

CURRICULUM
OF
BACHELOR OF DENTAL SURGERY (BDS)
FIVE YEARS PROGRAMME

(Revised 2011)



HIGHER EDUCATION COMMISSION
ISLAMABAD, PAKISTAN

CURRICULUM DIVISION, HEC

| | |
|-------------------------------|----------------------------|
| Dr. Syed Sohail H. Naqvi | Executive Director |
| Prof. Dr. Altaf Ali G. Shaikh | Member (Acad) |
| Mr. Muhammad Javed Khan | Adviser (Academics) |
| Malik Arshad Mahmood | Director (Curri) |
| Dr. M. Tahir Ali Shah | Deputy Director (Curri) |
| Mr. Abdul Fatah Bhatti | Assistant Director (Curri) |

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PREFACE

The curriculum of subject is described as a throbbing pulse of a nation. By viewing curriculum one can judge the stage of development and its pace of socio-economic development of a nation. With the advent of new technology, the world has turned into a global village. In view of tremendous research taking place world over new ideas and information pours in like of a stream of fresh water, making it imperative to update the curricula after regular intervals, for introducing latest development and innovation in the relevant field of knowledge.

In exercise of the powers conferred under Section 3, Sub-Section 2 (ii) of Act of Parliament No. X of 1976 titled “**Supervision of Curricula and Textbooks and Maintenance of Standard of Education**” the erstwhile University Grants Commission was designated as competent authority to develop review and revise curricula beyond Class-XII. With the repeal of UGC Act, the same function was assigned to the Higher Education Commission under its Ordinance of 2002 Section 10, Sub-Section 1 (v).

In compliance with the above provisions, the HEC undertakes revamping and refurbishing of curricula after regular intervals in a democratic manner involving universities/DAIs, research and development institutions and local Chamber of Commerce and Industry. The intellectual inputs by expatriate Pakistanis working in universities and R&D institutions of technically advanced countries are also invited to contribute and their views are incorporated where considered appropriate by the National Curriculum Revision Committee (NCRC).

