MAHE INSTITUTE OF DENTAL SCIENCES & HOSPITAL
Affiliated to Pondicherry Central University, Recognized by Dental Council of India
Chalakkara, P.O. Pallor, Mahe-673 310
U.T. of Puducherry. Ph : 0490 2337765

LIST OF COURSES WITH THEIR DESCRIPTIONS

1.3.1: The Institution integrates cross-cutting issues relevant to gender, environment and sustainability, human values, health determinants, Right to Health and emerging demographic issues and Professional Ethics into the Curriculum as prescribed by the University / respective regulative councils.

Human Values: Public Health dentistry, General Medicine, General Surgery

Ethics: Oral medicine and radiology, Public Health Dentistry, General medicine, Orthodontics, Conservative Dentistry and Endodontics, Paediatric and Preventive Dentistry and Periodontics.

Environment sustainability: Public Health Dentistry, General Human Anatomy.

Health Determinants: Pediatric & Preventive Dentistry, General Human Physiology,
Dental Materials, Conservative Dentistrv & Endodontics

PUBLIC HEALTH DENTISTRY

GOAL:

To prevent and control oral diseases and promote oral health through organized community efforts

OBJECTIVES:

Knowledge:

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

Skill and Attitude: At the conclusion of the course the students shall have require at the skill of identifying health problems affecting the society, conducting health surveys, conducting health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

Communication abilities: At the conclusions of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

Syllabus:

1. Introduction to Dentistry: Definition of Dentistry, History of dentistry, Scope, aims and objectives of

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Dentistry.
2. Public Health:
i. Health & Disease: - Concepts, Philosophy, Definition and Characteristics
ii. Public Health: - Definition & Concepts, History of public health
iii. General Epidemiology: - Definition, objectives, methods
iv. Environmental Health: - Concepts, principles, protection, sources, purification environmental sanitation of water disposal of waste sanitation, then role in mass disorder
v. Health Education: - Definition, concepts, principles, methods, and health education aids
vi. Public Health Administration: - Priority, establishment, manpower, private practice management, hospital management.
vii. Ethics and Jurisprudence: Professional liabilities, negligence, malpractice, consents, evidence, contracts, and methods of identification in forensic dentistry.
viii. Nutrition in oral diseases
ix. Behavioral science: Definition of sociology, anthropology and psychology and their in dental practice and community.
x. Health care delivery system: Center and state, oral health policy, primary health care, national programmes, health organizations.

Dental Public Health:
1. Definition and difference between community and clinical health.
2. Epidemiology of dental diseases-dental caries, periodontal diseases, malocclusion, dental fluorosis and oral cancer.
3. Survey procedures: Planning, implementation and evaluation, WHO oral health survey methods 1997, indices for dental diseases.
4. Delivery of dental care: Dental auxiliaries, operational and non-operational, incremental and comprehensive health care, school dental health.
5. Payments of dental care: Methods of payments and dental insurance, government plans
6. Preventive Dentistry- definition, Levels, role of individual , community and profession, fluorides in dentistry, plaque control programmes.

Research Methodology and Dental Statistics
1. Health Information: - Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes
2. Research Methodology: -Definition, types of research, designing a written protocol
3. Bio-Statistics: - Introduction, collection of data, presentation of data, Measures of Central tendency, measures of dispersion, Tests of significance, Sampling and sampling techniquestypes, errors, bias, blind trails and calibration.

Practice Management
1. Place and locality
2. Premises & layout
3. Selection of equipments
4. Maintenance of records/accounts/audit.

Dentist Act 1948 with amendment.
Dental Council of India and State Dental Councils
Composition and responsibilities.

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Indian Dental Association
Head Office, State, local and branches.
PRACTICALS/CLINICALS/FIELD PROGEAMME IN COMMUNITY DENTISTRY:
These exercises designed to help the student in IV year students:
1. Understand the community aspects of dentistry
2. To take up leadership role in solving community oral health programme
Exercises:
a) Collection of statistical data (demographic) on population in India, birth rates, morbidity and mortality, literacy, per capita income
b) Incidence and prevalence of common oral diseases like dental caries, periodontal disease, oral cancer, fluorosis at national and international levels
c) Preparation of oral health education material posters, models, slides, lectures, play acting skits etc.
d) Oral health status assessment of the community using indices and WHO basic oral health survey methods
e) Exploring and planning setting of private dental clinics in rural, semi urban and urban locations, availment of finances for dental practices-preparing project report.
f) Visit to primary health center-to acquaint with activities and primary health care delivery
g) Visit to water purification plant/public health laboratory/ center for treatment of western and sewage water
h) Visit to schools-to assess the oral health status of school children, emergency treatment and health education including possible preventive care at school (tooth brushing technique demonstration and oral rinse programme etc.)
i) Visit to institution for the care of handicapped, physically, mentally, or medically compromised patients
j) Preventive dentistry: in the department application of pit and fissure sealants, fluoride gel application procedure, A. R. T., Comprehensive health for 5 pts at least 2 patients
The colleges are encouraged to involve in the N.S.S. programme for college students for carrying out social work in rural areas
SUGGESTED INTERNSHIP PROGRAMME IN COMMUNITY DENTISTRY:
I. AT THE COLLEGE:
Students are posted to the department to get training in dental practice management.
(a) Total oral health care approach- in order to prepare the new graduates in their approach to diagnosis, treatment planning, cost of treatment, prevention of treatment on schedule, recall maintenance of records etc. at least 10 patients (both children and adults of all types posting for at least one month).
(b) The practice of chair side preventive dentistry including oral health education
II. AT THE COMMUNITY ORAL HEALTH CARE CENTRE (ADOPTED BY THE DENTAL COLLEGE IN
RURAL AREAS)
Graduates posted for at least on month to familiarize in:
(a) Survey methods, analysis and presentation of oral health assessment of school children and community independently using WHO basic oral health survey methods.

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(b) Participation in rural oral health education programmes
(c) Stay in the village to understand the problems and life in rural areas
III. DESIRABLE: Learning use of computers-at least basic programme.
Examination Pattern
I. Index: Case History
b) Oral hygiene indices simplified- Green and Vermilion
c) Silness and Loe index for Plaque
d) Loe and Silness index for gingival
e) CPI
f) DMF: T and S, df:t and s
g) Deans fluoride index
II. Health Education
1. Make one - Audio visual aid
2. Make a health talk
III. Practical work
1. Pit and fissure sealant
2. Topical fluoride application
BOOKS RECOMMENDED & REFERENCE:
1. Dentistry Dental Practice and Community by David F. Striffler and Brain A. Burt, Edn. – 1983, W.
B. Saunders Company
2. Principles of Dental Public Health by James Morse Dunning, IVth Edition, 1986, Harward University Press.
3. Dental Public Health and Community Dentistry Ed by Anthony Jong Publication by The C. V. Mosby Company 1981
4. Community Oral Health-A system approach by Patricia P. Cormier and Joyce I. Levy published by
Appleton-Century-Crofts/New York, 1981
5. Community Dentistry-A problem oriented approach by P. C. Dental Hand book series Vol.8 by Stephen L. Silverman and Ames F. Tryon, Series editor-Alvin F. Gardner, PSG Publishing company
Inc. Littleton Massachuseltts, 1980.
6. Dental Public Health- An Introduction to Community Dentistry. Edition by Geoffrey L. Slack and Brain Burt, Published by John Wrigth and sons Bristol, 1980
7. Oral Health Surveys- Basic Methods, 4th edition, 1997, published by W. H. O. Geneva available at the regional office New Delhi.
8. Preventive Medicine and Hygiene-By Maxcy and Rosenau, published by Appleton Century Crofts, 1986.
9. Preventive Dentistry-by J. O. Forrest published by John Wright and sons Bristoli, 1980.
10. Preventive Dentistry by Murray, 1997.
11. Text Book of Preventive and Social Medicine by Park and park, 14th edition.
12. Community Dentistry by Dr. Soben Peter.
13. Introduction to Bio-statistics by B. K. Mahajan

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14. Research methodology and Bio-statistics by
15. Introduction to Statistical Methods by Grewal

ORAL MEDICINE AND RADIOLOGY

AIMS:

(1) To train the students to diagnose the common disorders of Orofacial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.

(2) To train the students about the importance, role, use and techniques of radiographs/digital radiograph and other imaging methods in diagnosis.

(3) The principles of the clinical and radiographic aspects of Forensic Odontology.

The syllabus in ORAL MEDICINE & RADIOLOGY is divided into two main parts.

(I) Diagnosis, Diagnostic methods and Oral Medicine (II) Oral Radiology. Again the part ONE is subdivided into three sections. (A) Diagnostic methods (B) Diagnosis and differential diagnosis (C) Oral Medicine & Therapeutics.

COURSE CONTENT

(1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.

(2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition.

Part-I ORAL MEDICINE AND DIAGNOSTIC AIDS

SECTION (A) – DIAGNOSTIC METHODS.

(1) Definition and importance of Diagnosis and various types of diagnosis

(2) Method of clinical examinations.

(a) General Physical examination by inspection.

(b) Oro-facial region by inspection, palpation and other means

(c) To train the students about the importance, role, use of saliva and techniques of diagnosis of saliva as part of oral disease

(d) Examination of lesions like swellings, ulcers, erosions, sinus, fistula, growths, pigmented lesions, white and red patches

(e) Examination of lymph nodes

(f) Forensic examination – Procedures for post-mortem dental examination; maintaining dental records and their use in dental practice and post-mortem identification; jurisprudence and ethics.

(3) Investigations

(a) Biopsy and exfoliative cytology

(b) Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTIAL DIAGNOSIS

While learning the following chapters, emphasis shall be given only on diagnostic aspects including differential diagnosis

(1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and

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discoloration of teeth
(2) Diseases of bone and Osteodystrophies: Development disorders: Anomalies, Exostosis and tori, infantile cortical hyperostosis, osteogenisis imperfecta, Marfans syndrome, osteopetrosis.
Inflamation – Injury, infection and sperad of infection,fascial space infections, osteoradionecrosis.
Metabolic disorders – Histiocytosis
Endocrine – Acro-megaly and hyperparathyroidism
Miscellaneous – Paget's disease, Mono and polyostotic fibrous dysplasia, Cherubism.
(3) Temparomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Sub-luxation and luxation.
(4) Common cysts and Tumors:
CYSTS: Cysts of soft tissue: Mucocele and Ranula
Cysts of bone: Odontogenic and nonodontogenic.
TUMORS:
Soft Tissue:
Epithelial: Papilloma, Carcinoma, Melanoma
Connective tissue: Fibroma, Lipoma, Fibrosarcoma
Vascular: Haemangioma, Lymphangioma
Nerve Tissue: Neurofibroma, Traumatic Neuroma, Neurofibromatosis
Salivary Glands: Pleomorphic adenoma, Adenocarcinoma, Warthin's Tumor, Adenoid cystic carcinoma.
Hard Tissue:
Non Odontogenic: Osteoma, Osteosarcoma, Osteoclastoma, Chondroma, Chandrosarcoma, Central giant cell rumor, and Central haemangioma
Odontogenic: Enameloma, Ameloblastoma, Calcifying Epithelial Odontogenic tumor, AdenomatoidOdontogenic tumor, Periapical cemental dysphasia and odontomas
(5) Periodontal diseases: Gingival hyperplasia, gingivitis, periodontitis, pyogenic granuloma
(6) Granulomatous diseases: Tuberculosis, Sarcoidosis, Midline lethal granuloma, Crohn's Disease and Histiocytosis X
(7) Miscellaneous Disorders: Burkitt lymphoma, sturge – Weber syndrome, CREST syndrome, renduosler- weber disease
SECTION (C): ORAL MEDICINE AND THERAPEUTICS.
The following chapters shall be studied in detail including the eiology, pathogenesis, clinical features, investigations, differential diagnosis, management and prevention
(1) Infections of oral and paraoral structures:
Bacterial: Streptococcal, tuberculosis, syphillis, vincents, leprosy, actinomycosis, diphtheria and tetanus
Fungal: Candida albicans
Virus: Herpes simplex, herpes zoster, ramsay hunt syndrome, measles, herpangina, mumps, infectious mononucleosis, AIDS and hepatitis-B
(2) Important common mucosal lesions:
White lesions: Chemical burns, leukodema, leukoplakia, fordyce spots, stomatitis nicotina palatinus, white sponge nevus, candidiasis, lichenplanus, discoid lupus erythematosis

