Migraine

Respiratory systems

1. Asthmatic drugs

2.Antitussive drugs

3. Expectorants &mucolytics

Haemopoietic system

1. Coagulants & anticoagulants, antiplatelets

2. Haematics

3. Fibrinolytics agents

GIT-Pharmacology

1. Peptic ulcer drugs

2. Laxative

3. Antidiarrhoeal

4. Emetic and antiemetics

Endocrines :

1.Sites and types of hormones

2.Anterior and posterior pituitary hormones

3.Corticosteroids.

4.Thyroid and antithyroid drugs

5.Drugs affecting Calcium metabolism

6.Insulin and Oral hypoglycemicdrugs

7.Sex hormones & Contraceptive drugs

Chemotherapy :

Introduction & drug resistance

1.Penicillins

2.Cephalosporins

3.Sulphonamides

4.Aminoglycosides

5.Broad spectrum antibiotics

6.Quinolones and urinary antiseptic

7.Antifungal

8.Anti viral agents

9.Antimalarial

10.Anthelmintics

11.Antiprotozoal

12.Antimycobacterial&antileprotic drugs

13.Anticancer Drugs

14.Drugs acting on immune system

Miscellaneous

1.Drugs & Pregnancy

2.Breast feeding & Drugs

3.Drugs & neonates

4.Drugs & elderly

Dental Pharmacology

A. Fluoride pharmacology

b. Antiseptics, astringents & Sialogogues

c. Obtundents, Mummifying agents and disclosing agents.

B. Prevention and drug therapy of emergencies in dental practice.

a. Seizures

b. Anaphylaxis

c. Severe bleeding

d. Shock

e. Tetany

f. Status asthmaticus

g. Acute addisonian crisis

h. Diabetic Ketoacidosis

-clinical pharmacology:

1-drug dosage forms.

- Demonstration of common dosage forms used in clinical practice.

2-prescribtion writing.

ORAL HISTOLOGY AND EMBERYOLOGY

Histotechniques

• Introduction
• Fixation
• Tissue processing
• Staining
• Ground section
• Special stains
• Clinical implications

Development of face and oral cavity(Embryology)

• Origin, development and differentiation of facial tissues
• Branchial arches
• Development of face, Tongue and palate
• Development of Mandible ,Maxilla

Development of teeth

• Dental lamina
• Developmental and histophysiological stages of teeth
• Development of root

Enamel

• Introduction
• Physical and chemical properties
• Structures (Enamel rods, lamellae ,tufts, spindles ,Hunter Schreger bands, dentinoenamel junction)
• Amelogenesis: Life cycle of ameloblast

Dentin

• Introduction
• Physical and chemical properties
• Structures
• Dentinogenesis
• Types of dentin
• Theories of Hypersensitivity
• Functions

Maxilla and Mandible (alveolar process)

• Definition and development

• Anatomy
• Classification
• Types of Ossification
• Alveolar bone
• Histology of bone
• Bone morphogenic protein
• Bone Remodeling & factors affecting

Eruption and shedding

• Theories of eruption
• Pre-eruptive,Eruptive and Post-eruptive tooth movement
• Definition and Shedding pattern
• Histology of shedding
• Mechanism of resorption and shedding
• Clinical considerations

Pulp

• Development, Anatomy and Structure
• Histology of pulp
• Functions

Cementum

• Introduction
• Physical and chemical properties
• Structures
• Histology & cementogenesis
• Types of cementum, cemento-enamel junctions
• Functions

Maxillary sinus

• Definition and development
• Anatomy
• Functions
• Histology

Salivary glands

• Embryogenesis
• Classification
• Anatomy of major and minor salivary glands
• Histology of major and minor salivary glands
• Saliva: Composition,formation and functions of saliva

Periodontal ligament

• Development & Classification
• Histology: cells and fibres
• Functions

Oral Mucous Membrane(OMM)

• Definition and classification of OMM
• Types of epithelium
• Histology of keratinized and non

keratinized epithelium

• Non-Keratinocytes
• Clinical and histological aspects of buccal mucosa,gingiva, palate, floor of the mouth,vermilion border.
• Tongue-clinical and histological aspects of papillae and taste buds
• Junctional epithelium

Temporomandibular Joint

• Anatomy
• Development
• Histology
• Clinical considerations

CONSERVATIVE DENTISTRY

Knowledge and Under Standing:

The graduate should acquire the following knowledge during the period of training,

(1) To diagnose and treat simple restorative work for teeth.
(2) To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
(3) To gain the knowledge about endodontic treatment on the basis of scientific foundation.
(4) To carry out simple endodontic treatment.
(5) To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.

Skills:

He should attain following skills necessary for practice of dentistry

(1) To use medium and high speed hand pieces to carry out restorative work.
(2) Poses the skills to use and familiarize endodontic instruments and materials

needed for carrying out simple endodontic treatment.
(3) To achieve the skills to translate patients esthetic needs along with function.

Attitudes:

(1) Maintain a high standard of professional ethics &conduct and apply these in all aspects of professional life.
(2) Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.
(3) To help and participate in the implementation of the national oral health policy.
(4) He should be able to motivate the patient for proper dental treatment and maintenance of oral hygiene should be emphasise which will help to maintain the restorative work and prevent future damage

(CONSERVATIVE DENTISTRY 2nd year)

Introduction to Conservative Dentistry.
Definition, Aim & Scope of Conservative Dentistry & Endodontics
Nomenclature of dentition; Tooth Numbering systems
Restoration
- Definition & Objectives

Hand Instruments
- Classification, Nomenclature, Design, Formula of hand cutting instruments, Grasps and Rests, Sterilization.
- Rotary Cutting instruments - Burs, Design, Types. Various speeds in tooth preparation. Hazards with cutting instruments.

Dental caries
– Aetiology, classification, caries terminology
Fundamentals in Tooth preparation
Definition, Stages and steps , Classification of Tooth preparations, Nomenclature, Concepts in tooth preparations for Silver Amalgam, Cast gold inlay, Composite resins and Glass Ionomer
-Tooth preparation for amalgam restorations.
-Stepwise procedure for Class I, II, III, IV, V amalgam restorations.
Failure of amalgam restoration.
Contact and contour of teeth
– different methods of tooth separation
Matrices, Retainers, Wedges
– methods of wedging
Finishing & polishing of restorations.
Chair side positions
– patient and operator positions

Management of deep carious lesions

– Technique of caries excavation with hand and rotary instruments, Affected and Infected dentin, Caries detector dyes, Concept of Remaining Dentin Thickness, Pulp capping and Pulpotomy.

Access cavity and brief introduction of root canal instruments

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Removable prosthodontics

(2nd year)

1.Definition of prosthetic terms.
2.Clinical & lab. Steps of complete denture construction
3.Anatomical land mark of maxillary denture.
4.Taking primary impression on metal mold by impression compound + beading&boxing+pouring by dental plaster
5.Anatomical land mark of mandibular denture.
6.Pouring on rubber mold U&L primary casts.
7.Impression trays.
8.Description of anatomical landmarks U&L
9.Primary impression.
10.Demonstration of making special tray U&L by cold cure acrylic
11.Study cast and Special tray.
12.Finishing and polishing of special tray .
13.Secondary or final impression
14.Demonstration of taking final impression and construction of master cast
15.Final impression material, beading and boxing.
16.Record base construction +finishing &polishing
17.Occlusion blocks.
18.Bitrim construction U&L
19.Anatomy & physiology of T.M.J.
20.Demonstration of face bow and fox bite Description of types of jaw relation
21.Recording jaw relation
22.Description about the metods of recording vertical jaw relations.
23.Methods of recording vertical dimension
24.Description about the metods of recording horizontal jaw relations.
25.Methods of recording horizontal relations.
26.Demonstration about the types of articulators, parts , its uses and action
27.Eccentric jaw relation.
28.Mounting of upper and lower cast on articulator.

29.Articulators.
30.Mounting of upper and lower cast on articulator(continue).
31.Description the methods of selection of anterior and posterior teeth for complete denture
32.Mounting the casts on articulator.
33.Arrangment of upper and lower anterior teeth.
34.Selection of artificial teeth, anterior.
35.Selection of artificial teeth, posterior.
36.Arrangment of upper and lower posterior teeth.
37.Arrangement of posterior teeth.
38.Occlusion of complete denture.
39.Carving and waxing of complete denture. upper
40.Wax contouring of denture.
41.Carving and waxing of complete denture. lower
42.Flasking (processing of complete denture), investment of the denture
43.Wax elimination , packing and curing of heat cure acrylic.
44.Preparation and packing of acrylic.
45.Deflasking, finishing &polishing of upper complete denture.
46.Deflasking, finishing &polishing of lower complete denture.
47.Selective grinding.
48.Denture repair.
-Repair of fracture denture
-Relining and rebasing.
-Repair of missing tooth.

COURSE SYLLABUS IN FIXED PROSTHODONTICS

1. DESCRIPTION OF THE COURSE

Fixed prosthodontics is the art and science of restoring damaged teeth with cast metal, metal-ceramic, or all-ceramic restorations, and replacing missing teeth with fixed prostheses. Successfully treating a patient by means of fixed prosthodontics requires a thoughtful combination of many aspects of dental treatment: patient education and the prevention of further dental disease, sound diagnosis, periodontal therapy, operative skills, occlusal considerations.

2. AIMS AND OBJECTIVES OF THE COURSE

1. The course syllabus is designed to serve as an introduction to the area of restorative dentistry dealing with fixed partial dentures and cast metal, metal-ceramic, and all-ceramic restorations.

2. It provides the background knowledge needed for formulating rational judgments in the clinical environment, with the fundamentals of treatment planning, occlusion, and tooth preparation.

3. Specific techniques and instruments that a dental student must deal with them in their daily work.

4. To provide a sound working knowledge regarding various clinical steps and laboratory steps in fixed prosthodontic therapy.

5. To provide information about the techniques in fabrication of all-ceramic and metal-ceramic , resin bonded prostheses with specific emphasis on esthetics.

6. Explain the patient the various objectives of treatment plan, forms of treatment, prognosis, time required to accomplish the work and an estimated cost of treatment.