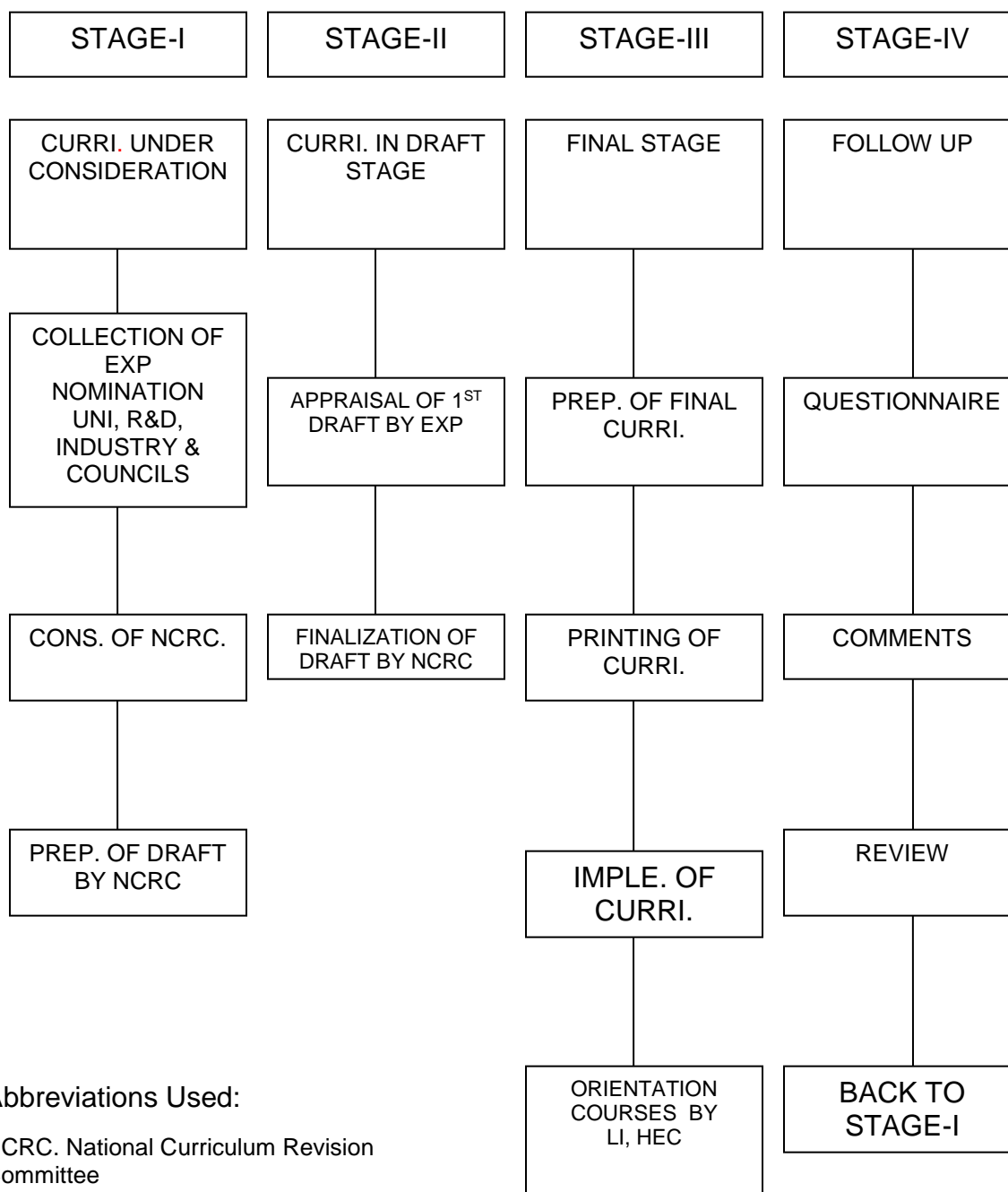
To bring international compatibility to qualifications held from Pakistani universities/DAIs for promotion of students mobility and job seekers around the globe, a Committee comprising of Conveners of the National Curriculum Revision Committee of HEC met in 2009 and developed a unified template for standardized 4-year/8-semester BS degree programmes. This unified template was aimed to inculcate broader base of knowledge in the subjects like English, Sociology, Philosophy, Economics etc. in addition to major discipline of study. The Pharmacy degree course requires to be completed in 5-year/10-semester, and shall require qualifying of 130-140 credit hours of which 77% of the curriculum will constitute discipline specific and remaining 23% will comprise compulsory and general courses.

In line with above, NCRC comprising senior university faculty and experts from various stakeholders and the respective accreditation councils has finalized the curriculum for Doctor of Dental Surgery (BDS) in 5-year. The same is being recommended for adoption by the universities/DAIs channelizing through relevant statutory bodies of the universities.

MUHAMMAD JAVED KHAN
Adviser (Academics)

June, 2011

CURRICULUM DEVELOPMENT



Abbreviations Used:

- NCRC. National Curriculum Revision Committee
- VCC. Vice-Chancellor's Committee
- EXP. Experts
- COL. Colleges
- UNI. Universities
- PREP Preparation
- REC. Recommendations
- LI Learning Innovation
- R&D Research & Development Organization
- HEC Higher Education Commission

PROFILE OF A PAKISTANI DENTIST

MISSION STATEMENT:

The General Dental Practitioner holding the BDS qualification obtained from a recognized dental institute in Pakistan should:

1. Promote the art and science of dentistry as a noble profession
2. Be the custodian of oral health
3. Be competent in the diagnosis and treatment of patients and should understand the need for referral to a specialist when so required
4. Practice the principles of risks management and maintain the highest professional ethical and legal standard in the delivery of health care
5. Foster improvement in oral health through research and use of new advances in health sciences and technology
6. Have a social responsibility to the community and profession and try for improvement in oral health through patient and community education
7. Be able to address and respond to the changing needs of the community using trans-disciplinary approach when necessary
8. Be able to use information and communication technology in improving practice and oral health program management
9. Have the attributes for analytical and critical thinking, creativity and innovation
10. Subscribe to life-long learning as a professional obligation