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Veiculo-bullous lesions: Herpes simplex, herpes zoster, herpangina, bullous lichen planus, pemphigus, cicatricial pemphigoid erythema multiforme.
Ulcers: Acute and chronic ulcers
Pigmented lesions: Exogenous and endogenous
Red lesions: Erythroplakia, stomatitis venenata and medicamentosa, erosive lesions and denture sore mouth.
(3) Cervico-facial lymphadenopathy
(4) Facial pain:
(i)Organic pain: Pain arising from the diseases of orofacial tissues like teeth, pulp, gingival, periodontal tissue, mucosa, tongue, muscles, blood vessels, lymph tissue, bone, paranasal sinus, salivary glands etc.,
(ii) Pain arising due to C.N.S. diseases:
(a) Pain due to intracranial and extracranial involvement of cranial nerves. (Multiple sclerosis, cerebrovascular diseases, trotter's syndrome etc.)
(b) Neuralgic pain due to unknown causes: Trigeminal neuralgia, glossopharyngeal neuralgia, sphenopalatine ganglion neuralgia, periodic migrainous neuralgia and atypical facial pain
(iii) Referred pain: Pain arising from distant tissues like heart, spine etc.,
(5) Altered sensations: Cacogeusia, halitosis
(6) Tongue in local and systemic disorders: (Aglossia, ankyloglossia, bifid tongue, fissured tongue, scrotal tongue, macroglossia, microglossia, geographic tongue, median rhomboid glossitis, depapillation of tongue, hairy tongue, atrophic tongue, reactive lymphoid hyperplasia, glossodynia, glossopyrosis, ulcers, white and red patches etc.)
(7) Oral manifestations of:
(i) Metabolic disordeers:
(a) Porphyria
(b) Haemochromatosis
(c) Histocytosis X diseases
(ii) Endocrine disorders:
(a) Pituitary: Gigantism, acromegaly, hypopitutarism
(b) Adrenal cortex: Addison's disease (Hypofuntion)
Cushing's syndrome (Hyperfunction)
(c) Parathyroid glands: Hyperparathyroidism.
(d) Thyroid gland: (Hypothyroidism) Cretinism, myxedema
(e) Pancreas: Diabetes
(iii) Nutritional deficiency: Vitamins: riboflavin, nicotinic acid, folic acid Vitamin B12, Vitamin C (Scurvy)
(iv) Blood disorders:
(a) Red blood cell diseases
Defficiency anemias: (Iron deficiency, plummer – vinson syndrome, pernicious anemia)
Haemolytic anemias: (Thalassemia, sickle cell anemia, erythroblastosis fetalis)
Aplastic anemia
Polycythemia
(b) White Blood cell diseases

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Neutropenia, cyclic neutropenia, agranulocytosis, infectious mononeucleosis and leukemias
(c) Haemorrhagic disorders:
Thrombocytopenia, purpura, hemophillia, chrismas disease and von willebrand's disease
(8) Disease of salivary glands:
(i)Development distrubances: Aplasia, atresia and aberration
(ii) Functional disturbances:Xerostomia, ptyalism
(iii) Inflammatory conditions: Nonspecific sialadenitis, mumps, sarcoidosis heerdfort's syndrome (Uveoparotid fever), Necrotising sialometaplasia
(iv) Cysts and tumors: Mucocele, ranula, pleomorphic adenoma, mucoepidermoid carcinoma
(v) Miscellaneous: Sialolithiasis, sjogren's syndrome, mikuliez's disease and sialosis
(9) Dermatological diseases with oral manifestations:
(a) Ectodermal dysplasia (b) Hyperkerotosis palmarplantaris with periodont0opathy (c) Scleroderma (d) Lichen planus including ginspan's syndrome (e) Luplus erythematosus (f) Pemphigus (g) Erythema multiforme (h) Psoriasis
(10) Immunological diseases with oral manifestations
(a) Leukemia (b) Lymphomas (c) Multiple mycloma (d) AIDS clinical manifestations, opportunistic infections, neoplasms (e) Thrombcytopenia (f) Lupus erythematosus (g) Scleroderma
(h) dermatomyositis (I) Submucous fibrosis (j) Rhemtoid arthritis (k) Recurrent oral ulcerations including behcet's syndrome and reiter's syndrome
(11) Allergy: Local allergic reactions, anaphylaxis, serum sickness (local and systemic allergic manifestations to food drugs and chemicals)
(12) Foci of oral infection and their ill effects on general health
(13) Management of dental problems in medically comrpomised persons:
(i)Physiological changes: Puberty, pregnancy and menopause
(ii) The patients suffering with cardiac, respiratory, liver, kidney and bleeding disorders, hypertension, diabetes and AIDS. Post-irradiated patients.
(14) Precancerous lesions and conditions
(15) Nerve and muscle diseases:
(i)Nerves: (a) Neuropraxia (b) Neurotemesis (c) Neuritis (d) Facial nerve paralysis including Bell's palsy, Heerfordt's syndrome, Melkerson Rosenthel syndrome and ramsay hunt syndrome (e)Neuroma (f) Neurofibromatosis (g) Frey'syndrome
(ii) Muscles: (a) Myositis ossificans (b) Myofascial pain dysfunction syndrome (c) Trismus
(16) Forensic odontology:
(a) Medicolegal aspects of orofacial injuries
(b) Identification of bite marks
(c) Determination of age and sex
(d) Identification of cadavers by dental appliances, Restorations and tissue remanants
(17) Therapeutics: General therapeutic measures – drugs commonly used in oral medicine viz., antibiotics, chemotherapeutic agents, anti-inflammatory and analgesic drugs, astringents, mouth washes, styptics, demelucents, local surface anaesthetic, sialogogues, antisialogogues and drugs used in the treatment of malignancy

Part – II BEHAVIOURAL SCIENCES AND ETHICS.

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Part – III ORAL RADIOLOGY

(1) Scope of the subject and history of origin

(2) Physics of radiation: (a) Nature and types of radiations (b) Source of radiations (c) Production of Xrays

(d) Properties of X-rays (e) Compton effect (f) Photoelectric effect (g) Radiation measuring units

(3) Biological effects of radiation

(4) Radiation safety and protection measures

(5) Principles of image production

(6) Radiographic techniques:

(i)Intra-Oral: (a) Periapical radiographs (Bisecting and parallel technics) (b) Bite wing radiographs

(c) Occlusal radiographs

(ii) Extra-oral: (a) Lateral projections of skull and jaw bones and paranasal sinuses (c) Cephalograms (d) Orthopantomograph (e) Projections of temperomandibular joint and condyle of mandible (f) Projections for Zygomatic arches

(iii) Specialised techniques: (a) Sialography (b) Xeroradiography (c) Tomography

(7) Factors in production of good radiographs:

(a) K.V.P. and mA.of X-ray machine (b) Filters (c) Collimations (d) Intensifying screens (e) Grids (f) X-ray films (g) Exposure time (h) Techniques (i) Dark room (j) Developer and fixer solutions (k) Film processing

(8) Radiographic normal anatomical landmarks

(9) Faculty radiographs and artefacts in radiographs

(10) Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues

(11) Principles of radiotherapy of oro-facial malignancies and complications of radiotherapy

(12) Cantrast radiography and basic knowledge of radio-active isotopes

(13) Radiography in Forensic Odontoloy - Radiographic age estimation and post-mortem radiographic methods

PRACTICALS / CLINICALS:

1. Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of the orofacial region. Training is also imparted in management wherever possible. Training also shall be imparted on saliva diagnostic procedures. Training also shall be imparted in various radiographic proceedures and interpretation of radiographs.

2. In view of the above each student shall maintain a record of work done, which shall be evaluated for marks at the time of university examination

3. The following is the minimum of prescribed work for recording

(a) Recording of detailed case histories of interesting cases 10

(b) Intra-oral radiographs (Periapical, bitewing, occlusal) 25

(c) Saliva diagnostic check as routine procedure

BOOKS RECOMMENDED:

a) Oral Diagnosis, Oral Medicine & Oral Pathology

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1. Burkit – Oral Medicine – J.B. Lippincott Company
2. Coleman – Principles of Oral Diagnosis – Mosby Year Book
3. Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company
4. Mitchell – Oral Diagnosis & Oral Medicine
5. Kerr – Oral Diagnosis
6. Miller – Oral Diagnosis & Treatment
7. Hutchinson – clinical Methods
8. Oral Pathology – Shafers
9. Sonis.S.T., Fazio.R.C. and Fang.L - Principles and practice of Oral Medicine

b) Oral Radiology

1. White & Goaz – Oral Radiology – Mosby year Book
2. Weahrman – Dental Radiology – C.V. Mosby Company
3. Stafne – Oral Roentgenographic Diagnosis – W.B.Saunders Co.,

c) Forensic Odontology

1. Derek H.Clark – Practical Forensic Odontology - Butterworth-Heinemann (1992)
2.C Michael Bowers, Gary Bell – Manual of Forensic Odontology - Forensic Pr (1995)

HUMAN ANATOMY, EMBRYOLOGY, HISTOLOGY & MEDICAL GENETICS

A) GOAL

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

B) OBJECTIVES :

a) KNOWLEDGE & UNDERSTANDING:

At the end of the 1st year BDS course in Anatomical Sciences the undergraduate student is Expected to:

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

b) SKILLS

1. To locate various structures of the body and to mark the topography of the living anatomy.

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2. To identify various tissues under microscope.
3. To identify the features in radiographs and modern imaging techniques.
4. To detect various congenital abnormalities.

C) INTEGRATION

By emphasising on the relevant information and avoiding unwanted details, the anatomy taught integrally with other basic sciences & clinical subjects not only keeps the curiosity alive in the learnerbut also lays down the scientific foundation for making a better doctor, a benefit to the society.

This insight is gained in a variety of ways:

1) Lectures & small group teaching
2) Demonstrations
3) Dissection of the human cadaver
4) Study of dissected specimens
5) Osteology
6) Surface anatomy on living individual
7) Study of radiographs & other modern imaging techniques.
8) Study of Histology slides.
9) Study of embryology models
10) Audio-visual aids

Throughout the course, particular emphasis is placed on the functional correlation, clinical application& on integration with teaching in other bio dental disciplines.