7. Know how to modify the treatment plan according to the patients dental health and general health.

3. TEACHING METHODOLOGY

1. Lectures.

2. Tooth preparation on the phantom jaws.

3. Seminars and group discussions.

SECOND YEAR B.D.S., COURSE SYLLABUS IN FIXED PROSTHODONTICS

SL. NO.	TOPICS	HOURS
1.	Terminology and classification	**1**
2.	Instruments	**1**
3.	Principles of tooth preparation for extra-coronal restoration	**1**
4.	The full metal cast crown	**1**
5.	All-ceramic restorations (Preparation and construction)	**2**
6.	Metal-ceramic crown preparation	**1**
7.	Working cast and dies	**1**
8.	Wax pattern construction	**1**
9.	Different alloys used	**1**
10.	Spruing, investind and casting procedures (including casting failures)	**1**

THE CLINICAL STAGE

Third Dental Year only

GENERAL MEDICINE

Course Objectives:

- Brief review and assessment of anatomical aspects of different systems of the body.
- Review of the pathophysiology of diseases.
- Study in details different aetiology of diseases.
- To provide students with knowledge and understanding of health and its promotion, and of diseases, its prevention and management, and to cover medical emergencies in the context of whole individual and his/her place in family and community.
- To enable the students to acquire and become efficient in basic clinical skills as history taking, physical and mental examination, interpreting diagnostic investigation and sharing treatment plan. The student should be competent in doing of a limited number of basic technical procedures.

Professional and Practical Objectives:

By the end of the course, students should be able to:

- Recognize normal anatomical landmarks.
- Take good history, to do complete physical examination, to recognize the diagnostic tools and investigations.
- Recognize urgent life-threatening conditions, and describe specific treatment.

- Use appropriate sterile technique, and safely do routine diagnostic and therapeutic procedures including life support.

Learning Outcomes:

By the end of the course, students should be able to:

- Describe basic anatomy and physiology.
- Determine medical symptomatology, discuss the common medical problems coming to doctors.
- State the clinical manifestations and differential diagnosis of common medical problems including early manifestations of serious diseases (e.g., malignancy) and emergencies.
- Identify the normal aging process, age related diseases and its treatment, and variable causes of disability.

1.introduction:

Aims of medicine, Definitions of signs, symptoms, diagnosis, differential diagnosis, treatment & prognosis

2. Infections:

Enteric fever, AIDS, Herpes Simplex, Herpes Zoster, Syphills Diphtheria

3. G.I.T:

Stomatitis, gingival hyperplasia, dysphagia, acid septic disease, jaundice, acute and chronic hepatitis, cirrhosis of liver, ascites.

4. CVS:

Acute rheumatic fever, rheumatic valvular heart disease, hypertension, ischemic heart disease, infective endocarditis, common arrthythmias, congenital heart disease, congestive cardiac failure.

5. RS:

Pneumonia, COPD, Bronchiectasis, Pulmonary TB, Bronchial asthma, Lung Abcess.

6. Hematology:

Anaemias, bleeding & clotting disorders, leukemias, lymphomas, agranulocytosis, splenomegaly, oral manifestations, hematologic disorders, generalized Lymphadenopathy.

7. Renal System:

Acute nephritis, Nephrotic syndrome

8. Nutrition:

Avitaminosis, PEM

9. CNS:

Facial palsy, facial pain including trigeminal neuralgia, Epilepsy, Meningitis and headaches including migraine.

10. Endocrines:

Diabetes Mellitus Acromegaly, Hypothyroidism, Thyrotoxicosis, Calcium metabolism and parathyroids.

11. Critical care:

Syncope, cardiac arrest, CPR, shock

DESIRABLE TO KNOW:

Infectious mononucleosis mumps
Measles, rubella
Malaria

Diarrhoea
Dysentery including Amoebiasis
Malabsorption
Pleural effusion, Pneumothorax
Lung cancers.
Renal failure.
Addison's disease, Cushing's syndrome.
Acute LVF
ARDS

CLINICAL TRAINING:

The students must be able to:
- Take History
- Do general physical examination including build, nourishment, pulse, BP, respiration, clubbing, cyanosis, jaundice, oedema, nails, lymph nodes & Oral Cavity.
- Examination of CVS, RS, abdomen and facial nerve.

General surgery

1 Introduction to Surgery (History & Principles)
2 Wounds
3 Inflammation, Aetiology, Pathology & Management
4 Carbuncle, Cellulitis, Abscess, Ludwig's angina, Erysepelas
5 Tetanus
6 Gas Gangrene
7 Chronic Infection – Tuberculosis, Syphilis, Leprosy, Actinomycosis
8 Viral Infections, HIV & Hepatitis B
9 Shock-Definition, Classification, Pathophysiology & Management
10 Haemorrhage – Types, Aetiology, Clinical features & Management & Syncope
11 Blood groups & Blood transfusion
12 Tumours – classification, Aetiology, Methods of spread, Investigations & modalities of treatment
13 Ulcer, Cyst, Sinuses & fistulae – Definition, Classification, Aetiology and treatment
14 Lymphoma
15 Resuscitation
16 Tracheostomy – Indication, Procedure & management
17 Facial Nerve affections and Trigeminal Neuralgia
18 Salivary gland – Tumours, Classification, Pathology, Investigation and treatment
19 Fractures – Principles, Classification, Healing & management
20 Sterilization
21 Dressings – Types & uses

22 Sutures – Types of uses
23 Diathermy & other methods of Haemostasis
24 Swellings of Jaw – Dentigerous cyst, Admantinoma
25 Cleft Lip & Cleft Palate – Principles of management
26 Neck – Anatomy, Triangles, midline & lateral Swellings
27 Thyroid and Parathyroid – Anatomy Physiology Benign & management diseases, clinical features and management
28 Biopsy – Types, Indication & Procedure
29 Benign diseases of mouth, Lip, Tongue & Palate
30 Oral Carcinoma – Aetiology, Pathology, investigation and management
31 Burns – Aetiology, Classification Pathophysiology and management
32 Principles of Radiotherapy
33 Principles of Chemotherapy
34 Peripheral nerve Injuries
35 Operation Theatre techniques
36 Head Injury
37 Blood Coagulation – Factors, mechanism Intrinsic and Extrinsic pathways.
38 Deep Vein Thrombosis.
39 Local Anaesthesia – Indications, Nature of Drugs used, Dosage, Toxicity
40 Principles of General Anaesthesia – Preoperative evaluation, stages of Anaesthesia, Nature of Drugs used & their toxicity

Practical

Wounds
Burns
Dressings
Sutures

Oral Pathology

Developmental Disturbances of oral and paraoral structures

• Developmental disturbances of hard tissues:
-dental arch relations,
-disturbances related to - size, shape, number and structure of teeth,
-disturbances related to eruption and shedding.
• Developmental disturbances of soft tissues: Lip, palate, oral mucosa, gingival, tongue and salivary glands
• Craniofacial anomalies
• Developmental disturbances of oral lymphoid tissue
• Fissural (inclusion)cysts of oral region Benign and Malignant tumors of oral cavity
• Potentially Malignant Disorders of epithelial tissue origin.

-Definitions and nomenclature
-Epithelial dysplasia
-Lesions and conditions: leukoplakia, erythroplakia, oral lichen planus and oral submucous fibrosis.
-Squamous acanthoma, Keratoacanthoma,
• Malignant tumors of epithelial tissue origin.
-Oral squamous cell carcinoma: Definition and nomenclature, etiopathogenesis, TNM staging ,Broder's and Bryne's grading systems.
-Verrucous carcinoma
-Basal cell carcinoma: Definition etiopathogenesis and histopathology
-Malignant melanoma: Definition etiopathogenesis and histopathology
-Different histological grading systems,
-Histological variants and molecular biology of squamous cell carcinoma
-Histological varients
-Clarks and Breslow system
• Benign and malignant tumors of connective tissue
-Fibroblast origin: oral fibromas and fibromatosis, peripheral ossifying fibroma peripheral giant cell granuloma, pyogenic granuloma and Fibrosarcoma
-Adipose tissue origin: Lipoma
-Endothelial origin(blood and lymphatics): Hemangiomas and lymphangiomas, Hereditary hemorrhagic telangiactasia,Kaposi's sarcoma
-Bone and cartilage: Chondroma,osteoma,osteoid osteoma, benign osteoblastoma,osteosarcoma, torus palatinus and mandibularis
-Muscle tissue origin: Leiomyoma.Rhabdomyoma,rhabdom yosarcoma.
-Nerve tissue origin: Traumatic neuroma, neurilemmoma, neurofibroma
- Lymphomas: Definition, classification, differences between Hodgkins and Non-Hodgkins lymphoma and Burkitts lymphoma
-Giant cell fibroma, myofibroma, fibromatosis, benign and malignant fibrous histiocytoma
-Lipoblastoma, Liposarcoma
-Vascular malformations, sturge weber syndrome, angiofibroma. hemangioendothelioma, hemangioper ,icytoma,
-Chondroblastoma and Ewing's sarcoma
-Angiomyoma, leiomyosarcoma
-MEN syndrome, malignant nerve tumors, granular cell tumor,
-other varients of lymphomas
• Tumors of salivary glands
-Histogenesis
-Classification.
-Benign tumors: pleomophic adenoma, Warthin tumor, myoepithelioma
-Malignant tumors: mucoepidermoid carcinoma, adenoid cystic carcinoma, polymorphous low grade adenocarcinoma
-oncocytoma,ductal papillomas, cyst adenomas

-other malignant tumors
• Non-neoplastic diseases of salivary glands
-Xerostomia, Sjogren syndrome, Mickuliz syndrome, Sialadenosis, necrotizing sialometaplasia, mucocele and sialolithiasis
-oncocytosis
• Odontogenic and Non-Odontogenic cysts
-Definition
-Classification
-Lesions: Keraocystic odontogenic tumor, dentigerous cyst, calcifying odontogenic cyst, radicular cyst and dental lamina cyst of new born and eruption cysts
Non-Odontogenic cysts: Solitary bone cyst and aneurismal bone cyst
- lateral periodontal cyst,residual cyst, glandular odontogenic cyst, cysts of maxillary antrum and cysts of soft tissues.
• Odontogenic tumors
-Definition
-Classification
-Lesions: Ameloblastoma, Squamous odontogenic tumour, Calcifying epithelial odontogenic tumour, - Ameloblastic fibroma, fibrodentinoma, Ameloblastic fibrodentinoma, Ameloblastic fibro-odontoma, Complex odontoma,Compound odontoma, Ameloblastic carcinoma and malignant ameloblastoma.
-Odontogenic fibroma (simple and WHOtype), Odontogenic myxoma or myxofibroma, Benign cementoblastoma
-Odontoameloblastoma
-odontogenic carcinomas, odontogenic sarcomas
• Bacterial infections of oral cavity
-Tuberculosis, Syphilis, Diptheria, Noma, Leprosy, Actinomycosis, Tetanus.
-Botromycosis, Tularemia, Melioidisis, Gonorrhea, Rhinoscleroma, Cat-Scratch disease.
• Viral infections of oral cavity
-Herpes simplex, Herpes zoster, Measles, Rubella, Herpangina, Mumps, Chicken pox, Molluscum contagiosum and Oral manifestations of HIV infection.
• Mycotic infections of oral cavity
-Rhinosporidiasis,
-Candidiasis, South American Blastomycosis ,North American Blastomycosis, Mucormycosis Cryptococcosis, Coccidioidomycosis, Sporotrichosis
• Diseases of the periodontium
-Classification
-Etiopathogenesis
-Lesions: Gingivitis, ANUG, Gingival enlargement, desquamative gingivitis, Chronic and aggressive periodontitis.
- Trauma from occlusion
-Deposits on teeth(Stains, plaque and calculus),periodontal abscess, pericoronitis.