COMPETENCES OF THE DENTIST TRAINED IN PAKISTAN

Dentists are an integral part of the total medical profession involved in the supervision and care of the comprehensive health of the people through oral health management. A dentist should acquire this capacity through the achievement of a set of **competences** which are the abilities essential to begin independent, unsupervised dental practice. This should be achieved by the time he or she obtains the first professional degree. Because **competences** are written to describe the performance of graduates in dental settings, as opposed to the performance of students in courses, the development of **competences** is an interdisciplinary process. The competences that follow are the basic level of attitudes, behavior, knowledge and skills necessary for a graduate student to respond to the full range of circumstances encountered in general dental practice.

This level of performance requires some degree of speed and accuracy consistent with patient well-being but not performance at the highest level possible. It also requires an awareness of what constitutes acceptable performance under the changing circumstances and a desire for self-improvement.

Competences support integration and merging of all disciplines, which should benefit students and also patients who are receiving treatment. Their definition will give dental teaching institutions a benchmark with which to:

1. Review, redefine, and restructure the undergraduate curriculum
2. Review and improve student evaluation process
3. Establish and apply outcome measures to assess the effectiveness of the undergraduate program.

DOMAINS OF COMPETENCES:

The present document is adapted from the deliberations on the Asia Pacific Dental

Federation (APDF) Workshop in Chennai and is structured from the general to the more specific for every section. Seven domains have been identified that represent the broad categories of professional activity and concerns that occur in the general practice of dentistry. They are interdisciplinary in orientation:

1. Professionalism
 - 1.1. Professional Behavior
 - 1.2. Ethics and Jurisprudence
2. Communication and interpersonal skills
3. Knowledge base, information handling and critical thinking
 - 3.1. Basic biomedical, technical and clinical sciences
 - 3.2. Acquiring and Using Information
4. Clinical information gathering
5. Diagnosis and treatment planning
6. Establishment and maintenance of Oral Health
 - 6.1 Patient Education and Management of Primary Care
 - 6.2 Oral Medicine
 - 6.3 Periodontal Management
 - 6.4 Operative Dentistry
 - 6.5 Oral Surgery
 - 6.6 Pain and Anxiety Management
 - 6.7 Prosthetic Dentistry
 - 6.8 Implant Dentistry
 - 6.9 Orthodontics
 - 6.10 Emergency Treatment
7. Health promotion

Major competences:

Within each domain, one or more “Major Competences” are identified as relating to that domain’s activity or concern. Major competence is the educational outcome and is the ability to perform or provide a particular, but complex, service or task. Its complexity suggests that multiple and more specific abilities are required to support the performance of any major competency.

Supporting competences:

The more specific abilities could be considered subdivisions of the educational outcome or “Major Competency” and are termed “Supporting Competences”. Achievement of a major competency requires the acquisition and demonstration of

all supporting competences related to that particular service or task. The HEC/PM&DC envisages that all Dental Schools will adhere to the major competences as described in this document, but the supporting competences may vary in detail between universities and affiliated colleges.

Foundational Competencies:

They are the outcome of didactic and laboratory instruction which imparts the information and experiences that are prerequisite for satisfactory attainment of Supporting Competencies. Foundational ability encompasses knowledge, skill and attitudes. Foundational knowledge is the ability to use information and correctly answer specific questions when asked, for example in an examination. Individual curricula have tremendous flexibility in the area of foundational competencies. They are not mentioned in this paper for the sake of brevity. However for those who need access or more details they may review different approaches adopted by individual dental schools throughout the world.