D) AN OUTLINE OF THE COURSE CONTENT:

1. General anatomy: Introduction of anatomical terms and brief outline of various systems of the body.
2. Regional anatomy of head & neck with osteology of bones of head & neck, with emphasis on topics of dental importance.
3. General disposition of thoracic, abdominal & pelvic organs.
4. The regional anatomy of the sites of intramuscular & intra vascular injections, & lumbar puncture.
5. General embryology & systemic embryology with respect to development of head & neck.
6. Histology of basic tissues and of the organs of gastroinstenstinal, respiratory, Endocrine, excretory systems & gonads.
7. Medical genetics.

E) FURTHER DETAILS OF THE COURSE.

I. INTRODUCTION TO :

1. Anatomical terms.
2. Skin, superficial fascia & deep fascia
3. Cardiovascular system, portal system collateral circulation and arteries.
4. Lymphatic system, regional lymph nodes
5. Osteology - Including ossification & growth of bones
6. Myology – Including types of muscle tissue & innervation.
7. Syndesmology – Including classification of Joints.
8. Nervous system

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II. HEAD & NECK:
01. Scalp, face & temple, lacrimal apparatus
02. Neck - Deep fascia of neck, posterior triangle,
suboccipital triangle, anterior triangle, anterior median region of the neck, deep structures in the neck.
03.Cranial cavity - Meninges, parts of brain, ventricles of brain, dural venous sinuses, cranialnerves attached to the brain, pituitary gland.
04. Cranial nerves - III, IV, V, VI, VII, IX,XII in detail.
05. Orbital cavity – Muscles of the eye ball, supports of the eye ball, nerves and vessels in the orbit.
06. Parotid gland. 07. Temporo mandibular joint, muscles of mastication, infratemporal fossa, pterygo - palatine fossa. 08. Submandibular region 09. Walls of the nasal cavity, paranasal air sinuses 10. Palate 11.Oral cavity, Tongue 12. Pharynx (palatine tonsil and the auditory tube) Larynx. OSTEOLOGY – Foetal skull, adult skull, individual bones of the skull, hyoid bone and cervical vertebrae
III.THORAX : Demonstration on a dissected specimen of
1. Thoracic wall
2. Heart chambers
3. Coronary arteries
4. Pericardium
5. Lungs – surfaces ; pleural cavity
6. Diaphragm
IV. ABDOMEN : Demonstration on a dissected specimen of
1. Peritoneal cavity
2. Organs in the abdominal & pelvic cavity.
V. CLINICAL PROCEDURES :
a) Intramuscular injections: Demonstration on a dissected specimen and on a living person of the following sites of injection.
1. Deltoid muscle and its relation to the axillary nerve and radial nerve.
2. Gluteal region and the relation of the sciatic nerve.
3. Vastus lateralis muscle.
b) Intravenous injections & venesection: Demonstration of veins in the dissected specimen and on a living person.
1. Median cubital vein 2. Cephalic vein 3.Basilic vein 4. Long saphenous vein
c) Arterial pulsations: Demonstration of arteries on a dissected specimen and feeling of pulsation of the following arteries on a living person.
1. Superficial temporal 2. Facial 3.Carotid 4.Axillary 5.Brachial 6.Radial 7.Ulnar 8. Femoral 9. Popliteal 10. Dorsalispedis
d) Lumbar puncture: Demonstration on a dissected specimen of the spinal cord, cauda equina & epidural space and the inter vertebral space between L4 &L5 .
VI. EMBRYOLOGY :
Oogenesis, Spermatogenesis, Fertilisation, Placenta, Primitive streak, Neural crest, Bilaminar and trilaminar embryonic disc, Intra embryonic mesoderm - formation and fate, notochord

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formation& fate, Pharyngeal arches, pouches & clefts, Development of face, tongue, palate, thyroid gland, pituitary gland, salivary glands, and anomalies in their development, Tooth development in brief.

VII. HISTOLOGY :

The Cell :

Basic tissues - Epithelium, Connective tissue including cartilage and bone, Muscle Tissue, Nervous tissue : Peripheral nerve, optic nerve, sensory ganglion, motor ganglion, Skin Classification of Glands

Salivary glands (serous, mucous and mixed gland), Blood vessels, Lymphoid tissue Tooth, lip, tongue, hard palate, oesphagus, stomach, ,duodenum ,ileum, colon, vermiform appendix Liver, Pancreas, Lung, Trachea ,Epiglottis, Thyroid gland , para thyroid gland , supra renal gland and pituitary gland, Kidney, Ureter, Urninary bladder, Ovary and testis.

VIII. MEDICAL GENETICS :

Mitosis, meiosis, Chromosomes, gene structure, Mendelism, modes of inheritance

RECOMMENDED BOOKS:

1. SNELL (Richard S.) Clinical Anatomy for Medical Students, Ed. 5, Llittle Brown & company, Boston.
2. RJ LAST'S Anatomy – McMinn, 9th edition.
3. ROMANES(G.J.) Cunningham Manual of Practical Anatomy : Head & Neck & Brain Ed.15.Vol.III,
Oxford Medical publication.
4. WHEATER,BURKITT& DANIELS, Functional Histology, Ed. 2, Churchill Livingstone.
5. SADLER , LANGMAN'S, Medical Embryology, Ed. 6.
6. JAMES E ANDERSON, Grant's Atlas of Anatomy. Williams & Wilkins.
7. WILLIAMS, Gray's Anatomy, Ed.38. ,Churchill Livingstone.
8. EMERY,Medical Genetics.

2. HUMAN PHYSIOLOGY

A) GOAL

The broad goal of the teaching undergraduate students in Human Physiology aims at providing the student comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the physiological basis of health and disease.

OBJECTIVES

a) KNOWLEDGE

At the end of the course, the student will be able to:

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

b) SKILLS

At the end of the course, the student shall be able to :

1. Conduct experiments designed for the study of physiological phenomena.
2. Interprete experimental and investigative data

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3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

c) INTEGRATION

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

B) COURSE CONTENTS THEORY

1. GENERAL PHYSIOLOGY

1. Homeostasis: Basic concept, Feed back mechanisms
2. Structure of cell membrane, transport across cell membrane
3. Membrane potentials

2. BLOOD:

Composition & functions of blood.

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

Plasma proteins - Types, concentration, functions & variations.

Erythrocyte - Morphology, functions & variations. Erythropoiesis & factors affecting erythropoiesis.

ESR- Methods of estimation, factors affecting, variations & significance.

Haemoglobin - Normal concentration, method of determination & variation in concentration.

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

Anaemia - Definition, classification, life span of RBC's destruction of RBC's , formation & fate of bile pigments, Jaundice - types.

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

Thromobocytes - Morphology, , number, variations, function & thrombopoiesis.

Haemostatsis - Role of vasoconstriction, platelet plug formation in haemostasis, coagulation factors, intrinsic & extrinsic pathways of coagulation, clot retraction.

Tests of haemostatic function, platelet count, clotting time, bleeding time, prothrombin time – normal values, method & variations. Anticoagulants - mechanism of action. Bleeding disorders.

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

Blood volume: Normal values, variations.

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

Tissue fluids &lymph : Formation of tissue fluid, composition, circulation & functions of lymph. Oedema - causes.

Functions of reticulo endotrelial system.

3. MUSCLE AND NERVE

Classification of nerves, structure of skeletal muscle - Molecular mechanism of muscle contraction, neuromuscular transmission.Properties of skeletal muscle.Structure and properties of cardiac muscle & smooth muscle.

4. DIGESTIVE SYSTEM :

Introduction to digestion : General structure of G.I. tract, Innervation.

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Salivary glands: Structure of salivary glands, composition , regulation of secretion & functions of saliva.
Stomach: Composition and functions of gastric juice, mechanism and regulation of gastric secretion.
Exocrine Pancreas - Structure, composition of pancreatic juice, functions of each component, regulation of pancreatic secretion.
Liver : structure , composition of bile, functions of bile, regulation of secretion –
Gall bladder : structure, functions.
Small intestine - Composition, functions & regulation of secretion of intestinal juice.
Large intestine - Functions.
Motor functions of GIT: Mastication, deglutition, gastric filling & emptying, movements of small and large intestine, defecation.
5. EXCRETORY SYSTEM :
Structure & functions of kidney, functional unit of kidney & functions of different parts.
Juxta glomerular apparatus, renal blood flow.
Formation of Urine : Glomerular filteration rate - definition, determination , normal values, factors influencing G.F.R. Tubular reabsorption - Reabsorption of sodium, glucose, water & other substances.
Tubular secretion - secretion of urea, hydrogen and other substances.
Mechanism of concentration & dilution of urine.
Role of kidney in the regulation of pH of the blood.
Micturition : anatomy & innervation of Urinary bladder, mechanism of miturition & abonrmalities.
6. BODY TEMPERATURE & FUNCTIONS OF SKIN
7. ENDOCRINOLOGY
General endocrinology - Enumeration of endocrine glands & hormones - General functions of endocrine system, chemistry, mechanism of secretion, transport, metabolism, regulation of secretion of hormones.
Hormones of anterior pituitary & their actions, hypothamic regulation of anterior pituitary function.
Disorders of secretion of anterior pituitary hormones.
Posterior pituitary : Functions, regulation & disorders of secretion.
Thyroid: Histology, synthesis, secretion & transport of hormones, actions of hormones, regulation of secretion & disorders, Thyroid function tests.
Adrenal cortex & Medulla -synthesis, secretion, action, metabolism, regulation of secretion of hormones & disorders.
Other hormones - Angiotensin, A.N.F.
8. REPRODUCTION
Sex differentiation, Physiological anatomy of male and female sex organs,
Female reproductive system : Menstrual cycle, functions of ovary, actions of oestrogen & Progesterone, control of secretion of ovarian hormones, tests for ovulation, fertilisation, implantation, maternal changes during pregnancy, pregnancy tests & parturition.
Lactation, composition of milk, factors controlling lactation, milk ejection, reflex, Male

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reproductive system :spermatogenesis, semen and contraception.

9. CARDIO VASCULAR SYSTEM

Functional anatomy and innervation of heart Properties of cardiac muscle
Origin & propagation of cardiac impulse and heart block.
Electrocardiogram - Normal electrocardiogram. Two changes in ECG in myocardial infarction.
Cardiac cycle - Phases, Pressure changes in atria, ventricles & aorta.
Volume changes in ventricles. Jugular venous pulse, arterial pulse.
Heart sounds: Mention of murmurs.
Heart rate: Normal value, variation & regulation.
Cardiac output: Definition, normal values, one method of determination, variation, factors affecting heart rate and stroke volume.
Arterial blood pressure: Definition, normal values & variations,determinants, regulation & measurement of blood pressure.
Coronary circulation.
Cardio vascular homeostasis - Exercise & posture.