• Dental caries
-Definition
-Classification
-Etiopathogenesis,Theories, microbiology of dental caries, histopathology of enamel,dentinal and cemental caries.
-Caries activity tests, Immunology of dental caries, Caries vaccine, Methods of caries control
• Diseases of pulp and periapical tissues
-Definition
-Classification
- Lesions: acute pulpitis, chronic pulpitis, chronic hyperplastic pulpitis, pulp abscess,pulp necrosis,pulp fibrosis,periapical granuloma, periapical abscess, periapical cyst
-Sequale of pulpitis.
- Osteomyelitis: Definition, classification, etiopathogenesis,
-Types: Acute and chronic suppurative Osteomyelitis, Garre's Osteomyelitis.
-aerodontolgia, condensing osteitis, chronic diffuse sclerosing Osteomyelitis, florid osseous dysplasia, sclerotic cemental masses.
• Spread of oral infection
- Focus of infection
-Focal infection
-Routes of spread of infection
-Space infections: cellulitis, space infections, ludwing's angina, Maxillary sinusitis,
-Cavernous sinus thrombosis, mechanism and significance of oral foci of infection.
• Physical and chemical injuries to the oral tissues
-Traumatic cyst, bruxism, tooth ankylosis, linea alba, traumatic ulcerations of oral mucosa(eosinophilic granuloma),denture sore mouth, epulis fissuratum,mucocele, ranula, sialolithiasis, radiation effects of oral and paraoral tissues-osteoradionecrosis
-Plumbism, mercury poisoning, argyria, effects of Tetracycline
-Reactions to preparation of teeth for restorative procedures, high speed instrumentation for cavity and crown preparation, restorative materials,
direct adhesive and non-adhesive restorations, indirect restorations, bacteria at tooth restoration interface and microleakage.
-effects of orthodontic tooth movement and burns.
- non allergic local reactions to drugs and chemicals
-effects of cancer chemotherapeutic agents.
• Regressive alterations of the teeth
-Attrition, abrasion and erosion
- sclerotic dentin, dead tracts, secondary dentin, pulp calcification, resorption of teeth, hypercementosis, cementicles
- abfraction, reticular atrophy of the pulp.
• Healing of oral wounds
-Factors affecting wound healing

-Complications
-Healing of wounds: gingivectomy, biopsy, extraction and fracture),
-Biopsy techniques, exfoliative cytology
- Replantation and transplantation of teeth
-implants and osseointegrated Implants
• Oral aspects of metabolic diseases
-Classification
-Disturbances of mineral metabolism: calcium and phosphorus-osteoporosis, rickets. Fluoride and fluorosis.
- Disturbances of protein metabolism: marasmus and kwashiorkor
-Amyloidosis
-Avitaminosis: vitamin A,D,K.C and B-complex
- Disturbances of hormonal metabolism: Hypo and hyper pituitarism ,Addison's disease, hypo and hyper parathyroidism, diabetes mellitus
- Disturbances of mineral metabolism(trace elements)
-Porphyria
-Lysosomal storage diseases
- Disturbances of carbohydrate metabolism: mucopolysaccharidosis
-Vitamin E
-progeria
• Allergic and immunologic diseases of the oral cavity
-Definition and nomenclature
-Lesions: recurrent aphthous stomatitis, reiter's syndrome, behcet's syndrome, contact dermatitis and stomatitis, sarcoidosis
-Chronic granulomatous Disease .midline lethal granuloma, uveoparotid fever, wegeners granulomatosis, angioedema
• Diseases of bone and joints
-Osteogenesis imperfecta, fibrous dysplasia, cherubism, cleidicranial dysplasia, Down's syndrome, Pagets disease, Cementoblastoma
-Hyper and hypo parathyroidism, rickets
-Developmental disturbances of TMJ,: ankylosis, rheumatoid arthritis, osteoarthritis
- craniofacial dysostosis, mandibulofacial dysostosis, Pierre- Robin's syndrome, apert syndrome
-Luxation and subluxation,TMJ syndrome, Langerhans cell histiocytosis, eosinophilic granuloma and Hand-Schuller-Christian disease
• Diseases of blood and blood forming organs
-RBC diseases:
-Anemias: iron deficiency anemia and plummervinson syndrome, pernicious anemia and megaloblastic anemia, thalassemia, sickle cell
-Chediak –Higasi syndrome, thrombasthenia, parahemophilia anemia, aplastic anemia,erythroblastosis foetalis and polycythemia vera.

-WBC diseases: agranulocytosis, cyclic neutropenia, leukocytosis and leucopenia, infectious mononucleosis, leukemias
-Platelet and coagulation diseases: Purpura, thrombocytopenia, hemophilia, von Willebrand's disease
• Diseases of the skin
-Ectodermal dysplasia, oral lichen planus, psoriasis, erhthema multiformae, pemphigus pemphigoid (bullous, cicatricial), epidermolysis bullosa, Lupus erythematosis, systemic sclerosis, Dyskeratosis congenita,
-keratosis follicularis,white sponge nevus,acanthosis nigricans, paraneoplastic pemphigus,Hailey-Hailey disease,Ehlers –Danlos syndrome, Goltz's syndrome
• Diseases of nerves and muscles
-Trigeminal neuralgia, auriculotemporal syndrome, Bell's palsy, burning mouth syndrome, glossodynia and glossopyrosis, migraine
-Classification of diseases of muscles, myasthenia gravis, myositis ossificans
-Spenopalatine neuralgia, miscellaneous disturbances of nerves and muscles
• Forensic odontology
-Definitions and nomenclature
-Personal identification
-Dental identification
-Palatal rugae patterns
-Age estimation,
-Bite marks: classification, appearance, investigations, analysis, comparison and conclusion
-Lip prints.
-Identification in disasters, Identification from dental DNA, Dental profiling, sex identification from craniofacial morphology and dimensions and by DNA analysis
• Advanced diagnostic Methods (PCR,IHC ,Flow cytometry, microarray, tumor markers)-suggested

Third Dental Year courses continues in Fourth Dental Year

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

COURSE DESCRIPTION :

Orthodontics is a branch of dentistry dealing with study of growth in general and facial growth in particular and development of occlusion, applying the knowledge for diagnosis , prevention ,interception and treatment of occlusal abnormalities.

OBJECTIVES OF UNDERGRADUATE TEACHING :

1. The students should be able to understand how the facial growth affects occlusion and how occlusion can affect facial growth and facial forms and patterns.
2. The students should be able to understand the difference between ideal, normal, and malocclusion and the hierarchy of treatment needs.
3. The students should be able to diagnose, classify, and enumerate an appropriate treatment plan for any case under discussion.
4. The students should be able to recognize simple cases versus complex cases and should be able to apply orthodontics in a interdisciplinary approach.
5. The should be able to fabricate and use simple orthodontic appliances and orthodontic procedures on indicated cases.

Teaching program for third year

SERIAL NUMBER	TOPIC	HOURS
1.	**INTRODUCTION** Definition, sequelae of malooclusion,aims of orthodontic treatment, the scope orthodontic treatment, treatment options, brief history of orthodontics.	1
2.	**Incidence and prevalence** Definition, reasons to seek orthodontic treatment, IOTN, PAR INDEX	2
3.	**Growth and development- general principles** Definitions, factors affecting growth, concepts of growth, methods of gathering growth data, methods of studying growth, mechanism of bone growth, growth theories .	2
4.	**Prenatal growth and development** Growth of cranial base, growth of maxilla and palate, growth of mandible, factors affecting prenatal growth	2
5.	**Postnatal growth and development** Cranial base and synchondroses, maxilla, mandible, factors affecting postnatal growth	2
6.	**Development of dentition** Tooth development and eruption, periods of occlusal development and their features, eruption timetable	1
7.	**Occlusion** Definition, terminology, types of cusps, arrangement of teeth in humans and curves, centric relation versus centric occlusion,centric contacts, eccentric	1

	occlusion ,tmj in centric and eccentric occlusion, Andrews keys of occlusion.	
8.	**Classification of malocclusion** Need for classification, Types of malocclusion, terminologies, angles system of classification, Ackermann profit system of classification	1
9.	**Etiology of malocclusion** Classifications, local factors, general factors ,habits	3
10.	**Orthodontic diagnosis clinical examination** Case history, general examination, extraoral and intraoral examination, functional examination	4
11.	**Orthodontic diagnosis radiographic examination** Various radiographs available for orthodontic diagnosis and their specific indications, cephalometrics, hand and wrist radiographs	4
12.	**Orthodontic diagnosis model analysis** General principles of model analysis, specific model analysis for mixed dentition and permanent dentition, Indication ,interpretation, and procedure	3

Teaching program for fourth year

Serial number	TOPIC	Hours
1	**Biomechanics** Biology of tooth movement, mechanics of tooth movement, clinical application	3
2.	**Preventive orthodontics** Definition, various preventive orthodontic procedures, indication and contraindication	1
3.	**Interceptive orthodontics** Definition, various interceptive orthodontic procedures ,indication and contraindication	1
4.	**Methods of space management** Various options to gain space, various options to loose space, indications, contraindication, and procedures	5
5.	**Orthodontic appliances** Classifications, mechanical and myofunctional removable appliances, mechanical and myofuntional fixed appliances, orthopedic appliances	6
6.	**Management of malocclusions** General principles of treatment planning, management of intra arch and interarch	8

	malocclusion in all 3 planes of space, management of clefts	
7.	**Surgical orthodontics** Classification , various minor and major procedures, indications ,contraindication and timming	1
8.	**Retention and relapse** Causes of relapse, theories of retention, classification of retention, various retention appliances	1

Practical work

Wire bending excercises

Orthodontic appliance fabrication excercises

Treatment of selected clinical cases with removable appliance

Oral medicine, Oral diagnosis and radiology

OBJECTIVES:

The dental graduates during training in the Department of Oral Medicine & Radiology should acquire

• adequate knowledge which are required for carrying out all the activities involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues.