The Domains are as under:

1. Professionalism

1.1. *PROFESSIONAL BEHAVIOR.*

Major Competence. On graduation, a dentist must have contemporary knowledge and understanding of the broader issues of dental practice, be competent in a wide range of skills, including research, investigative, analytical, problem-solving, planning, communication, presentation and team skills and understand their relevance in dental practice. Specifically, a dentist must:

Supporting Competences:

- 1.1.1. Be competent to display appropriate caring behavior towards patients and show willingness to help.
- 1.1.2. Be competent to display appropriate professional behavior towards all members of the dental team.
- 1.1.3. Have knowledge of social and psychological issues relevant to the care of patients.
- 1.1.4. Be competent to seek continuing professional development (CPD) allied to the process of continuing education on a regular basis, in order to ensure that high levels of clinical competence and evidence-based knowledge are maintained.
- 1.1.5. Be competent to manage and maintain a safe working environment with special reference and to all aspects of cross-infection control.
- 1.1.6. Have knowledge and awareness of the importance of his/her own health and its impact on the ability to practice as a dentist (ergonomics and occupational diseases).
- 1.1.7. Be competent to deal with other members of the dental team with regard to health and safety.

1.1.8. Be competent in practice management, patient communication and be able to oversee the financial aspects of the practice.

1.1.9. Be able to perform as an effective employer and leader of his team

1.2. ETHICS AND JURISPRUDENCE:

Major Competence. The graduating dentist must have knowledge and understanding of the moral and ethical responsibilities involved in the provision of care to individual patients and to populations, and have knowledge of current laws applicable to the practice of dentistry. In particular, the graduating dentist must:

Supporting Competences:

1.2.1. Have knowledge of the ethical principles relevant to dentistry and be competent at practicing with personal and professional integrity, honesty and trustworthiness.

1.2.2. Be competent at providing humane and compassionate care to all patients.

1.2.3. Have knowledge and understanding of patients' rights, particularly with regard to confidentiality and informed consent, and of patients' obligations.

1.2.4. Have knowledge and awareness that dentists should strive to provide the highest possible quality of patient care at all times.

1.2.5. Be competent at selecting and prioritising treatment options that are sensitive to each patient's individual needs, goals and values, compatible with contemporary therapy, and congruent with a comprehensive oral health care philosophy.

1.2.6. Acknowledge that the patient is the centre of care and that all interactions, including diagnosis, treatment planning and treatment, must have the patient's best interests as the focus of that care.

1.2.7. Be competent in respecting patients and colleagues without prejudice concerning gender, diversity of background and opportunity, language and culture.

1.2.8. Be competent at recognising their own limitations and taking appropriate action to help the incompetent, impaired or unethical colleague and their patients.

1.2.9. Have knowledge of the judicial, legislative and administrative processes and policy that impact all aspects of dentistry.

1.2.10. Be competent in understanding audit and clinical governance.

2. Communication and Interpersonal Skills

Major Competence:

COMPETENT IN COMMUNICATING. The graduating dentist must be competent in communicating effectively with patients, their families and associates, and with other health professionals involved in their care. In particular, he or she must:

Supporting Competences:

- 2.1. Establish a patient-dentist relationship that allows the effective delivery of dental treatment.
- 2.2. Have knowledge of behavioral sciences and communication including behavioral factors (incl. factors as ethnicity and gender) that facilitate the delivery of dental care and have knowledge of the role of psychological development in patient management.
- 2.3. Be competent in identifying patient expectations (needs and demands) and goals for dental care.
- 2.4. Be competent at identifying the psychological and social factors that initiate and/or perpetuate dental, oral and facial disease and dysfunction and diagnose, treat or refer, as appropriate.
- 2.5. Be competent at sharing information and professional knowledge with the patient
- 2.6. Be competent at communicating with other doctors and health professionals, verbally and in writing, including being able to give and receive constructive criticism.
- 2.7. Be competent at applying principles of stress management to oneself, to patients and to the dental team as appropriate.
- 2.8. Be competent at working with other members of the dental team.