10. RESPIRATORY SYSTEM

Physiology of Respiration : External & internal respiration.
Functional anatomy of respiratory passage & lungs.
Respiratory movements: Muscles of respiration, Mechanism of inflation & deflation of lungs.
Intra pleural & intra pulmonary pressures & their changes during the phases of respiration.
Mechanics of breathing - surfactant, compliance & work of breathing.
Spirometry: Lung volumes & capacities definition, normal values, significance, factors affecting vital capacity, variations in vital capacity, FEV & its variations.
Pulmonary ventilation - alveolar ventilation & dead space – ventilation.
Composition of inspired air, alveolar air and expired air.
Exchange of gases: Diffusing capacity, factors affecting it.
Transport of Oxygen & carbon dioxide in the blood.
Regulation of respiration – neural & chemical.
Hypoxia, cyanosis, dyspnoea, periodic breathing.
Artificial respiration, pulmonary function tests.

11. CENTRAL NERVOUS SYSTEM

1. Organisation of central nervous system
2. Neuronal organisation at spinal cord level
3. Synapse receptors, reflexes, sensations and tracts
4. Physiology of pain
5. Functions of cerebellum, thalamus, hypothalamus and cerebral cortex.
6. Formation and functions of CSF
7. Autonomic nervous system

12. SPECIAL SENSES

Fundamental knowledge of vision, hearing, taste and smell.

PRACTICALS

The following list of practical is minimum and essential. All the practical have been categorised as procedures and demonstrations. The procedures are to be performed by the students during

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practical classes to acquire skills. All the procedures are to be included in the University practical examination.

Those categorised as demonstrations are to be shown to the students during practical classes. However these demonstrations would not be included in the University examinations but question based on this would be given in the form of charts, graphs and calculations for interpretation by the students.

PROCEDURES

1. Enumeration of Red Blood Cells
2. Enumeration of White Blood Cells
3. Differential leucocyte counts
4. Determination of Haemoglobin
5. Determination of blood group
6. Determination of bleeding time and clotting time
7. Examination of pulse
8. Recording of blood pressure.

DEMONSTRATION:

1. Determination of packed cell volume and erythrocyte sedimentation rate
2. Determination of specific gravity of blood
3. Determination of erythrocyte fragility
4. Determination of vital capacity and timed vital capacity
5. Skeletal muscle experiments.

Study of laboratory appliances in experimental physiology. Frog's gastrocneminus sciatic preparation. Simple muscle curve, effects of two successive stimuli, effects of increasing strength of stimuli, effects of temperature, genesis of fatigue and tetanus. Effect of after load and free load on muscle contraction, calculation of work done.

6. Electrocardiography: Demonstration of recording of normal Electro cardiogram
7. Clinical examination of cardiovascular and respiratory system.

TEXT BOOKS:

Guyton; Text book of Physiology, 9th edition.
Ganong; Review of Medical Physiology, 19th edition
Vander; Human physiology, 5th edition
Choudhari; Concise Medical Physiology, 2nd edition
Chaterjee; Human Physiology, 10th edition
A.K. Jain; Human Physiology for BDS students, 1st edition

BOOKS FOR REFERENCE:

i) Berne & Levey; Physiology, 2nd edition
ii) West-Best & Taylor's, Physiological basis of Medical Practise, 11th edition

EXPERIMENTAL PHYSIOLOGY:

i) Rannade; Practical Physiology, 4th edition
ii) Ghai; a text book of practical physiology
iii) Hutchison's; Clinical Methods, 20th edition

GENERAL MEDICINE

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GUIDELINES:

Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry.

1. Special precautions/ contraindication of anaesthesia and various dental procedures in different systemic diseases.
2. Oral manifestations of systemic diseases.
3. Medical emergencies in dental practice.

A dental student should be taught in such a manner he/she is able to record the arterial pulse, blood pressure and be capable of suspecting by sight and superficial examination of the body – diseases of the heart, lungs, kidneys, blood etc. He should be capable of handling medical emergencies encountered in dental practice.

THEORY SYLLABUS

CORE TOPICS

(Must Know)

1. Aims of medicine Definitions of signs, symptoms, diagnosis, differential diagnosis treatment & prognosis. COLLATERAL TOPICS (Desirable to Know)

2. Infections.

Enteric fever, AIDS, herpes simplex, herpes zoster,
syphilis diphtheria. Infectious mononucleosis mumps, measles, rubella, malaria.

3. G.I.T.

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

Diarrhea
Dysentery
Amoebiasis
Malabsorhtion

4. CVS

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

5. RS

Pneumonia, COPD, Pulmonary TB, Bronehial asthma
Lung Abscess
Pleural effusion
Pneumothorax
Bronchiectasis
Lung cancers.

6. Hematology

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

7. Renal System

Acute nephritis
Nephrotic syndrome
Renal failure

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8, Nutrition
Avitaminosis
Balanced diet
PEM
Avitaminosis
9. CNS
Facial palsy, facial pain including trigeminal neuralgia, epilepsy, headache including migraine.
- Meningitis
- Examination of comatose patient
- Examination of cranial nerves.
10. Endocrines
Diabetes Mellitus Acromegaly, Hypothyroidism, Thyrotoxicosis, Calcium metabolism and parathyroids.Addison's disease, Cushing's syndrome.
11. Critical care
Syncope, cardiac arrest, CPR, shock
Ac LVF
ARDS
CLINICAL TRAINING:
The student must be able to take history, do general physical examination (including build, nourishment, pulse, BP, respiration, clubbing, cyanosis, jaundice, lymphadenopathy, oral cavity) and be able to examine CVS, RS and abdomen and facial nerve.

GENERAL SURGERY

AIMS:
To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyze the history and be able to do a thorough physical examination of the patient. The diseases as related to head and neck region are to be given due importance, at the same time other relevant surgical problems are also to be addressed. At the end of one year of study the student should have a good theoretical knowledge of various ailments, and be practically trained to differentiate benign and malignant diseases and be able to decide which patient requires further evaluation.
1. HISTORY OF SURGERY:
The development of surgery as a speciality over the years, will give the students an opportunity to know the contributions made by various scientists, teachers and investigators. It will also enable the student to understand the relations of various specialities in the practice of modern surgery.
2. GENERAL PRINCIPLES OF SURGERY:
Introduction to various aspects of surgical principles as related to orodental diseases.
Classification of diseases in general. This will help the student to understand the various diseases, their relevance to routine dental practice.
3. WOUNDS:
Their classification, wound healing, repair, treatment of wounds, medico-legal aspects of accidental wounds and complications of wounds.
4. INFLAMMATION:

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Of soft and hard tissues.Causes of inflammation, varieties, treatment and sequelae.

5. INFECTIONS:

Acute and chronic abscess skin infections, cellulitis, carbuncle, and erysepelas.Specific infections such as tetanus, gangrene, syphilis, gonorrhoea, tuberculosis, Actinomycosis, Vincents angina, cancrum oris.Pyaemia, toxaemia and septicaemia.

6. TRNSMISSABLE VIRAL INFECTIONS:

HIV and Hepatitis B with special reference to their prevention and precautions to be taken in treating patients in a carrier state.

7. SHOCK AND HAEMORRHAGE:

Classification, causes, clinical features and management of various types of shock. Syncope, Circulatory collapse. Haemorrhage – different types, causes, clinical features and management. Blood groups, blood transfusion, precautions and complications of blood and their products. Hemophilia's, their transmission, clinical features and management especially in relation to minor dental procedures.

8. TUMOURS, ULCERS, CYSTS, SINUS AND FISTULAE:

Classification, clinical examination and treatment principles in various types of benign and malignant tumours, ulcers, cysts, sinus and fistulae.

9. DISEASES OF LYMPHATIC SYSTEM:

Especially those occurring in head and neck region.Special emphasis on identifying diseases such as tubercular infection, lymphomas, leukaemias, metastatic lymph node diseases.

10. DISEASES OF THE ORAL CAVITY:

Infective and malignant diseases of the oral cavity and oropharynx including salivary glands with special emphasis on preventive aspects of premalignant and malignant diseases of the oral cavity.

11. DISEASES OF LARYNX, NASOPHARYNX:

Infections and tumours affecting these sites. Indications, procedure and complications of tracheostmy.

12. NERVOUS SYSTEM:

Surgical problems associated with nervous system with special reference to the principles of peripheral nerve injuries, their regeneration and principles of treatment. Detailed description of afflictions of facial nerve and its management. Trigeminal neuralgia, its presentation and treatment.

13. FRACTURES:

General principles of fractures, clinical presentation and treatment with additional reference to newer methods of fracture treatment. Special emphasis on fracture healing and rehabilitation.

14. PRINCIPLES OF OPERATIVE SURGERY:

Principles as applicable to minor surgical procedures including detailed description of asepsis, antiseptics, sterilisation, principles of anaesthesia and principles of tissue replacement. Knowledge of sutures, drains, diathermy, cryosurgery and use of Laser in surgery.

15. ANOMALIES OF DEVELOPMENT OF FACE:

Surgical anatomy and development of face.Cleft lip and cleft palate—principles of management.

16. DISEASES OF THYROID AND PARATHYROID:

Surgical anatomy, pathogenesis, clinical features and management of dysfunction of thyroid and parathyroid glands. Malignant diseases of the thyroid—classification, clinical features and

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management.

17. SWELLINGS OF THE JAW:

Differential diagnosis and management of different types of swellings of the jaw.

18. BIOPSY:

Different types of biopsies routinely used in surgical practice.

Skills to be developed by the end of teaching is to examine a routine swelling, ulcer and other related diseases and to perform minor surgical procedures such as draining an abscess, taking a biopsy etc.

ORTHODONTICS & DENTAL ORTHOPAEDICS

COURSE OBJECTIVE:

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures. The following basic instructional procedures will be adapted to achieve the above objectives.

1. Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And Need For Orthodontics Care.
2. Growth And Development: In General

a. Definition
b. Growth spurts and Differential growth
c. Factors influencing growth and Development
d. Methods of measuring growth
e. Growth theories (Genetic, Sicher's, Scott's, Moss's,Petrovics, Multifactorial)
f. Genetic and epigenetic factors in growth
g. Cephalocaudal gradient in growth.

3. Morphologic Development Of Craniofacial Structures

a. Methods of bone growth
b. Prenatal growth of craniofacial structures
c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. Functional Development Of Dental Arches And Occlusioin

a. Factors influencing functional development of dental arches and occlusion.
b. Forces of occlusion
c. Wolfe's law of transformation of bone
d. Trajectories of forces

5. Clinical Application Of Growth And Development
6. Malocclusion - In General

a. Concept of normal occlusion
b. Definition of malocclusion
c. Description of different types of dental, skeletal and functional malocclusion.

7. Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.