• Proficiency in Identifying Oral manifestations of systemic disorders and Management of Medically compromised patients.

• The graduate should also understand the concept of Radiology and Maxillofacial Imaging.

Able to identify precancerous and cancerous lesions of the oral cavity and refer to the concerned specialty for their management.

Competent to take intra oral radiographs and interpret the radiographs findings

• Gain adequate knowledge of various extra oral radiographic procedures, TMJ radiography and sialography

• Be aware of the importance of intra and extra-oral radiographs in forensic identification and age estimation

Oral medicine and diagnosis(3rd year)

Introduction to Oral Medicine

- Definition Scope and Clinical Applications

Principles of oral diagnosis

- Definitions.

- Importance of diagnosis and various types of diagnosis
- Case history and components.
- Physical examination methodologies - general examination, extra oral & neck examination , intra oral examination
- Concepts of provisional diagnosis, differential diagnosis.
- Clinical chair side investigations and radiological investigations, exfoliative cytology; hematological, microbiological, histopathological investigations.
- Special investigations --biochemical, sialochemical studies, serology, immunological studies.
- Final /confirmed diagnosis.
- Formulation of treatment plan & prognosis
- Periapical Diseases, And Diseases Of Dental Pulp, Diagnosis Of Dental Caries, Perioontal Diseases Such As Gingival Hyperplasia, Gingivitis, d Periodontitis, Pyogenic Granuloma

Immunology:

1.natural and acquired immunity
2.cytokines
3.immunoglobulins
4.complement system

Immunodeficiency diseases

1.primary immune deficiency diseases:
2.secondary immune deficiency diseases:

Allergy

1.Drugs used in hypersensitivity
2.types of hypersensitivity: type1(anaphylactic shock, Angioedema, Hay fever, Bronchial asthma Urticaria), type2, type3, type4.

Autoimmunity

1.Raynauds disease &Raynaud phenomenon.
2.Lupus Erythmatosis.
3.Rheumatiod arthritis
4.Dermatomyositis
5.Scleroderma

Adverse drug reactions

Unwanted effects of local anaesthetics

Immunologic disorders

1.Pemphigus vulgaris
2.Bullous pemphigoid
3.Mucous membrane pemphigoid
4.Erythema multiforme

clotting disorders

1.Hemophilia
2.Christmas disease
3.on Willebrand's disease
4.Liver diseases
3.Vitamin K deficiency
4.Anticoagulants

5.Disseminated intravascular coagulation (DIC)

Bleeding Disorders

1.Platelets disorders
2.Thrombocytopenia
3.Thrombocytosis
4.Platelets dysfunction
5.Scurvy
6.Herecitary hemorthagic telangiectasis
7.Diagnosis of patients with bleeding disorders

Red Blood cell Disorders

1.Anemia – classification
2.Iron deficieney anemia
3.Plummer Vinson syndrome
4.Pernivious anemia
5.Folate deficieney anemia
6.Aplastic anemia
7.Hemoglobinopathies
8.Sickle cell disease
9.Sickle cell anemia-HbSS
10.Sickle cell trait-HbAS
11.Thalassemia
12.Alpha thalassemia
13.Beta thalassemia
14.Glucose 6 phosphate dehydrogenase deficiency

white blood cell disorder

1.Agranulocytosis
2.Cyclic neutropenia
3.Multiple myeloma
4.Infection mononucleosis

Leukemia

1.Classification
2.Etiology
3.Acute leukemia
4.Chronic leukemia
5.Oral manifestation of leukemia
6.Dental implication

Lymphomas

1.Hodgkin's disease
2.Non Hodgkin Lymphoma

Radiology(3rd year)

1. Introduction to Oral Radiology

-History, origin, Definitions, scope &
limitations.

2. Basic physics in radiology

- Radiographic equipment
- Radiographic accessories (film holders, beam directional devices,
- intensifying screens, extra oralcassettes, grids etc.)

- Radiographic image receptors

3.Factors responsible for ideal radiographs:

i. KvP and ma of X-ray machine
ii. Filters
iii. Collimations
iv. Intensifying screens
v. Grids

4.Faulty radiographs and artefacts in radiographs.

5.Production of X rays (dark room procedures, composition of developer fixer, safe lighting, processing technique- manual/ automatic, storage of films)

-Properties of X rays
-Sources of radiation.
-Electromagnetic spectrum & types of radiation
-Electro physical factors
-Collimation, Filtration
-Films
-Principles of Shadow
-CastingProjection Geometry
-Object localization techniques

6. Principles of Intra oral Radiography, techniques, indications of - IOPA Bitewing, Occlusal radiography - lecture

7. Radiographic interpretaon -

- Principles, procedures.
- Normal radiographic landmarks of jaws & adjacent structures.
- Radiographic interpretations & differential diagnosis in dental caries periodontal diseases, periapical disease

Oral medicine and diagnosis(4th year)

White and red lesions of oral mucosa

1.Oral keratosis
2.Leukoplakia
3.Erythroplakia
4.Burns
5.Oral candidosis
6.Lichen planus
7.Oral submucous fibrosis
8.White folded gingivostomatitis
9.Fordyce,s granules
10.Koplik's spots
11.Diphtheria
12.Radiation mucositis

Oral Ulcers

1.Classification
2.Reactive ulcers
3.Neerotizing ulcerative gingivitis

4.Tuberculosis
5.Syphilis
6.Deep fungal infection
7.Viral infection
8.Herpes simplex infection
9.Varicella Zoster virus infection
10.Ramsay-Hunt syndrome
11.Coxsackie virus
12.Acute lymphonodular pharyngitis
13.Neoplasms

Muco-cutaneous ocular syndromes

1.Behcet's syndrome
2.Reiter's syndrome
3.Recurrent aphthous ulcers
4.Linear IgA diseases

Oral ulcers secondary to cancer

1.Chemotherapy

Inflammatory bowel diseases

1.Crohn's disease
2.Epidermolysis bullosa

Dental management of systemic diseases

1.Coronary artery disease
2.Angina pectoris
3.Myocardial infarction
4.Hypertension
5.Rheumaic fever
6.Infective endocarditis
7.Heart failure
8.Congenital heart disease

Endocrine disorder

1.pituitary gland
2.Adrenal gland
3.Thyroid gland
4.Parathyroid gland
5.Pregnancy
6.Menopause
7.Diabetes mellitus
8.Renal disease
9.Epilepsy
10.Premalignant lesions and predisposing conditions
11.Risk factors for malignant changes
12.Oral cancer
13.Diagnosis of oral cancer
14.Tumor classification
15.Modes of cancer treatment
16.Prevention

Methods of pain control

1.Removal of the cause
2.Blocking of the cause
3.Raising pain threshold
4.Management of acute dental pain
5.Preventing pain reaction by cortical depression
6.Psychosomatic methods
7.Treatment of chronic pain of dental interest

Orofacial pain

1.Classification
2.Somatic pain
3.Paroxysmal trigeminal neuralgia
4.Glossopharyngeal neuralgia
5.Occipital neuralgia
6.Neuritis
7.Post traumatic neuralgia
8.Atypical odontalgia
9.Psychogenic pain
10.Atypical facial pain
11.Burning mouth syndrome
12.Myo-facial pain dysfunction syndrome
13.Referred pain

Vascular pain

1.Temporal
2.Migraine
3.Local causes of facial pain

Another causes of facial pain

1.Bell's palsy
2.Trotter's syndrome
3.Frey's auriculo-temporal syndrome

Diseases of the tongue

1.Congenital anomalies
2.Atrophy of tongue coating
3.Increased tongue coating
4.Black hairy tongue
5.Geographic tongue
6.Indentation markings
7.Sublingual varices
8.Burning tongue
9.Papillitis (Painful foliate and circumvallate papillae)
10.Taste

Diseases of salivary glands

1.Classification
2.Mumps
3.Postoperative parotitis
4.Sialadenitis
5.Sjogren's syndrome
6.Xerostomia

7.Ptyalism

Oral & facial hyperpingmentation

1.Types of pigments
2.Etiologic classification
3.Melanin pigmentation
4.Function of melanin
5.Polystotic fibrous dysplasia
6.Multiple neurofibromatosis
7.Peutz jegher's syndrome
8.Pigmented nevus
9.Melanoma & malignant melanoma
10.Lipopigments
11.Jaundice
12.Hemochromatosis
13.Metallic intoxication

Granulomatous diseases

1.Classification
2.Tuberculosis
3.Actinomyeosis
4.Syphilis
5.Orofacial granulomatosis

Drugs of emergency in dental clinic

1.Classification of drugs of emergency
2.Primary injectable drugs
3.Secondary injectable Drugs
4.Non injectable Drugs
5.Emergency Equipments

Coma in dental office

1.Etiology
2.Predisposing factors
3.General manifestation of coma
4.Prevention
5.Mechanism of coma
6.Management
7.Vassodepressor syncope
8.Orthostatic Hypotension . Postural Hypotension
9.Acute adrenal insufficiency
10.Hypoglycemia
11.Hyperventilation syndrome