3. Knowledge Base, Information Handling and Critical Thinking

Major Competence 1:

- 3.1. **BASIC BIOMEDICAL, TECHNICAL & CLINICAL SCIENCES** A graduating dentist must have sufficient knowledge and understanding of the basic biomedical, technical and clinical sciences to understand the normal and pathological conditions relevant to dentistry and be competent to apply this information to clinical situations. Specifically, he or she must:

Supporting Competences:

- 3.1.1. Be able to access information and literature through libraries or in the virtual environment
- 3.1.2. Be competent in the use of information technology and remain aware of the changes in this field which increase his access to information and treatment modalities.
- 3.1.3. Have knowledge and understanding of the scientific basis of dentistry, including the relevant basic and biomedical sciences, the mechanisms of knowledge acquisition, scientific method and

evaluation of evidence. Be able to use this knowledge to interpret recent developments and apply relevant benefits to clinical practice.

- 3.1.4. Develop a scientific attitude in an inquiring mind, understand principles of scientific methodology and be able to understand research methodology.
- 3.1.5. Have knowledge of risks in the dental therapeutic environment and the ability to eliminate or reduce such risks.
- 3.1.6. Have knowledge of the scientific principles of sterilisation, disinfection and antisepsis to prevent cross-infection in clinical practice.
- 3.1.7. Have knowledge of clinical hazardous waste management and disposal.
- 3.1.8. Have the basic knowledge of dental instruments and equipment used and the ability to maintain such equipment and troubleshoot minor problems.
- 3.1.9. Have knowledge of the science of dental biomaterials and their limitations and be aware of environmental issues relevant to their use and biocompatibility.
- 3.1.10. Have knowledge of the hazards of ionising radiations and their effects on biological tissues, together with the regulations relating to their use, including radiation, protection and dose reduction.
- 3.1.11. Have knowledge of disease processes including infection, inflammation, disorders of the immune system, degeneration, neoplasia, metabolic disturbances and genetic disorders.
- 3.1.12. Be familiar with the pathological features and dental relevance of common disorders of the major organ systems, and have knowledge of the oral manifestations of systemic disease.
- 3.1.13. Have knowledge of the aetiology and pathological processes of oral diseases in individual and their ramifications in the community in order to facilitate their prevention, diagnosis and management.

Major Competence 2:

- 3.2. **ACQUIRING AND USING INFORMATION** The graduating dentist must be competent at acquiring and using information and in a critical, scientific and effective manner.

Supporting Competences:

- 3.2.1. Be competent in the use of contemporary information technology for documentation, continuing education, communication, management of information and applications related to health care.

- 3.2.2. Be competent in protecting confidential patient data.
- 3.2.3. Be competent in regularly assessing personal knowledge base and in seeking additional information to correct deficiencies.
- 3.2.4. Be competent in recognizing his or her clinical limitations and refer appropriately.
- 3.2.5. Be competent in evaluating the validity of claims related to the benefits-risks ratio of products and techniques.
- 3.2.6. Be competent in evaluating published clinical and basic science research and integrate this information to improve the oral health of the patient.
- 3.2.7. Be competent in applying experience, scientific knowledge and methods to manage problems of oral health care.

4. Clinical Information Gathering

Major Competence:

OBTAINING AND RECORDING A COMPREHENSIVE MEDICAL HISTORY OF THE PATIENT'S ORAL AND DENTAL STATE On graduation, a dentist must be competent in obtaining and recording a comprehensive medical history and a history of the patient's oral and dental state. This will include biological, medical, psychological and social information in order to evaluate the oral condition in patients of all ages. The dentist will, furthermore, be competent in performing **an appropriate physical examination**; interpreting the findings and organising further investigations. Specifically, he or she must:

Supporting Competences:

- 4.1. Be competent to identify the chief complaint of the patient and obtain a history of present illness as part of a comprehensive medical history.
- 4.2. Be competent at performing a dietary analysis.
- 4.3. Be competent at producing a patient record and maintain accurate patient treatment record entries.
- 4.4. Be competent at identifying abnormal patient behavior (including anxiety).
- 4.5. Be competent at initiating an appropriate written medical consultation or referral in order to clarify a question related to the patient's systemic health.
- 4.6. Be competent at performing an extra oral and intraoral examination appropriate for the patient, including assessment of vital signs, and record those findings.
- 4.7. Be competent at completing and charting a comprehensive dental, periodontal and mucosal examination.
- 4.8. Be competent at taking radiographs of relevance to dental practice, interpreting the results and have knowledge of other forms of medical imaging that are of relevance to dentistry.