8. Normal And Abnormal Function Of Stomatognathic System

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9. Etiology Of Malocclusion
a. Definition, importance, classification, local and general etiological factors.
b. Etiology of following different types of malocclusion:
1) Midline diastema
2) Spacing
3) Crowding
4) Cross-Bite: Anterior/Posterior
5) Class III Malocclusion
6) Class II Malocclusion
7) Deep Bite
8) Open bite
10. Diagnosis And Diagnostic Aids
a. Definition, Importance and classification of diagnostic aids
b. Importance of case history and clinical examination in orthodontics
c. Study Models: - Importance and uses - Preparation and preservation of study models
d. Importance of intraoral X-rays in orthodontics
e. Panoramic radiographs: - Principles, Advantages, disad vantages and uses
f. Cephalometrics: Its advantages, disadvantages
1. Definition
2. Description and use of cephalostat
3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
4. Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line
g. Electromyography and its uses in orthodontics
h. Wrist X-rays and its importance in othodontics
11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions
12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage
13. Biomechanical Principles In Orthodontic Tooth Movement
a. Different types of tooth movements
b. Tissue response to orthodontic force application
c. Age factor in orthodontic tooth movement
14. Preventive Orthodontics
a. Definition
b. Different procedures undertaken in preventive orthodontics and their limitations.
15. Interceptive Orthodontics
a. Definition
b. Different procedures undertaken in interceptive orthodontics
c. Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.
d. Role of muscle exercises as an interceptive procedure
16. Corrective Orthodontics
a. Definition, factors to be considered during treatment planning.
b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis

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c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions
d. Extractions in Orthdodontics - indications and selection of teeth for extraction.
17. Orthodontic Appliances: General
a. Requisites for orthodontic appliances
b. Classification, indications of Removable and Functional Appliances
c. Methods of force application
d. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antifluxes.
e. Preliminary knowledge of acid etching and direct bonding.
18. Ethics

REMOVABLE ORTHODONTIC APPLIANCES

1) Components of removable appliances
2) Different types of clasps and their uses
3) Different types of labial bows and their uses
4) Different types of springs and their uses
5) Expansion appliances in orthodontics:
i) Principles
ii) Indications for arch expansion
iii) Description of expansion appliances and different types of expansion devices and their uses.
iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

1. Definition, Indications & Contraindications
2. Component parts and their uses
3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

EXTRAORAL APPLIANCES

1. Headgears
2. chincup
3. reverse pull headgears

MYOFUNCTIONAL APPLIANCES

1. Definition and principles
2. Muscle exercises and their uses in orthodontics
3. Functional appliances:
i) Activator, Oral screens, Frankels function regulator, bionator twin blocks, lip bumper
ii) Inclined planes - upper and lower
18. Orthodontic Management Of Cleft Lip And Palate
19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:
a. Mandibular Prognathism and Retrognathism
b. Maxillary Prognathism and Retrognathism
c. Anterior open bite and deep bite

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d. Cross bite
20. Principle, Differential Diagnosis & Methods Of Treatment Of:
1. Midline diastema
2. Cross bite
3. Open bite
4. Deep bite
5. Spacing
6. Crowding
7. Class II - Division 1, Division 2
8. Class III Malocclusion - True and Psuedo Class III
21. Retention And Relapse
Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention.
CLINICALS AND PRACTICALS IN ORTHODONTICS
PRACTICAL TRAINING DURING II YEAR B.D.S.
I. Basic wire bending exercises Gauge 22 or 0.7mm
1. Straightening of wires (4 Nos.)
2. Bending of a equilateral triangle
3. Bending of a rectangle
4. Bending of a square
5. Bending of a circle
6. Bending of U.V.
II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm
1. 3/4 Clasp (C-Clasp)
2. Full Clasp (Jackson's Crib)
3. Adam's Clasp
4. Triangular Clasp
III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm
1. Finger Spring
2. Single Cantelever Spring
3. Double Cantelever Spring (Z-Spring)
4. T-Springs on premolars
IV. Construction of Canine retractors Gauge 23 or 0.6mm
1. U - Loop canine retractor
(Both sides on upper & lower)
2. Helical canine retractor
(Both sides on upper & lower)
3. Buccal canine retractor:
- Self supported buccal canine retractor
with
a) Sleeve - 5mm wire or 24 gauge
b) Sleeve - 19 gauge needle on any one side.
4. Palatal canine retractor on upper both sides

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Gauge 23 or 0.6mm
V. Labial Bow
Gauge 22 or 0.7mm
One on both upper and lower
CLINICAL TRAINING DURING III YEAR B.D.S.
NO. EXERCISE
01. Making upper Alginate impression
02. Making lower Alginate impression
03. Study Model preparation
04. Model Analysis
a. Pont's Analysis
b. Ashley Howe's Analysis
c. Carey's Analysis
d. Bolton's Analysis
e. Moyer's Mixed Dentition Analysis
CLINICAL TRAINING DURING FINAL YEAR B.D.S.
NO. EXERCISE
01. Case History taking
02. Case discussion
03. Discussion on the given topic
04. Cephalometric tracings
a. Down's Analysis
b. Steiner's Analysis
c. Tweed's Analysis
PRACTICAL TRAINING DURING FINAL YEAR B.D.S.
1. Adam's Clasp on Anterior teeth Gauge 0.7mm
2. Modified Adam's Clasp on upper arch Gauge 0.7mm
3. High Labial bow with Apron spring on upper arch
(Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
4. Coffin spring on upper arch Gauge 1mm
Appliance Construction in Acrylic
1. Upper & Lower Hawley's Appliance
2. Upper Hawley's with Anterior bite plane
3. Upper Habit breaking Appliance
4. Upper Hawley's with Posterior bite plane with `Z' Spring
5. Construction of Activator
6. Lower inclined plane/Catalan's Appliance
7. Upper Expansion plate with Expansion Screw
RECOMMENDED AND REFERENCE BOOKS
1. CONTEMPORARY ORTHODONTICS WILLIAM R. PROFFIT
2. ORTHODONTICS FOR DENTAL STUDENTS WHITE and GARDINER
3. HANDBOOK OF ORTHODONTICS MOYERS
4. ORTHODONTICS - PRINCIPLES AND PRACTICE GRABER

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5. DESIGN, CONSTRUCTION AND USE OF REMOVABLE
6. ORTHODONTIC APPLIANCES C. PHILIP ADAMS
7. CLINICAL ORTHODONTICS: VOL1 & 2 SALZMANN

CONSERVATIVE DENTISTRY AND ENDODONTICS

OBJECTIVES:

A. Knowledge and understanding
B. Skills and
C. Attitudes

A). Knowledge and under standing:

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

i. To diagnose and treat simple restorative work for teeth.
ii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
iii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.
iv. To carry out simple endodontic treatment.
v. To carry out simple luexation of tooth and its treatment and to provide emergency endodontic treatment.

SKILLS:

He should attain following skills necessary for practice of dentistry

i) To use medium and high speed hand pieces to carry out restorative work.
ii) Poses the skills to use and familiarise endodontic instruments and materials needed for carrying out simple endodontic treatment.
iii) To achieve the skills to translate patients esthetic needs along with function.

ATTITUDES:

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

INTRODUCTION :

Definition aims objectives of Conservative Dentistry scope and future of Conservative Dentistry.

1. Nomenclature Of Dentition:

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

2. Principles Of Cavity Preparation :

Steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors angles of cavities.

3. Dental Caries :

Aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.

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4. Treatment Planning For Operative Dentistry:
Detailed clinical examination , radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet.
5. Gnathological Concepts Of Restoration:
Physiology of occlusion, normal occlusion, Ideal occlusion, mandibular movements and occlusal analysis. Occlusal rehabilitation and restoration.
6. Aramamentarium For Cavity Preparation:
General classification of operative instruments, Hand cutting instruments design formula and sharpening of instruments. Rotary cutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instrument tray set up.
7. Control of Operating Filed:
Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogagues.
8. Amalgam Restoration :
Indication contraindication, physical and mechanical properties , clinical behaviour. Cavity preparation for Class I , II, V and III. Step wise procedure for cavity preparation and restoration. Failure of amalgam restoration.
9. Pulp Protection :
Liners, varnishes and bases, Zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass inomer cements.
10. Anterior Restorations :
Selection of cases, selection of material, step wise procedures for using restorations , silicate (theory only) glass inomers, composites, including sand witch restorations and bevels of the same with a note on status of the dentine bonding agents.
11. Direct Filling Gold Restorations :
Types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
12. Preventive Measures In Restorative Practice :
Plaque Control, Pitand fissure sealants dietary measures restorative procedure and periodontal health. Contact and contour of teeth and restorations matrices tooth separation and wedges.
13. Temporisation or Interim Restoration.
14. Pin Amalgam Restoration Indication Contra Indication :
Advantages disadvantages of each types of pin methods of placement use of auto matrix. Failure of pin amalgam restoration.
15. Management Of Deep Carious Lesions Indirect And Direct Pulp Capping.
16. Non Carious Destruction's Tooth Structures Diagnosis and Clinical Management
17. Hyper Sensitive Dentine And Its Management.
18. Cast Restorations
Indications, contra indications, advantages and disadvantages and materials used for same Class II and Class I cavity preparation for inlays fabrication of wax pattern spurring inverting and casting procedures & casting defects.
19. Die Materials And Preparation Of Dies.

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20. Gingival Tissue Management For Cast Restoration And Impression Procedures
21. Recent Cavity Modification Amalgam Restoration.
22. Differences between Amalgam And Inlay Cavity preparation with note on all the types of Bewels used for Cast Restoration.
23. Control Of Pain During Operative Procedures.
24. Treatment Planning For Operative Dentistry Detailed Clinical Examination Radiographic Examination
25. Vitality Tests, Diagnosis And Treatment Planning And Preparation Of Case Sheet.
26. Applied Dental Materials.
1. Biological Considerations.
Evaluation, clinical application and adverse effects of the following materials. Dental cements, Zinc oxide euginol cements zinc phosphate cements, polycarboxylates glass ionomer cements, silicate cement calcium hydroxides varnishes.
2. Dental amalgam, technical considerations mercury toxicity mercury hygiene.
3. Composite, Dentine bonding agents, chemical and light curing composites
4. Rubber base Imp. Materials
5. Nobel metal alloys & non noble metal alloys
6. Investment and die materials
7. Inlay casting waxes
8. Dental porcelain
9. Aesthetic Dentistry
27. Endodontics: introduction definition scope and future of endodontics
28. Clinical diagnostic methods
29. Emergency endodontic procedures
30. Pulpal diseases causes, types and treatment .
31. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alveolar abscess granuloma cysts condensing osteits, external resorption.
32. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicaments used.
33. Apexogenisis and apexification or problems of open apex.
34. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
35. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments.Sterilisation of root canal instruments and materials rubber dam application.
36. Anatomy of the pulp cavity: root canals apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
37. Preparation of root canal space . Determination of working length, cleaning and shaping of root canals, irrigating solution chemical aids to instrumentation.
38. Disinfection of root canal space intracanal medicaments, poly antibiotic paste ross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.

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39. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.
40. Methods of cleaning and shaping like step back crown down and conventional methods.
41. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment. Failures in endodontics.
42. Root canal sealers. Ideal properties classification.Manipulation of root canal sealers.
43. post endodontic restoration fabrication and components of post core preparation.
44. smear layer and its importance in endodontics and conservative treatment.
45. discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.
46. traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
47. endodontic surgeries indication contraindications, pre operative preparation. Pre medication surgical instruments and techniques apicectomy, retrograde filling, post operative sequale terphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
48. root resorption.
49. emergency endodontic procedures.
50. lasers in conservative endodontics (introduction only) practice management
51. professional association dentist act 1948 and its amendment 1993.
52. duties towards the govt. Like payments of professional tax, income tax.
53. financial management of practice
54. dental material and basic equipment management.
55. Ethics

PAEDIATRIC & PREVENTIVE DENTISTRY

THEORY:

1. INTRODUCTION TO PEDODONTICS & PREVENTIVE DENTISTRY.
- Definition, Scope, Objectives and Importance.

2. GROWTH & DEVELOPMENT:
- Importance of study of growth and development in Pedodontics.
- Prenatal and Postnatal factors in growth & development.
- Theories of growth & development.
- Development of maxilla and mandible and related age changes.