Hepatitis

AIDS

1.Infection control

Halitosis

Occupational disease of the dentist

Focal infection

Diagnostic protocol for differential diagnosis of cysts:
1- odontogenic, non- odontogenic and developmental cysts.
2-Cysts of soft tissues : Mucocele and Ranula
3-Cysts of bone : odontogenic and non-odontogenic.
4-Tumors: Soft tissue: Epithelial: Papilloma, Carcinoma, Melanoma.
5-Connective tissue: Fiborma, lipoma,fibrosarcoma.
-Vascular: Haemangioma, Lymphangioma.
6-Nerve tissue: Neurofibroma, traumatic neuroma, Neurofibromatosis.
7-Salivary Glands: Pleomorphic adenoma, Adenocarcinoma, Warthin's tumor, Adenodid cysic carcinoma.
8- Hard tissue:
Non-odontogenic tumors
Odontogenic tumors
Fibro osseous lesions of oral paraoral structures

RADIOLOGY(4th year)

1. Radiographic interpreation II
- Radiographic artifacts
- Radiographic features of common pathologies of jaw bones (cysts , tumors, fibro-osseous diseases, metabolic, endocrine, nutritional blood disorders)
- TMJ radiography

2. Biologic effects of radiation and radiation protection
3. Principles of radiotherapy- preparation of patient for oral radiotherapy, management of post radiation oral complications
4. Principles of extra oral radiography- techniques and indications of maxillary sinus, trauma radiography, cephalometry, various skull projections.
5. Contrast radiography- technique and interpretation of Sialography, cystography, arthrography, angiography- lecture.
6. Panoramic Radiography
7. Advance radiographic techniques- CT scans, PET scans, radionucleide diagnosis, digital radiography, sialography, digital imaging, xeroradiography

Clinical
(3th & 4th year)

ORAL MEDICINE
1. Detailed presentation of case histories of (minimum) ten special cases.

RADIOLOGY
1. Taking IOPA for at least 25 cases and processing them.
2. Taking at least 2 Bite wing radiographs and processing them.
3. Interpretation of at least 25 IOPA Radiographs.

PEADIATRIC DENTISTRY

Fouth Dental Year only

Introduction to Pediatric

Definition, Scope, Objectives and Importance

Dental Anatomy and Histology

_ Chronology of Eruption of teeth

_ Differences between primary and permanent teeth

_ Eruption disorders and their management including teething, ectopic eruption, ankylosis etc.

_ Importance of first permanent molar

Growth and Development (will be covered by Department of Orthodontics also)

_ Importance of study of growth and development in Pedodontics

_ Prenatal and postnatal factors in growth and development

_ Theories of growth and development

_ Methods to measure growth

_ Development of maxilla and mandible and age related changes

Development of occlusion from birth to adolescence

_ Mouth of neonate, gumpads

_ Primary Dentition period

_ Mixed dentition period

_ Establishment of occlusion

_ Study of variation and abnormalities

Case history recording

_ Principles of history taking, examination, investigations,

_ diagnosis and treatment planning

Child Psychology

_ Definition

_ Importance of understanding Child Psychology in Pedodontics

_ Theories

_ Psychological development from birth through adolescence

_ Dental fear, anxiety and their management, types of cry

_ Application of Psychology principles in management of child

_ patients in the dental office

_ Psychological disorders including anorexia, bulimia

_ Child abuse and neglect

Behaviour management

_ Definition

_ Classification and types of behaviour

_ Factors influencing child behaviour
_ Non- Pharmacologic management of behaviour
_ Pharmacologic management of behaviour-
_ Conscious sedation including nitrous oxide- oxygen inhalational anaesthesia
_ Pharmacological principles in Pediatric Dentistry- drug dosage formulae
_ Analgesics, anti-inflammatory and antibiotics commonly prescribed for children

Dental Radiology as related to Pedodontics

Dental materials used commonly in children and adolescents

Pediatric Operative Dentistry

- Principles of Operative Dentistry
-Isolation- Importance and techniques
-Young Permanent Teeth and clinical considerations
-Modifications in cavity preparation and recent cavity designs for primary and young permanent teeth
-Atraumatic / Alternative Restorative Technique (ART)
-Other methods of caries removal

Restoration of carious teeth (Primary, young permanent and permanent teeth) using

-various restorative materials like glass ionomers, composites, silver amalgam
- Preformed crowns: Stainless steel, polycarbonate and strip crowns

Gingival and Periodontal diseases in children

- Normal gingival and periodontium in children
-Definition, classification
-Etiology, Pathogenesis and management of gingival and periodontal condition seen in children and adolescents

Pediatric Endodontics

- Principles and diagnosis
-Classification of pulp pathology
-Management of pulpaly involved primary, young permanent and permanent teeth including materials used and techniques followed:
- Pulp capping
-Pulpotomy
-Pulpectomy
-Apexogenesis
-Apexification

Traumatic injuries to teeth

_ Definition, classification
_ Etiology and incidence
_ Management of trauma to primary teeth
_ Sequelae and reaction following trauma to primary teeth
_ Management of trauma to young permanent teeth
_ Prevention of trauma: mouth protectors

Preventive Orthodontics

_ Importance and functions of deciduous dentition

_ Effects of premature loss of primary teeth

Preventive Orthodontics:

_ Definition

_ Preventive measures

_ Space loss

_ Space maintenance and space management

_ Space maintainers: definition, classification, indications and contra indications, advantages and disadvantages including construction of fixed space maintainers

_ Space regainers

_ Mixed dentition analysis

_ Serial extraction

Interceptive Orthodontics

_ Oral Habits in children

_ Definition, classification and etiology of all habits

_ Clinical features of deleterious oral habits including non- nutritive sucking, mouth breathing, non functional grinding, masochistic and occupational habits

_ Management of oral habits in children

_ Other problems seen during primary and mixed dentition period and their management

Dental management of children with special needs

_ Definition, classification, etiology, clinical features, special considerations in the dental management of :

_ Physically handicapping conditions

_ Mentally handicapping conditions

_ Medically compromising conditions

_ Genetic disorders and importance of genetic counselling including cleft lip and palate and its management

Oral surgical procedures in children

_ Indications and contra indications for extraction

_ Minor surgical procedures in children

_ Knowledge of local and general anaesthesia

b) PRACTICALS/ CLINICALS

Clinical work

-Behavior Management of different age groups children with complete records

-Case History :

Recording, Outline of Principles of examinations, diagnosis & treatment planning.

-Management of Dental Caries

(I) Class I

(II) Class II

(III) Other Restorations

-Management of traumatized anterior Teeth

- Aesthetic Restorations.
- Pediatric Endodontic Procedures

 Deciduous teeth

 Pulpotomy / Pulpectomy

 Permanent Molars

 Permanent Incisor

 Apexification &Apexogenesis

Periodontics

Course Objective

The goals of the department of Periodontics in the education of the undergraduate dental student are as follows:

a) To teach the student to diagnose the periodontal status of patients and to recognize the changes that occur in the transition from health to disease. The student should be able to diagnose, plan treatment, provide therapy and distinguish disease states which require patient referral to Periodontitis and other health care specialists

b) To develop an interest in maintaining the health and integrity of the periodontal tissues.

c) To motivate students to develop the desire and skills to prevent periodontal diseases.

d) To develop an awareness of the various influences of all other clinical disciplines on the health of periodontal tissues.

e) To emphasize that knowledge in Periodontics is continually growing and changing and that dental school is the beginning not the end of dental education. The background received in dental school prepares the dentist to continue to learn from his/her own practice, colleagues, dental meetings and continuing education courses

(3rd year)

1 Terms & definitions frequently used in Periodontology

2 Histology of Periodontium (Gingiva, alveolar process, cementum, PDL, oral mucosa)

3 Classification of periodontal diseases

4 Etiology of periodontal disease & risk factors

5 Microbial dental plaque & Dental calculus

6 Pathogenesis of periodontal disease

7Treatment plan

8 Periodontal diseases prevention & diet

9 Drugs in Perio.

(4th year)

Diagnosis & classification
Advances in diagnosis
Tooth mobility
Furcation involvement
Assessment in surgery
Epidemiology
Hypersensitivity
Management of medically compromised patients
Risk factors
Immunology & Immunopathology
Perio. With other aspects of dentistry
Periodontal healing after therapy
LASER in Perio.
Cross infection
Gingival crevicular fluid
Implant & periimplantitis
Antibiotics in perio.
Non- surgical periodontal therapy
Trauma from occlusion
GTR

Clinical aspects includes:

description of instruments, rationale and objectives of scaling and root planning with manual and ultrasonic instruments. manual probing techniques used for the diagnosis of periodontal diseases, interpretation of radiographic findings associated with periodontal diseases and occlusal trauma including:

1. severity of bone loss and crown root ratio
2. patterns of bone loss (angular/horizontal)
3. changes in crestal and radicular lamina dura
4. furcation and periapical radiolucencies
5. presence of calculus, caries and defective restorations
6. root proximity and root resorption
7. widened periodontal ligament space
8. other anatomic features such as sinus and mandibular canal locations

- describe the rationales and objectives of the following phases of therapy: Cause-related phase, corrective phase, maintenance phase. describe the postoperative instructions to be given after periodontal surgery. describe postoperative emergencies and procedures for their management.

The Department of Oral & maxillofacial Surgery

Prospectus:

1. The details of the college premises.
2. The affiliation of the academic curriculum as per the norms.
3. The information regarding the admission of candidates.
4. Programme of Under-graduate training.

The Department of the Oral & Maxillofacial surgery meets the need of basic oral surgical requirements in terms of the infra structure as well as the instruments required to carry out minor surgical procedures as well as routine exodontia.

The systematic approach towards handling of the cases in the out- patient department has developed an atmosphere of conducive rapport amongst the general public as well as the working doctors.
The intake of students of numbers 30 to 35 every year into the academic course is a good enough number to pay attention to the requirements of each and every candidate to the fullest.

The training programme in terms of lectures, demonstration, as well as clinical hands-on in the subject of Oral & maxillofacial surgery is handled by a team of dedicated faculty who are guided by the Head of the Department as well as by the Dean of the Institution.

The management of major surgical procedures which needs inpatient facilities is managed at the 2nd March Hospital which is under the wings of the Medical and Dental University of Sebha.