3. DEVELOPMENT OF OCCLUSION FROM BIRTH THROUGH ADOLESCENCE.
- Study of variations and abnormalities.

4. DENTAL ANATOMY AND HISTOLOGY:
- Development of teeth and associated structures.
- Eruption and shedding of teeth.
- Teething disorders and their management.
- Chronology of eruption of teeth.
- Differences between deciduous and permanent teeth.

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- Development of dentition from birth to adolescence.
- Importance of first permanent molar.

5. DENTAL RADIOLOGY RELATED TO PEDODONTICS.
6. ORAL SURGICAL PROCEDURES IN CHILDREN.
- Indications and contraindications of extractions of primary and permanent teeth in children.
- Knowledge of Local and General Anesthesia.
- Minor surgical procedures in children.

7. DENTAL CARIES:
- Historical background.
- Definition, aetiology & pathogenesis.
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries:
  - Definition, aetiology, Pathogenesis, Clinical features, Complications & Management
- Role of diet and nutrition in Dental Caries.
- Dietary modifications & Diet counseling.
- Caries activity, tests, caries prediction, caries susceptibility & their clinical application.

8. GINGIVAL & PERIODONTAL DISEASES IN CHILDREN.
- Normal gingiva & periodontium in children.
- Definition, aetiology & Pathogenesis.
- Prevention & Management of gingival &Periodontal diseases.

9. CHILD PSYCHOLOGY:
- Definition.
- Theories of child psychology.
- Psychological development of children with age.
- Principles of psychological growth & development while managing child patient.
- Dental fear and its management.
- Factors affecting child's reaction to dental treatment.

10. BEHAVIOUR MANAGEMENT:
- Definitions.
- Types of behaviour encountered in the dental clinic.
- Non-pharmacological & pharmacological methods of Behaviour Management.

11. PEDIATRIC OPERATIVE DENTISTRY:
- Principles of Pediatric Operative Dentistry.
- Modifications required for cavity preparation in primary and young permanent teeth.
- Various Isolation Techniques.
- Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials like Glass Ionomer, Composites & Silver Amalgam. Stainless steel, Polycarbonate & Resin Crowns.

12. PEDIATRIC ENDODONTICS
- Principles & Diagnosis.
- Classification of Pulpal Pathology in primary, young permanent & permanent teeth.
- Management of Pulpally involved primary, young permanent & permanent teeth.
  - Pulp capping – direct & indirect.

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- Pulpotomy
- Pulpectomy
- Apexogenesis
- Apexification

- Obturation Techniques & material used for primary, young permanent &Permanent teeth in children.

13. TRAUMATIC INJURIES IN CHILDREN:
- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth.

14. PREVENTIVE & INTERCEPTIVE ORTHODONTICS:
- Definitions.
- Problems encountered during primary and mixed dentition phases & their management.
- Serial extractions.
- Space management.

15. ORAL HABITS IN CHILDREN:
- Definition, Aetiology & Classification.
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children.

16. DENTAL CARE OF CHILDREN WITH SPECIAL NEEDS:
- Definition, Aetiology, Classification, Behavioural and Clinical features & Management of children with:
  - Physically handicapping conditions.
  - Mentally compromising conditions.
  - Medically compromising conditions.
  - Genetic disorders.

17. CONGENITAL ABNORMALITIES IN CHILDREN:
- Definition, Classification, Clinical features & Management.

18. DENTAL EMERGENCIES IN CHILDREN & THEIR MANAGEMENT.

19. DENTAL MATERIALS USED IN PEDIATRIC DENTISTRY.

20. PREVENTIVE DENTISTRY:
- Definition.
- Principles & Scope.
- Types of prevention.
- Different preventive measures used in Pediatric Dentistry including pit and fissure sealants and caries vaccine.

21. DENTAL HEALTH EDUCATION & SCHOOL DENTAL HEALTH PROGRAMMES.

22. FLUORIDES:
- Historical background.
- Systemic & Topical fluorides.
- Mechanism of action.
- Toxicity & Management.

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- Defluoridation techniques.

23. CASE HISTORY RECORDING:

- Outline of principles of examination, diagnosis & treatment planning.

24. SETTING UP OF PEDODONTIC CLINIC.

25. ETHICS.

B. PRACTICALS:

Following is the recommended clinical quota for under-graduate students in the subject of pediatric &preventive dentistry.

1. Restorations – Class I & II only : 45
2. Preventive measures e.g. Oral Prophylaxis – 20.
3. Fluoride applications – 10
4. Extractions – 25
5. Case History Recording & Treatment Planning – 10
6. Education & motivation of the patients using disclosing agents. Educating patients about oral hygiene measures like tooth brushing, flossing etc.

BOOKS RECOMMENDED & REFERENCE:

1. Pediatric Dentistry (Infancy through Adolescences) – Pinkham.
2. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon.
3. Occlusal guidance in Pediatric Dentistry – Stephen H. Wei.
4. Clinical Use of Fluorides – Stephen H. Wei.
5. Pediatric Oral & Maxillofacial Surgery – Kaban.
6. Pediatric Medical Emergencies – P. S. whatt.
7. Understanding of Dental Caries – Niki Foruk.
8. An Atlas of Glass Ionomer cements – G. J. Mount.
9. Clinical Pedodontics – Finn.
10. Textbook of Pediatric Dentistry – Braham Morris.
11. Primary Preventive Dentistry – Norman O. Harris.
12. Handbook of Clinical Pedodontics – Kenneth. D.
13. Preventive Dentistry – Forrester.
14. The Metabolism and Toxicity of Fluoride – Garry M. whitford.
15. Dentistry for the Child and Adolescence – Mc. Donald.
16. Pediatric Dentistry – Damle S. G.
17. Behaviour Management – Wright
18. Pediatric Dentistry – Mathewson.
19. Traumatic Injuries – andreason.
20. Occlusal guidance in Pediatric Dentistry – Nakata.
21. Pediatric Drug Therapy – Tomare
22. Contemporary Orhtodontics – Profitt..
23. Preventive Dentistry – Depaola.
24. Metabolism & Toxicity of Fluoride – whitford. G. M.
25. Endodontic Practice – Grossman.
26. Principles of Endodontics – Munford.
27. Endodontics – Ingle.

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28. Pathways of Pulp – Cohen.
29. Management of Traumatized anterior Teeth – Hargreaves.

DENTAL MATERIALS

The science of Dental Material has undergone tremendous changes over the years. Continued research has led to new material systems and changing concepts in the dental field. Interlinked with various specialised branches of chemistry, practically all engineering applied sciences and biological characteristics, the science of dental material emerged as a basic sciences in itself with its own values and principles.

INTRODUCTION

AIMS:

Aim of the course is to present basic chemical and physical properties of Dental materials as they are related to its manipulation to give a sound educational background so that the practice of the dentistry emerged from art to empirical status of science as more information through further research becomes available. It is also the aim of the course of Dental materials to provide with certain criteria of selection and which will enable to discriminate between facts and propaganda with regards to claims of manufactures.

OBJECTIVES:

To understand the evolution and development of science of dental material.

To explain purpose of course in dental materials to personnels concerned with the profession of the dentistry. Knowledge of physical and chemical properties.Knowledge of biomechanical requirements of particular restorative procedure.An intelligent compromise of the conflicting as well as co-ordinating factors into the desired Ernest.Laying down standards or specifications of various materials to guide to manufacturers as well as to help professionals.

Search for newer and better materials which may answer our requirements with greater satisfaction. To understand and evaluate the claims made by manufactures of dental materials

NEEDS FOR THE COURSE:

The profession has to rise from an art to a science, , the need for the dentist to possess adequate knowledge of materials to exercises his best through knowledge of properties of different types of materials. The growing concern of health hazards due to mercury toxicity, inhalation of certain vapour or dust materials, irritations and allergic reaction to skin due to contact of materials. Materials causing irritation of oral tissues, pH of restorative materials causing inflammation and necrosis of pulp which is a cause for the dentist to posses wider knowledge of physical, chemical and biological properties of materials being used. For the protection for the patient and his own protection certain criteria of selection are provided that will enable the dentist to discriminate between facts and propaganda, which will make a material biologically accept.

SCOPE:

The dental materials is employed in mechanical procedures including restorative dentistry such as Prosthodontics, endodontics, periodontal, orthodontics and restorative materials. There is scarcely a dental procedure that does not make use of dental materials in one form or another and

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therefore the application of dental material is not limited to any one branch of dentistry. Branches such as minor surgery and periodontics require less use of materials but the physical and chemical characters of materials are important in these fields.

The toxic and tissue reaction of dental materials and their durability in the oral cavity where the temperature is between 32 & 37 degree centigrade, and the ingestion of hot or cold food ranges from 0- 70 degree centigrade. The acid an alkalinity of fluids shown pH varies from 4 to 8.5. The load on 1 sq.mm of tooth or restorative materials can reach to a level as high as many kilograms. Thus the biological properties of dental materials cannot be separated from their physical and chemical properties.

2). STRUCTURE OF MATTER AND PRINCIPLES OF ADHESION.

Change of state, inter atomic primary bonds, inter atomic secondary bonds, inter atomic bond distance and bonding energy, thermal energy, crystalline structure, non crystalline structures, diffusion, adhesion and bonding and adhesion to tooth structures.

3). IMPORTANT PHYSICAL PROPERTIES APPLICABLE TO DENTAL MATERIALS

Physical properties are based on laws of mechanics, acoustics, optics, thermodynamics, electricity,magnetism, radiation, atomic structure or nuclear phenomena. Hue, value, chroma and translucency physical properties based on laws of optics, dealing with phenomena of light, vision and sight. Thermal conductivity & coefficient of thermal expansion are physical properties based on laws of thermodynamics. Stress, strain, proportional limit, elastic limit yield strength, modulus of elasticity, flexibility, resilience, impact, impact strength, permanent deformation, strength, flexure strength fatigue, static fatigue, toughness, brittleness, ductility & malleability, hardness, abrasion resistance, relaxation, rheology, Thixotropic, creep, static creep, dynamic creep, flow, colour, three dimensional colour – hue, values, chroma, Munsell system, metamersim, fluorescence, physical properties of tooth, stress during mastication

4). BIOLOGICAL CONSIDERATIONS IN USE OF DENTAL MATERIALS.

Materials used are with the knowledge of appreciation of certain biological considerations for use in oral cavity. Requirement of materials with biological compatibility.Classification of materials from perspective of biological compatibility.eg. contact with soft tissues, affecting vitality of pulp, used for root canal fillings, affecting hard tissues of teeth, laboratory materials that could be accidentally be inhaled or ingested during handling. Hazards associated with materials: pH-effecting pulp, polymers causing chemical irritation, mercury toxicity, etc. Microleakage, Thermal changes, Galvanism, toxic effect of materials.Biological evaluation for systemic toxicity, skin irritation, mutagenecity and carcinogenicity.Disinfection of dental materials for infection control.

5). GYPSUM & GYPSUM PRODUCTS.

Gypsum – its origin, chemical formula, Products manufactured from gypsum.

Dental plaster, Dental stone, Die stone, high strength, high expansion stone.