The atmosphere of goodwill as well as the interest in the overall development of the department has made this university of Dentistry very unique and noteworthy.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

BDS III & IV year – Syllabus

III year: 23 hrs

1.	**Introduction to oral surgery:** a)Definition, Objectives & scope b)History taking, examination of pt's, investigation & diagnosis	2 hours
2.	**Anaesthesia :** Local Anaesthesia (L. A.) a)Neurology of facial pain b)Historical aspects,definition,types of L A., Indications & contra indications, advantages & disadvantages c) Local anaesthetic drugs, classification. d) Ideal requirements of L. A. solutions, composition & mode of action. e) Factors to be considered in the choice of particular mode of anaesthesia. F) Complications of L A., its prevention & management.	6 hours
3.	**Anaesthesia of the mandible:** Anatomical considerations, infiltration, mental nerve block & inferior dental nerve block.	3 hours
4.	**Anaesthesia of the maxilla:** A) Anatomical considerations, infiltration, infra orbital nerve block, posterior superior alveolar & maxillary nerve block. b) Extra oral blocks- Indications & technique.	3 hours

5.	**General anaesthesia(G A)** -History of G A. -Indications of G A in oral surgery -Pre anaesthetic evaluation of the patient -Pre medication -Types of G A, including I.V. sedation stages of G A, common general anaesthetic agents -Complications during & after anaesthesia -Post anaesthetic care of the patients.	3 hours
6.	**Asepsis, sterilization, cross infection & disinfection**. -Definitions -Terminologies -General considerations -Effective measure infection control -Problem encountered in infection control	2 hours
7.	**Dento Alveolar Surgery** -General consideration -Indications and contra indications -Methods of extraction-principle of forceps extraction,indication,principle and surgical procedure of trans alveolar extraction -Principle and use of elevators	4 hours

IV year: 57 hrs

1.	**Impacted teeth** -General factors -Classification, indications for removal of lower -Assessment; clinical, radiological -Anesthetics consideration -Surgical procedures -Maxillary third molar and canine impaction, incidence, indications for removal classification, assessment and localization, surgical procedure. -Complications of surgical removal of impacted teeth/2nd Molar sent to endodontic. **Endodontic surgery** -Introduction -Classification -Apicectomy -Replantation	4 hours
2.	**Disease of salivary gland** -General features -Investigations in the diagnosis of salivary gland disease -Acute and chronic infection -Salivary calculus and its management -Tumors of salivary gland	1 hour
3.	**Neurogenic disorder** - Nerve injuries - Trigeminal neuralgia - Glossopharyxgeal and facial paralysis - Facial nerve palsy	4 hours
4.	**Fracture of the jaws** -Introduction, applied anatomy and types of fractures -Dentoalveolar fractures -Mandibular fracture- classification, clinical features and diagnosis, preliminary and definitive treatment, - Zygomatic complex fracture - Middle third fractures- classification ,clinical features, and diagnosis, outline of immediate and definitive treatment -Orbital fracture -Nasal fracture	12 hours

5.	**Developmental deformities** -Deformities of the jaws Basic form of the deformities, Prognathism, retrognathism and apertognathia Reasons for correction and pre operative planning Outline of various surgical procedure in maxilla and mandible - Cleft lip and palate etiology, incidence, timing of repair role of general dental practitioner	7 hours
6.	**Emergency in dental practice** -Cardio vascular - Respiratory -Endocrine -Drug allergies and interaction -Tracheostomy	2 hours
7.	**Pre-prosthetic surgery** Introduction, aims of pre prosthetic surgery, classification -Corrective procedures hard and soft tissue -Sulcus extension procedure -Ridge reconstruction	3 hours
8.	**Principle of implantology**	1 hour
9.	**Infection of oral cavity** -Introduction -Microbiology of infection -Anatomic consideration of facial spaces -Spread of infection - Acute dentoalveolar infection -Acute and chronic infection of the jaws: cellulitis, Ludwig's angina, Actinomycosis - Osteomyelitis, osteo-radionecrosis -Management of infection Medical- antibiotics, analgesic, anti inflammatory drugs Surgical - Hepatitis and H. I. V. infection	5 hours

10.	**Maxillary sinus disease** - Applied anatomy - Acute and chronic sinusitis - Surgical approaches to sinus - Removal of the root and tooth from antrum - Oro-antral fistula and its management	3 hours
11.	**Cystic lesions of the jaws** -General features,definition,classification -Pathogenesis, signs and symptoms -Clinical, radiological and other investigation -Surgical management and complication	4 hours
12.	**Disorders of the temporo-mandibular joint** -Applied anatomy - Sub luxation -Pain dysfunction syndrome -Ankylosis of the joint and management -Infection of the T.M. joint	5 hours
13.	**Oral surgical procedure in-** -Systemic disease -Patient with medically compromised condition -Immuno compromised condition -Geriatric patient -Pregnant woman	4 hours

CLINICALS: 220 HOURS

III BDS:

STUDENTS REQUIRED TO LEARN THE FOLLOWING

1) Case history taking
2) Examination of the patient
3) Recording blood pressure
4) Various anesthetic injection techniques
5) Use of different instrument in oral surgery
6) Extraction of mobile teeth
7) Wiring techniques on models
8) Suturing techniques on models-orange peel/glove

IV BDS:

Student in final year are required to do

Sl.No	Procedure	No. of cases	Category
1.	Closed method of extractions		Must do
2.	Open method of extractions with suturing		Must do
3.	I.V. & I.M. injections		Desirable to do
4.	Major case history taking		Must do
5.	Wiring & arch bar fixation		Desirable to do
6.	Assisting in major surgical procedures under general anaesthesia		Desirable to do
7.	Handling medical emergencies & C.P.R training		Must do

Removable prosthodontics

(3th year)

1.Introduction And Component Parts Of RPD
2.Terminology And Definitions
3.Clinical And Laboratory Steps In RPD
4.Classification Of Partially Edentulous Arches
5.Surveying
6.Component Parts Of RPD –Major Connector
-Maxillary Major Connector
-Mandibular Major Connector
-Minor Connector
-Rest And Rest Seat
-Retention And RPD Retainer
-Extra Coronal Direct Retainer In RPD
-Intra Coronal Direct Retainer In RPD
-Indirect Retainer (Continue)
-Denture Base In RPD
-Stress Breaker In RPD
7.Principles Of RPD Designing
8.Block Out And Relief
9.Duplication, Refractory Cast, Wax Pattern, Casting And Finishing Phases Of RPD Treatment
10.Jaw Relation In RPD
11.Teeth Arrangement In RPD
12.Trial RPD
13.Types Of Metals Used For RPD
14.Acrylic RPD
15.Relining And Rebasing Of RPD

Practical

-Introduction for component parts of RPD, types and classification of partially edentulous arches.
-Continue and Demonstration of cast trimming (upper and lower).
-Evaluation of cast trimming (upper and lower).
-Demonstration of surveying and block out for acrylic RPD (upper and lower).
-Evaluation of surveying and block out for acrylic RPD (upper and lower).
-Demonstration of wire bending of clasps for acrylic RPD.
-Evaluation of wire bending of clasps for acrylic RPD.
-Demonstration of record bases and occlusion rims constructions for acrylic RPDs.
-Evaluation of record bases and occlusion rims constructions for acrylic RPDs.
-Demonstration of jaw relation record and mounting of upper and lower casts.
-Evaluation of jaw relation record and mounting of upper and lower casts.
-Demonstration of teeth arrangement for upper and lower acrylic RPDs.
-Evaluation of teeth arrangement for upper and lower acrylic RPDs.
-Demonstration of waxing and carving for acrylic RPDs.
-Evaluation of waxing and carving for acrylic RPDs.
-Explanation the principle of drawing designs for maxillary chrome cobalt partial denture framework
-Explanation the principle of drawing designs for mandibular chrome cobalt partial denture framework (Two dimensions).
-Drawing of chrome cobalt designs (Two dimensions) for different cases on sheets by students (for upper and lower cases).
-Demonstration of drawing designs for maxillary and mandibular chrome cobalt framework designs on casts (Three dimensions).
-Drawing designs for maxillary and mandibular chrome cobalt framework designs by students on casts (Three dimensions) and evaluation.
-Demonstration of block out and relief on master casts for chrome cobalt RPDs (upper and lower).
-Evaluation of block out and relief on master casts for chrome cobalt RPDs (upper and lower).
-Demonstration of duplication for construction of refractory cast (With CD demonstration).
-Demonstration of wax pattern and spruing of the wax pattern of the framework design on duplicated cast (With CD demonstration).

(4th year)

1.Diagnosis and treatment plan for RPD
2.Mouth preparation and abutment tooth preparation for RPD

3.Impression materials and techniques for R PD
4.Support in FEE RPD & altered cast technique
5.Frame work try in and occlusion in RPD
6.Insertion and adjustments RPD
7.Anatomical land mark Osteology
8.Anatomical land mark Myology
9.Prep prosthetic surgery
10.Diagnosis and treatment plane CD
11.Impression for CD
12.TMJ and mandibular movement
13.Jaw relation-vertical
14.Jaw relation-horizontal
15Try in stage in CD
16Insertion of CD
17.Adjustments of CD
18.relining and rebasing in RPD
19.Repair and addition of tooth in RPD
20.Differences between two main types of RPD

practical

Clinical Steps in brief and laboratory steps in detail

THIRD YEAR AND FOURTH YEAR B.D.S., COURSE SYLLABUS IN FIXED PROSTHODONTICS

1. DESCRIPTION OF THE COURSE

Fixed prosthodontics is the art and science of restoring damaged teeth with cast metal, metal-ceramic, or all-ceramic restorations, and replacing missing teeth with fixed prostheses. Successfully treating a patient by means of fixed prosthodontics requires a thoughtful combination of many aspects of dental treatment: patient education and the prevention of further dental disease, sound diagnosis, periodontal therapy, operative skills, occlusal considerations.

2. AIMS AND OBJECTIVES OF THE COURSE

1. The course syllabus is designed to serve as an introduction to the area of restorative dentistry dealing with fixed partial dentures and cast metal, metal-ceramic, and all-ceramic restorations.

2. It provides the background knowledge needed for formulating rational judgments in the clinical environment, with the fundamentals of treatment planning, occlusion, and tooth preparation.

3. Specific techniques and instruments that a dental student must deal with them in their daily work.

4. To provide a sound working knowledge regarding various clinical steps and laboratory steps in fixed prosthodontic therapy.

5. To provide information about the techniques in fabrication of all-ceramic and metal-ceramic , resin bonded prostheses with specific emphasis on esthetics.

6. Explain the patient the various objectives of treatment plan, forms of treatment, prognosis, time required to accomplish the work and an estimated cost of treatment.

7. Know how to modify the treatment plan according to the patients dental health and general health.

3. TEACHING METHODOLOGY

1. Lectures.

2. Tooth preparation on the phantom jaws.

3. Seminars and group discussions.

THIRD YEAR B.D.S., COURSE SYLLABUS IN FIXED PROSTHODONTICS

SL. NO.	TOPICS	HOURS
1.	Diagnosis and treatment planning	2
2.	Restoration of badly broken endodontically treated teeth	1
3.	Tissue dilation, impression and inter-occlusal record	2
4.	Provisional restorations	1
5.	Color science and shade selection	1
6.	Luting agents and cementation procedures	1
7.	Pontic designs	1
8.	Connectors and soldering procedures	1
9.	Metal-ceramic restorations (design and construction)	2
10.	Precision attachments in FPD	1
11.	Fundamentals of occlusion	1

FOURTH YEAR B.D.S., COURSE SYLLABUS IN FIXED PROSTHODONTICS

SL. NO.	TOPICS	HOURS
1.	Biological and periodontal consideration in fixed prosthodontics	1
2.	Esthetic consideration in fixed prosthodontics	1
3.	Checking, verification, care and maintainance if fixed prosthesis	1
4.	Failure of fixed prostheses	1
5.	Removal and repair of fixed prostheses	1
6.	Advanced ceramics	1
7.	Porcelain laminate veneers	1
8.	Resin bonded bridges	1
9.	Dental implants	1
10.	Laser application in fixed prosthodontics	1

SECOND YEAR B.D.S., COURSE SYLLABUS IN FIXED PROSTHODONTICS

SL. NO.	TOPICS	HOURS
1.	Terminology and classification	**1**
2.	Instruments	**1**
3.	Principles of tooth preparation for extra-coronal restoration	**1**
4.	The full metal cast crown	**1**
5.	All-ceramic restorations (Preparation and construction)	**2**
6.	Metal-ceramic crown preparation	**1**
7.	Working cast and dies	**1**
8.	Wax pattern construction	**1**
9.	Different alloys used	**1**
10.	Spruing, investind and casting procedures (including casting failures)	**1**

CONSERVATIVE DENTISTRY AND ENDODONTICS

Knowledge and Under Standing:

The graduate should acquire the following knowledge during the period of training,

(1) To diagnose and treat simple restorative work for teeth.

(2) To gain knowledge about aesthetic restorative material and to translate the same to patients needs.

(3) To gain the knowledge about endodontic treatment on the basis of scientific foundation.

(4) To carry out simple endodontic treatment.

(5) To carry out simple luxation of tooth and its treatment and to provide

emergency endodontic treatment.

Skills:

He should attain following skills necessary for practice of dentistry

(1) To use medium and high speed hand pieces to carry out restorative work.

(2) Poses the skills to use and familiarize endodontic instruments and materials needed for carrying out simple endodontic treatment.

(3) To achieve the skills to translate patients esthetic needs along with function.

Attitudes:

(1) Maintain a high standard of professional ethics &conduct and apply these in all aspects of professional life.

(2) Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.

(3) To help and participate in the implementation of the national oral health policy.

(4) He should be able to motivate the patient for proper dental treatment and maintenance of oral hygiene should be emphasise which will help to maintain the restorative work and prevent future damage

(CONSERVATIVE DENTISTRY 2nd year)

Introduction to Conservative Dentistry.

Definition, Aim & Scope of Conservative Dentistry & Endodontics

Nomenclature of dentition; Tooth Numbering systems

Restoration

- Definition & Objectives

Hand Instruments

- Classification, Nomenclature, Design, Formula of hand cutting instruments, Grasps and Rests, Sterilization.

- Rotary Cutting instruments - Burs, Design, Types. Various speeds in tooth preparation. Hazards with cutting instruments.

Dental caries

– Aetiology, classification, caries terminology

Fundamentals in Tooth preparation

Definition, Stages and steps , Classification of Tooth preparations, Nomenclature, Concepts in tooth

preparations for Silver Amalgam, Cast gold inlay, Composite resins and Glass Ionomer

-Tooth preparation for amalgam restorations.

-Stepwise procedure for Class I, II, III, IV, V amalgam restorations.
Failure of amalgam restoration.

Contact and contour of teeth

– different methods of tooth separation

Matrices, Retainers, Wedges

– methods of wedging

Finishing & polishing of restorations.

Chair side positions

– patient and operator positions

Management of deep carious lesions

– Technique of caries excavation with hand and rotary instruments, Affected and Infected dentin, Caries detector dyes, Concept of Remaining Dentin Thickness, Pulp capping and Pulpotomy.

Access cavity and brief introduction of root canal instruments

(CONSERVATIVE DENTISTRY and endodontics 3rd year)

Nomenclature of Dentition

Tooth numbering systems: ADA, Zsigmondy- Palmer, and FDI systems

Anthological concepts of Restoration

Physiology of occlusion, normal occlusion, ideal occlusion mandibular movements and occlusal analysis.

Occlusal rehabilitation and restoration.

Dental Caries

Aetiology, classification clinical features, morphological features, microscopic features, clinical

diagnosis and sequel of dental caries. Caries treatment.

Treatment Planning For Restorative Procedure:

Patient assessment, clinical examination, radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet. Patient and operator position.

Preventive measures in restorative practice

Plaque control, Pit and Fissure sealants, Fluorides, Dietary measures, restorative procedures and

periodontal health.

Armamentarium for Tooth Preparation:

General classification of operative instruments.

a) Hand cutting instruments

Terminology and classification

Design, formula and sharpening of instruments.

Grasp Rest and application.
b) Rotary cutting instruments
Dental bur , mechanism of cutting
Common design characteristics
Diamond and other abrasive instruments
Cutting mechanism
Hazards and precations
Sterilization and maintenance of instruments.
Basic Instrument tray set up.
Isolation of Operating Filed:
Control of moisture ,purpose and methods of isolation, rubber dam isolation in detail, antisialogogues
Infection Control
Routes of transmission of dental infection
Personal barrier protection
Control of infection from aerosol, spatter
Sterilization procedures for dental equipment and instruments, monitoring sterilization, disinfection of operatory
Dental water line contamination and Biofilm
Disposal of waste
Pulp Protection
Liners, Varnishes , Bases.
Affected and infected dentin, Caries detector dyes
Concepts of Remaining Dentin Thickness
Pain control in restorative procedures
Amalgam Restoration:
Indication, contraindication.
Physical and mechanical properties
Clinical behavior
Advantages and disadvantages.
Tooth preparation for Class I , II, V and III.
Step wise procedure for tooth preparation and restoration including modified designs.
Bonded amalgam,
Failure and repair of amalgam restorations
Contacts and contour
Tooth separation
Matrices, retainers and wedges, methods of wedging
Management Of Deep Carious Lesions

Technique of caries excavation – Hand and rotary
Indirect and Direct Pulp Capping,
Pulpotomy

Dentinal Hypersensitivity

Theories of hypersensitivity
Management

Complex amalgam restorations

Pin Amalgam Restoration
Indications, Contra Indication, Advantages, Disadvantages of pin amalgams, types of pins, methods of placement, alternative means for providing retention for complex amalgam restorations.
Failure of pin
amalgam restoration

Gingival Tissue Management

Indication and methods, including recent techniques for gingival retraction.

Adhesion to tooth structure

Definition and mechanism
Enamel and Dentin bonding
Classification and recent development in dentin bonding systems components of dentin bonding agents
critical steps in dentin bonding.

Anterior Restorations

Selection of cases, selection of material, shade selection, Clinical technique for anterior composite
restorations.

Composite Restorations

Composition, classification, properties
Recent advances in composite resins
Indications, contraindications, advantages, disadvantages
Step wise procedures of tooth preparation for composite restorations. Finishing and polishing of
composite restoration

Minimal Invasive Dentistry

Principles of MID, caries risk assessment, materials and techniques
Alternate methods of tooth preparation for restorations
Air abrasion, chemo mechanical method, lasers

Nomenclature Of Dentition:

Tooth numbering systems - A.D.A. Zsigmondy Palmer and F.D.I. systems

Principles Of Cavity Preparation :

Steps and nomenclature of cavity preparation

Classification of cavities

Nomenclature of floors & angles of cavities.

Dental Caries :

Aetiology Types of direct filling gold

Classification and clinical features

Morphological features

Microscopic features

Treatment Plans

Diagnosis and sequel of dental caries

Treatment Planning For Operative Dentistry:

Detailed clinical examination

Radiographic examination

Tooth vitality tests

Diagnosis

Treatment planning

Preparation of the case sheet

Armamentarium For Cavity Preparation:

General classification of operative instruments

Hand cutting instruments design formula

Rotary cutting instruments and dental bur

Mechanism of cutting

Evaluation of hand piece and speed

Current concepts of rotary cutting procedures

Sterilization

Maintenance of instruments.

Basic instrument tray set up

Control of Operating Field:

Light source, Sterilization of field of operation and control of moisture

Rubber dam in detail

Cotton rolls and anti sialogogues

Amalgam Restoration

Indication and contraindication

Physical and mechanical properties

Clinical features

Cavity preparation for Class I , II, V and III.

Step wise procedure for cavity preparation and restoration.
Failure of amalgam restoration

Pulp Protection :

Liners – Calcium Hydroxide
Varnishes and bases
Zinc phosphate
Zinc polycarboxylate
Zinc oxide eugenol
Glass ionomer cements

Anterior Restoration

Selection of cases
Selection of material
Step wise procedures for using restorations.
Glass ionomer, composites including sandwich restorations and bevels of the same with a note on status of the dentine bonding agents.