Application and manufacturing procedure of each, macroscopic and microscopic structure of each .Supplied as and Commercial names.

Chemistry of setting, setting reaction, theories of setting, gauging water, Microscopic structure of set material.Setting time: working time and setting time, Measurement of setting time and factors controlling setting time .

Setting expansion, Hygroscopic setting expansion – factors affecting each

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Strength :wet strength, dry strength, factors affecting strength, tensile strength
Slurry – need and use.
Care of cast.
ADA classification of gypsum products
Description of impression plaster and dental investment
Manipulation including recent methods or advanced methods.
Disinfection : infection control, liquids, sprays, radiation
Method of use of disinfectants
Storage of material – shelf life

6) IMPRESSION MATERIALS USED IN DENTISTRY

Impression plaster, Impression compound, Zinc oxide eugenol impression paste & bite registration paste incl., non eugenol paste, Hydrocolloids, reversible and irreversible, Elastomeric impression materials. Polysulphide, Condensation silicones, Addition silicones, Polyether, Visible light cure polyether urethane dimethacrylate, Historical background & development of each impression material,Definition of impression , Purpose of making impression, Ideal properties required and application ofmaterial, Classification as per ADA specification, general & individual impression material.

Application and their uses in different disciplines, Marketed as and their commercial names, Mode of supply & mode of application bulk/wash impression. Composition, chemistry of setting ,Control of setting time , Type of impression trays required, Adhesion to tray, manipulation, instruments &equipments required. Techniques of impression, storage of impression, (Compatibility with cast and die material). Any recent advancements in material and mixing devices. Study of properties: Working time, setting time, flow, accuracy, strength, flexibility, tear strength, dimensional stability, compatibility with cast & die materials incl., electroplating Biological properties: tissue reaction , Shelf life & storage of material, Infection control – disinfection, Advantages & disadvantages of each material.

7). SYNTHETIC RESINS USED IN DENTISTRY.

Historical background and development of material, Denture base materials and their classification and requirement

Classification of resins

Dental resins – requirements of dental resins, applications, polymerisation, polymerisation mechanism stages in addition polymerisation, inhibition of polymerisation, co polymerization, molecular weight, crosslinking, plastixizers, Physical properties of polymers, polymer structures types of resins.

ACRYLIC RESINS:

Mode of polymerisation: Heat activated, Chemically activated, Light activated, Mode of supply, application, composition, polymerisation reaction of each. Technical considerations: Methods of manipulation for each type of resin. Physical properties of denture base resin. Miscellaneous resins &techniques: Repair resins, Relining and rebasing. Short term and long-term soft-liners, temporary crownand bridge resins, Resin impression trays, Tray materials, Resin teeth, materials in maxillofacial prosthesis, Denture cleansers, Infection control in detail, Biological properties and allergic reactions.

RESTORATIVE RESINS:

Historical background, Resin based restorative materials, Unfilled& filled, Composite restorativematerials, Mode of supply, Composition, Polymerisation mechanisms: Chemically activated, Lightactivated, Dual cure: Degree of conversion, Polymerisation shrinkage Classification of Composites:

Application, composition and properties of each Composites of posterior teeth, Prosthodontics resins for veneering. Biocompatibility – microleakage, pulpal reaction, pulpal protection Manipulation of composites: Techniques of insertion of Chemically activated, light activated, dual cure Polymerisation,Finishing and polishing of restoration, Repair of composites Direct bonding Bonding: Need for bonding,

Acid - etch technique, Enamel bonding, Dentin bonding agents. Mode of bonding, Bond strength, Sandwich technique its indication and procedure. Extended application for composites: Resins for restoring eroded teeth, Pit and fissure sealing, Resin inlays system – Indirect & direct, Core build up,Orthodontic applications.

8). METAL AND ALLOYS:

Structure and behaviour of metals, Solidification of metals, mechanism of crystallisation amorphous &crystalline. Classification of alloys, Solid solutions, Constitutes or equilibrium phase diagrams:Electricalloys, Physical properties, Peritectic alloys, Solid state reaction other binary systems: Metallography &Heat treatment. Tarnish and corrosion. Definition: causes of corrosion, protection against corrosion.Corrosion of dental restorations, clinical significance of galvanic current. Dental Amalgam.

History:

Definition of dental amalgam, application, Alloy classification, manufacture of alloy powder composition - available as.

Amalgamation : setting reaction & resulting structure , properties , Microleakage

Dimensional stability, Strength, Creep, Clinical performance

Manipulation: Selection of alloy, proportioning, mechanism of trituration, condensation, carving &finishing. Effect of dimensional changes, Marginal deterioration., Repair of amalgam, mercury toxicity, mercury hygiene.

DIRECT FILLING GOLD:

Properties of pure gold, mode of adhesion of gold for restoration forms of direct filling gold for using as restorative material

Classification : Gold Foil, Electrolytic precipitate, powdered gold.

Manipulation: Removal of surface impurities and compaction of direct filling gold.

Physical properties of compacted gold, Clinical performance.

DENTAL CASTING ALLOYS:

Historical background, desirable properties of casting alloys.

Alternatives to cast metal technology: direct filling gold, amalgam, mercury free condensable intermetallic compound - an alternative to metal casting process. CAD-CAM process for metal & ceramic inlays - without need of impression of teeth or casting procedure, pure titanium, most bio compatible metal which are difficult to cast can be made into crowns with the aid of CAD-CAM technology . Another method of making copings - by copy milling (without casting procedures).

Classification of casting alloys: By function & description.

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Recent classification , High noble (HN), Noble (N) and predominantly base metal (PB)
Alloys for crown & bridge, metal ceramic & removable partial denture. Composition, function, constituents and application, each alloy both noble and base metal. Properties of alloys: Melting range, mechanical properties, hardness, elongation, modulus of elasticity, tarnish and corrosion. Casting shrinkage and compensation of casting shrinkage. Biocompatability - Handling hazards &precautions of base metal alloys, casting investments used. Heat treatment : Softening & hardening heat treatment. Recycling of metals. Titanium alloys & their application , properties & advantages. Technical considerations In casting .Heat source, furnaces.

9). DENTAL WAXES INCLUDING INLAY CASTING WAX

Introduction and importance of waxes.Sources of natural waxes and their chemical nature.
Classification of Waxes:
Properties: melting range, thermal expansion, mechanical properties, flow& residual stresses, ductility. Dental Wax: Inlay wax: Mode of supply : Classification & composition, Ideal requirements:
Properties of inlay wax: Flow, thermal properties Wax distortion & its causes.
Manipulation of inlay wax: Instruments & equipment required, including electrically heated instruments metal tips and thermostatically controlled wax baths.
Other waxes: Applications, mode of supply & properties.
Casting Wax, Base plate wax, Processing wax, Boxing wax, Utility wax, Sticky wax, Impression wax for
corrective impressions, Bite registration wax.

10). DENTAL CASTING INVESTMENTS.

Definition, requirements, classification Gypsum bonded - classification. Phosphate bonded, Silica bonded
Mode of Supply: Composition, application , setting mechanism, setting time & factors controlling.
Expansions :Setting expansion, Hygroscopic Setting expansion, & thermal expansion : factors affecting. Properties : Strength, porosity, and fineness & storage. Technical considerations: For Casting procedure, Preparation of die, Wax pattern, spruing, investing, control of shrinkage compensation, wax burnout, and heating the invested ring, casting. Casting machines, source of heat for melting the alloy. Defects in casting.

11). SOLDERING, BRAZING AND WELDING

Need of joining dental appliances, Terms & Definition
Solders: Definition, ideal requirement, types of solders – Soft & hard and their fusion temperature, application. Mode of supply of solders, Composition and selection, Properties.Tarnish & corrosion resistance mechanical properties, microstructure of soldered joint. Fluxes & Anti fluxes: Definition, Function, Types, commonly used fluxes & their selection
Technique of Soldering &Brazing : free hand soldering and investment, steps and procedure. Welding,: Definition, application, requirements, procedure, weld decay - causes and how to avoid it. Laser welding.

WROUGHT BASE METAL ALLOYS

Applications and different alloys used mainly for orthodontics purpose
1. Stainless steel

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2. Cobalt chromium nickel
3. Nickel titanium
4. Beta titanium

Properties required for orthodontic wires, working range, springiness, stiffness, resilience, Formability, ductility, ease of joining, corrosion resistance, stability in oral environment, bio compatibilityStainless steels: Description, type, composition & properties of each type. Sensitisation &stabilisation ,

Mechanical properties – strength, tensile, yield strength, KHN. Braided & twisted wires their need ,Solders for stainless steel, Fluxes, Welding

1. Wrought cobalt chromium nickel alloys, composition, allocation, properties, heat treatment, physical properties
2. Nickel – Titanium alloys, shape, memory & super elastic
3. Titanium alloys, application, composition, properties, welding, Corrosion resistance

12). DENTAL CEMENTS

Definition & Ideal requirements:

Cements: Silicate, Glass ionomer, metal modified glass ionomer, resin modified glass ionomer, zinc oxide eugenol, modified zinc oxide eugenol, zinc phosphate, zinc silico phosphate, zinc poly carboxylate, Cavity liners and cement bases, Varnishes Calcium hydroxide, Gutta percha

Application, classification (general and individual), setting mechanism, mode of supply, Properties, factors affecting setting, special emphasis on critical procedures of manipulation and protection of cement, mode of adhesion, biomechansim of caries inhibition.

Agents for pulpal protection., Modifications and recent advances, Principles of cementation. Special emphasis on cavity liners and cement bases and luting agents.

13). DENTAL CERAMICS

Historical background & General applications.

Dental ceramics : definition, classification, application, mode of supply, manufacturing procedure, methods of strengthening. Properties of fused ceramic: Strength and factors affecting, modulus of elasticity, surface hardness, wear resistance, thermal properties, specific gravity, chemical stability, esthetic properties, biocompatability, technical considerations.

Metal Ceramics (PFM): Alloys - Types and composition of alloys. Ceramic - Type and Composition.

Metal Ceramic Bond - Nature of bond. Bonding using electro deposition, foil copings, bonded platinum

foil, swaged gold alloy foil coping. Technical considerations for porcelain and porcelain fused metal restorations. Recent advances - all porcelain restorations, Manganese core, injection moulded, castable ceramics, glass infiltrated alumina core ceramic (In ceram), ceramic veners, inlays and onlays, and CAD- CAM ceramic. Chemical attack of ceramic by fluoride.Porcelain furnaces.

14). ABRASION & POLISHING AGENTS

Definition of abrasion and polishing. Need of abrasion and polishing. Types of abrasives: Finishing, polishing & cleaning. Types of abrasives: Diamond, Emery, aluminium oxides garnet, pumice, Kieselgurh, tripoli, rouge, tin oxide, chalk, chromic oxide, sand, carbides, diamond, zirconium silicate Zinc oxide

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ABRASIVE ACTION :
Desirable characteristics of an abrasive, Rate of abrasion, Size of particle, pressure and speed. Grading of abrasive & polishing agents.Binder, Polishing materials & procedures used.Technical consideration - Material and procedure used for abrasion and polishin Electrolytic polishing and burnishing.
15). DIE AND COUNTER DIE MATERIALS INCLUDING ELECTROFORMING AND ELECTROPOLISHING.
Types – Gypsum products, Electroforming, Epoxy resin, Amalgam.
16). DENTAL IMPLANTS : Evolution of dental implants, types and materials.
17). MECHANICS OF CUTTING : Burs and points.
At the end of the course the student should have the knowledge about the composition, properties, manipulative techniques and their various commercial names. The student should also acquire skills to select and use the materials appropriately for laboratory and clinical use.
RECOMMENDED BOOKS:
1. Phillips Science of Dental Materials – 10th edn.- Kenneth J. Anusavice
2. Restorative Dental Materials – 10 edn. Robert G.Craig
3. Notes on Dental Materials – E.C. Combe
7. PRE CLINICAL CONSERVATIVE DENTISTRY LABORATORY EXERCISES
1. Identification and study of handcutting instruments chisles, gingival margin trimmers, excavators and hatchet.
2. Identification and use of rotary cutting instruments in contra angle hand pieces burs (Micromotor)
3. Preparation class I and extended class I and class II and MOD's and class V amounting to 10 exercises in plaster models.
4. 10 exercises in mounted extracted teeth of following class I, 4 in number class I extended cavities 2, class II 4 in number and Class V 2 in number. Cavity preparation base application matrix and wedge placement restoration with amalgam.
5. Exercises on phantom head models which includes cavity preparation base and varnish application matrix and wedge placement followed by amalgam restoration.
Class I 5
Class I with extension 2
Class II 10
Class II Mods 2
Class V and III forglass ionmers 4
Class V for amalgam 2
6. Polishing of above restorations.
7. Demonstration of Class III and Class V cavity preparation. For composites on extracted tooth completing the restoration.
8. Polishing and finishing of the restoration of composites.
9. Identification and manipulation of varnish bases like Zinc Phosphate, Poly carboxylate, Glass Ionomers, Zinc Oxide, Euginol cements.
10. Identification and manipulation of various matrices, tooth separators and materials like composites and modified glassionomer cements.

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11. Cast Restoration
1. Preparation of Class II inlay cavity
2. Fabrication of wax pattern
3. Sprue for inner attachment investing
4. Investing of wax pattern
5. Finishing and cementing of class II inlay in extracted tooth.
12. Endodontics
1. Identification of basic endodontic instruments
2. Cornal access cavity preparation on extracted. Upper central incisiors
3. Determination of working length.
4. Biomechanical preparation of root canal space of central incisor
5. Obfuration of root canal spaces. Absens of cornal access cavity.
6. Closure of acess cavity

PERIODONTOLOGY

OBJECTIVES:

The student shall acquire the skill to perform dental scaling ,diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist's care.

1. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics

2. Development of perio-dontal tissues, micro-structural anatomy and biology of periodontal tissues in detail Gingiva. Junctional epithelium in detail, Epithelial-Mesenchymal interaction,Periodontal, ligament Cementum, Alveolar bone.

3. Defensive mechanisms in the oral cavity: Role of-Epithelium,Gingival fluid, Saliva and other defensive mechanisms in the oral environment.

4. Age changes in periodontal structures
and their significance in Geriatric dentistry
Age changes in teeth and periodontal structures and theirassociation with periodontal diseases

5. Classification of periodontal diseases Need for classification, Scientific basis of classification
Classification of gingival and periodontal diseases as described
in World Workshop1989
Gingivitis:
Plaque associated,ANUG,steroid hormone influenced, Medication influenced, Desquamative gingivitis, other forms of gingivitis as in nutritional deficiency, bacterial and viral infections etc.
Periodontitis:
Adult periodontitis, Rapidly progressive periodontitis A&B, Juvenile periodontitis(localized, generalized, and post-juvenile),Prepubertal periodontitis, Refractory periodontitis

6. Gingival diseases Localized and generalized gingivitis, Papillary, marginal and

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diffuse gingivitis
Etiology, pathogenesis, clinical signs, symptoms and management of
i) Plaque associated gingivitis
ii) Systemically aggravated gingivitis(sex hormones,
drugs and systemic diseases)
iii) ANUG
iv) Desquamative gingivitis-Gingivitis associated with
lichen planus, pemphigoid, pemphigus, and other
vesiculobullous lesions
v) Allergic gingivitis
vi) Infective gingivitis-Herpetic, bacterial and candidial
vii) Pericoronitis
viii) Gingival enlargement (classification and differential
diagnosis)
7 Epidemiology of
periodontal diseases
- Definition of index, incidence,prevalence,epidemiology,endemic, epidemic, and pandemic
- Classification of indices(Irreversible and reversible)
- Deficiencies of earlier indices used in Periodontics
- Detailed understanding of Silness &Loe Plaque Index,Loe&Silness Gingival Index, CPITN &CPI.
- Prevalence of periodontal diseases in India and other
countries.
- Public health significance(All these topics are covered atlength under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination
8. Extension of inflammation from gingivaMechanism of spread of inflammation from gingival area to deeper periodontal structures Factors that modify the spread
9. Pocket Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket
10. Etiology - Dental Plaque (Biofilm)
- Definition, New concept of biofilm
- Types, composition, bacterial colonization,
growth,maturation &disclosing agents
- Role of dental plaque in periodontal diseases
- Plaque microorganisms in detail and bacteria associated
with periodontal diseases
- Plaque retentive factors
- Materia alba
- Food debris
- Calculus
- Definition
- Types, composition, attachment, theories of formation

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- Role of calculus in disease

Food Impaction
- Definition
- Types, Etiology
- Hirschfelds' classification
- Signs ,symptoms&sequelae of treatment

Trauma from occlusion
- Definition, Types
- Histopathological changes
- Role in periodontal disease
- Measures of management in brief

Habits
- Their periodontal significance
- Bruxism &parafunctional habits, tongue thrusting ,lip biting, occupational habits

IATROGENIC FACTORS

Conservative Dentistry
- Restorations
- Contact point, marginal ridge, surface roughness, overhanging restorations, interface between restoration and teeth

Prosthodontics
- Interrelationship
- Bridges and other prosthesis, pontics(types) ,surface contour, relationships of margins to the periodontium, Gingival protection theory, muscle action theory& theory of access to oral hygiene.

Orthodontics
- Interrelationship, removable appliances &fixed appliances
- Retention of plaque, bacterial changes Systemic diseases
- Diabetes, sex hormones, nutrition(Vit.C &proteins)
- AIDS & periodontium
- Hemorrhagic diseases, Leukemia, clotting factor disorders,PMN disorders

11. Risk factors Definition. Risk factors for periodontal diseases 1
12. Host response - Mechanism of initiation and progression of periodontal diseases
- Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief
- Stages in gingivitis-Initial, early, established & advanced
- Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis

13. Periodontitis - Etiology ,histopathology, clinical signs & symptoms, diagnosis and treatment of adult periodontitis
- Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment
- Furcation involvement, Glickmans' classification, prognosis and management
- Rapidly progressive periodontitis

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- Juvenile periodontitis: Localized and generalized
- Post-juvenile periodontitis
- Periodontitis associated with systemic diseases
- Refractory periodontitis

14. Diagnosis - Routine procedures, methods of probing, types of probes,(According to case history)
- Halitosis: Etiology and treatment. Mention advanced diagnostic aids and their role in brief.

15. Prognosis - Definition, types, purpose and factors to be taken into consideration

16. Treatment plan - Factors to be considered 1

17. Periodontal therapy A. General principles of periodontal therapy. Phase I,II, III, IV therapy. Definition of periodontal regeneration, repair, new attachment and reattachment.

B. Plaque control

i. Mechanical tooth brushes, interdental cleaning aids, dentifrices

ii. Chemical; classification and mechanism of action of each & pocket irrigation

18. Pocket eradication procedures
- Scaling and root planing:
- Indications
- Aims & objectives
- Healing following root planning
- Hand instruments, sonic, ultrasonic &piezo-electric scalers
- Curettage &present concepts
- Definition
- Indications
- Aims &objectives
- Procedures & healing response
- Flap surgery
- Definition
- Types of flaps, Design of flaps, papilla preservation
- Indications & contraindications
- Armamentarium
- Surgical procedure & healing response

9. Osseous Surgery Osseous defects in periodontal disease
- Definition
- Classification
- Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts)
- Healing responses
- Other regenerative procedures; root conditioning

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- Guided tissue regeneration
20. Mucogingival surgery &periodontal plastic surgeries
Definition
Mucogingival problems: etiology, classification of gingival recession (P.D.Miller Jr. and Sullivan and Atkins)
Indications & objectives
Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy\ Crown lengthening procedures
Periodontal microsurgery in brief
21. Splints - Periodontal splints
- Purpose & classification
- Principles of splinting
22. Hypersensitivity Causes, Theories & management 1
23. Implants Definition, types, scope &biomaterials used. Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management
24. Maintenance phase
(SPT)
- Aims, objectives, and principles
- Importance
- Procedures
- Maintenance of implants
25. Pharmaco-therapy - Periodontal dressings
- Antibiotics & anti-inflammatory drugs
- Local drug delivery systems
26. Periodontal management of medically compromised patients
Topics concerning periodontal management of medically compromised patients
27. Inter-disciplinary care - Pulpo-periodontal involvement
- Routes of spread of infection
- Simons' classification
- Management
28. Systemic effects of periodontal diseases in brief Cardiovascular diseases, Low birth weight babies etc.
29. Infection control protocol Sterilization and various aseptic procedures 1
30. Ethics
TUTORIALS DURING CLINICAL POSTING;
1. Infection control
2. Periodontal instruments
3. Chair position and principles of instrumentation
4. Maintenance of instruments (sharpening)
5. Ultrasonic, Piezoelectric and sonic scaling – demonstration of technique
6. Diagnosis of periodontal disease and determination of prognosis
7. Radiographic interpretation and lab investigations

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8. Motivation of patients- oral hygiene instructions

Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling, root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures.

DEMONSTRATIONS:

1. History taking and clinical examination of the patients
2. Recording different indices
3. Methods of using various scaling and surgical instruments
4. Polishing the teeth
5. Bacterial smear taking
6. Demonstration to patients about different oral hygiene aids
7. Surgical procedures- gingivectomy, gingivoplasty, and flap operations
8. Follow up procedures, post operative care and supervision

REQUIREMENTS:

1. Diagnosis, treatment planning and discussion and total periodontal treatment – 25 cases
2. Dental scaling, oral hygiene instructions – 50 complete cases/ equivalent
3. Assistance in periodontal surgery – 5 cases
4. A work record should be maintained by all the students and should be submitted at the time of examination after due certification from the head of the department.

Students should have to complete the work prescribed by the concerned department from time to time and submit a certified record for evaluation.

PRESCRIBED BOOK:

1. Glickman's Clinical Periodontology — Carranza

REFERENCE BOOKS

1. Essentials of Periodontology and periodontics- Torquil MacPhee
2. Contemporary periodontics- Cohen
3. Periodontal therapy- Goldman
4. Orbans' periodontics- Orban
5. Oral Health Survey- W.H.O.
6. Preventive Periodontics- Young and Stiffler
7. Public Health Dentistry- Slack
8. Advanced Periodontal Disease- John Prichard
9. Preventive Dentistry- Forrest
10. Clinical Periodontology- Jan Lindhe
11. Periodontics- Baer & Morris.

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