Preventive Measures In Restorative Practice:

Plaque Control
Pit and fissure sealants
Dietary measures
Periodontal health
Contact and contour of teeth
Tooth separation.
Matrices and wedges
Temporization or Interim Restoration

Pin retained Amalgam Restoration

Indication and Contra Indication
Advantages disadvantages
Types of pin
Methods of placements
Use of automatrix
Failure of pin amalgam restoration

Management Of Deep Carious Lesions

Direct Pulp Capping.
Indirect Pulp Capping
Restorative measures

Non Carious Destruction's Tooth Structures

Diagnosis and Clinical Management
Hyper Sensitive Dentine And Its Management

Cast Restorations

Indications

Contra indications

Advantages and disadvantages and materials used for same

Cavity preparation

Gingival Tissue Management For Cast Restoration And Impression Procedures

Recent Cavity Modification for Amalgam Restoration

Differences between Amalgam And Inlay Cavity preparation

Note on all the types of Bevels used for Cast Restoration

Control Of Pain During Operative Procedure

Treatment Planning For Operative Dentistry

Detailed Clinical Examination

Radiographic Examination

Vitality Tests

Diagnosis And Treatment Planning.

Preparation Of Case Sheet

Applied Dental Materials.

Biological Considerations

Evaluation clinical application and adverse effects of the following Materials

Dental Cements.

Zinc oxide eugenol cements

Zinc phosphate cements

Polycarboxylates

Glass ionomer cements

Calcium hydroxides

Varnishes

Dental amalgam

Technical considerations mercury toxicity mercury hygiene

Composite, Dentine bonding agents, chemical and light curing composites

Rubber base Impression Materials

Nobel metal alloys & non noble metal alloys

Investment and die materials

Inlay casting waxes

Dental porcelain

Aesthetic Dentistry 04HRS

Anatomy & physiology of smile

Bleaching of teeth

(CONSERVATIVE DENTISTRY and endodontics 4th year)

- Introduction,

definition, scope and future of Endodontics

Rationale and principles of Endodontics

Case selection, indication and contraindications for root canal treatments

Clinical diagnostic methods

Case history, diagnosis and treatment plan

Microbiology of endodontic infection

Isolation and infection control in Endodontics

Rubber dam application

Endodontic instruments

Hand instruments

Power driven instruments

Standardization

Principles of using endodontic instruments

Sterilization

Pulpal diseases

Classification, etiology, diagnosis, management

Periapical diseases:

Classification, etiology, diagnosis, management

Vital pulp therapy:

Indirect and direct pulp capping

Pulpotomy - types and medicaments used

Apexogenesis and apexification and problems of open apex

Esthetics in dentistry

Introduction and scope

Anatomy and physiology of smile

Role of colour and translucency

Esthetic recontouring

Alteration of tooth form, shape, size and colour

Management of discoloured teeth

Composite restorations

-Recent advances in posterior composite resins

Indications, contraindications, advantages and disadvantages

-Stepwise procedure of tooth preparation for composite restoration.

-Clinical technique for posterior direct composite restorations

Finishing and polishing of composite restoration

-Indirect posterior composite restoration

Casts restorations

Indications, contraindications, advantage and disadvantages
Materials used
Class II cavity preparation for inlays
Types of bevels in cast restoration

Fabrication of wax patterns

Differences in tooth preparation for amalgam and cast restorations

Casting

Die materials and preparation of dies
Refractory materials
Alloys used for casting
Casting machines
Casting procedure
Casting defects

Cementation of restoration

- Temporisation or interim restoration
Materials and procedure

Root Caries

Etiology, clinical features and management

Non carious destruction of tooth structure

Definition, etiology, diagnosis, clinical features andmanagement

Ceramic Restorations

Recent advances in ceramic materials & techniques
including CADCAM (in brief)
Ceramic laminates, inlays, onlays and crowns,
Indications, contraindications, advantages, disadvantages
and techniques (in brief)

Direct Filling gold Restorations

Introduction
Types of direct filling gold
Indications, contraindications, advantages, disadvantages
tooth preparation and restoration

Emergency endodontic procedures

Anatomy of pulp space
Root canal anatomy of maxillary and Mandibular teeth.
Classification of canal configuration and variations in pulp space.

Access preparation

Objectives
Principles

Instruments used
Sequential steps of access preparation for individual tooth

Preparation of root canal space

a. Determination of working length definition and methods of determining working length

Cleaning and shaping of root canals

Objectives
Principles

Instruments used

Techniques – hand and rotary
Step back & Crown down methods

Disinfection of root canal space

a. Irrigants
Functions
Requirements
Types
Methods and techniques of irrigation
b. Intracanal medicaments
Functions
Requirements
Types
Method of placement and limitations

Problems during cleaning and shaping of root canal spaces

Perforation and its management
Broken instruments and its management
Management of curved root canals

Obturation of the root canal system

a. Materials-
Ideal root canal filling material, classification of materials
b. Obturation techniques
Classification and procedure
Root canal sealers
Ideal properties
Classification, functions
Manipulation and application of root canal sealers

Post endodontic restoration

Principles of post endodontic restorations
Post and core-materials and procedure(in brief)

Smear layer and its importance in endodontics and conservative treatment
Discoloured teeth and its management
Bleaching agents , Vital and non vital bleaching methods

Traumatized teeth

Classification of fractured teeth.
Management of fractured tooth.
Luxated teeth and its management

Endodontic surgeries

Indication contraindications,
-pre operative preparation
Surgical instruments and techniques
Apicoectomy, retrograde filling
-Post operative sequale
Trephination, hemisection ,Radisectomy
Reimplantation (both intentional and accidental)

Root resorption

Etiology and management
Success and failures of endodontic treatments

Retreatment in Endodontics

Use of specialized equipments like lasers and microscopes in conservative dentistry and Endodontics

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PREVENTIVE AND COMMUNITY DENTISTRY.

BRIEF DESCRIPTION OF THE COURSE

"**Prevention is better then cure**."

The goal of preventive and community dentistry is to help the people to achieve and maintain maximum oral health throughout their lives; this can be attained by acceptance of primary preventive care. Assessment, planning, diagnosis, implementation and evaluation at community level are used in development, designing and execution of dental health preventive programs; we need to emphasize the importance of such programs. Here we treat the community as a whole and not as individuals making the

program efficient and cost-effective. The change over in priority from treatment to prevention on the arena of communities is requirement and a necessity which can be achieved by effective health education and its proper reinforcement. This subject forms the base for addressing the dental health requirements of society as a whole and offering dental health services at the same. It also holds the key for developing awareness about social aspects of profession and responsibilities towards the community and answers the dental health needs of the society.

AIMS AND OBJECTIVES

The student is targeted and hoped to acquire adequate professional skills, clear understanding and comprehensive knowledge in the following areas by the end of completion of the curriculum

1. A through understanding of the dental plaque, its formation ,maturation and the various bacteria that built it up, along with the dental diseases such as dental caries and periodontal diseases that it causes and various available options to control the plaque and prevent the diseases.
2. To have sound scientific knowledge, the capacity to know the need of the hour, design and deliver health education at the community level.
3. To craft, design and conduct oral health surveys and studies.
4. To mould, evolve and fashion into being a dentist who is good and competent, responsible, well behaved and well mannered ethically.

SYLLABUS: **PREVENTIVE DENTISTRY**

Sl. No	Topic	Lecture hours
1	Prevention • Introduction and Definition • Scope of preventive dentistry	1
2	Principles of preventive dentistry	1
3	Levels of prevention of dental caries and periodontal diseases. • Primary level of prevention • Secondary level of prevention • Tertiary level of prevention	2

4	Dental caries • Definition and etiology • Enamel caries(incipient caries lesion)	2
5	Dental plaque • Definition • Pellicle formation • Factors affecting plaque formation • Dental plaque matrix • Dental calculus	3
6	Plaque control • Tooth brushes and brushing methods • Dentifrices and mouth rinses • Auxiliary methods to complement tooth brushing.	4
7	Oral biologic defenses • Biological role of saliva • Remineralization and demineralization.	2
8	• Diet and dental caries • Epidemiological observations of diet and dental caries	1
9	Controlled human studies on diet and dental caries • Vipeholm study • Hopewood house study • Turku sugar study	2
10	• The critical pH • Cariogenicity of sucrose • Role of sweeteners • Caloric and non-caloric sweeteners • Difficulties in substitution of sucrose	2
11	Fluorides • introduction • Classification	1
12	Systemic fluorides • History of water fluoridation • Artificial water fluoridation studies • Optimal level of fluoride • Metabolism of fluoride • Fluoride content and distribution in dental hard tissues.	2
13	Mode of action of fluorides	1
14.	Methods of systemic fluoridation • Community water fluoridation • School water fluoridation	2

	• Milk fluoridation • Salt fluoridation • Fluoride supplements	
15	Topical fluoride therapy • Types of professionally applied topical fluorides • Types of self applied topical fluoride • Concentration, mechanism of action and frequency of application of topical fluorides	4
16	Toxicity of fluorides	1
17	Defluoridation techniques	1
18	Pit and fissure sealants	1
19	Preventive procedures • Atraumatic restorative treatment(ART) • Preventive resin restoration(PRR)	2

COMMUNITY DENTISTRY

1	Community dentistry: meaning and scope	1
2	Dental public health system and content Primary health care	3
3	Epidemiology: • definition, general principles, basic factors • epidemiology of caries and periodontal diseases • local area situations	4
4	WHO: Health for all by 2000 • Oral health global goals • Primary health care	2
5	Dental auxiliaries • Classification • Operating type • Non-operating type	1
6	Oral health surveys, oral health programs	3
7	Finance in dental care Cost benefits, cost effectiveness, cost efficiency	2
8	Oral health education, factors, methods programs	2
9	Legal ethics and jurisprudence	3
10	Occupational hazards in dentistry	1
11	Medical sociology	1
12	History of dentistry	1

13	Forensic odontology	1
14	Bio-ethics	1
15	Hospital acquired infections.	1

CLINICAL TRAINING:

1.Case history taking

2.Oral hygiene procedure

- Oral prophylaxis
- Oral hygiene instructions
- Tooth brushing techniques

3.Oral hygiene indices

- Discussion and demonstrations

4.Oral hygiene index(OHI) and oral hygiene index simplified(OHI-S) by Green and Vermilion

5.Plaque index by sillness and loe

6.Application of fluoride varnish and other topical fluorides

7.DMFT & DMFS Index

8.C.P.I.T.N

9.Atraumatic Restorative Treatment(A.R.T) technique

10.Pit and fissure sealants.

TEACHING METHODOLOGY:

- Lectures
- Clinical sessions with case history taking and demonstrations
- Seminars and group discussions
- Audio-Visual aids like O.H.P, Data shows.