- 4.9. Be competent in managing ionising radiation.
- 4.10. Be familiar with the principles that underlie dental radiographic techniques.
- 4.11. Have knowledge of appropriate clinical laboratory and other diagnostic procedures and tests, understand their diagnostic reliability and validity, and interpret their results.
- 4.12. Be competent at producing diagnostic casts, mounted and with interocclusal records
- 4.13. Be competent at assessing sensory and motor function of the mouth and jaws.
- 4.14. Be competent at assessing salivary function.
- 4.15. Be competent at assessing orofacial pain.
- 4.16. Be competent at assessing facial form and deviations from the normal.
- 4.17. Be competent at recognizing signs of patient abuse and neglect and know how to report as required to the appropriate legal authorities.

5. Diagnosis and Treatment Planning

Major Competence:

DECISION-MAKING, CLINICAL REASONING AND JUDGEMENT. On graduation, a dentist must be competent in decision-making, clinical reasoning and judgment in order to develop a **differential, provisional or definitive diagnosis** by interpreting and correlating findings from the history, clinical and radiographic examination and other diagnostic tests, taking into account the social and cultural background of the individual. A dentist must be competent at forming a diagnosis and treatment plan for patients of all ages, understanding their needs and demands, and should recognise those treatments that are beyond his/her skills and need to be **referred to a specialist**. He or she must:

Supporting Competences:

- 5.1. Have the ability to think in a logical manner and to use critical thinking and a rational approach towards knowledge and information so as to be guided towards good decision making.
- 5.2. Be competent at obtaining informed consent e.g. for operative procedures
- 5.3. Be competent at recognizing the presence of systemic disease and know how the disease and its treatment affect the delivery of dental care.
- 5.4. Be competent at identifying the location, extent and degree of activity of dental caries and tooth wear.
- 5.5. Be competent at diagnosing abnormalities in dental or periodontal anatomic form that compromise periodontal health, function or aesthetics and identify conditions, which require management.
- 5.6. Be competent at distinguishing the difference between pulpal health and disease and identify conditions that require management.
- 5.7. Be competent at recognising the clinical features of oral mucosal diseases

or disorders, including oral neoplasia, and identify conditions that require management.

- 5.8. Be competent at recognising maxillofacial problems, the clinical characteristics of acute and chronic craniofacial pain of somatic, neurogenic and psychogenic origin, and identifying and diagnosing conditions that require management by the dentist or other health providers.
- 5.9. Be competent at recognising patient behavior contributing to orofacial problems, and identifying conditions that require diagnosis, prevention and management.
- 5.10. Be competent at determining a patient's aesthetic requirements and determine the degree to which those requirements can be met.
- 5.11. Be competent at carrying out an orthodontic assessment.
- 5.12. Be familiar with the diagnosis of temporomandibular joint disorders.
- 5.13. Be competent at diagnosing medical emergencies.
- 5.14. Have knowledge of the role of sedation in the management of adult and young patients be competent in when, how and where to refer a patient for sedation and general anaesthesia and at making other appropriate referrals based on clinical assessment.
- 5.15. Be competent to manage patients from different social and ethnic backgrounds.

6. Establishment and Maintenance of Oral Health

6.1. **EDUCATE PATIENTS AND MANAGE COMPREHENSIVE PRIMARY CARE.**

Major Competence.

The graduating dentist must be competent to educate patients and manage comprehensive primary care for patients of all ages; that emphasizes **current concepts of prevention and treatment of oral disease**; and supports the maintenance of systemic and oral health. Specifically, he or she must:

Supporting Competences:

- 6.1.1. Have knowledge of the concepts of minimal intervention and of providing a comprehensive approach to oral care.
- 6.1.2. Be competent in applying evidence-based treatment
- 6.1.3. Be competent at oral hygiene instruction, topical fluoride therapy and fissure sealing.
- 6.1.4. Be competent to educate patients concerning the aetiology and prevention of oral disease and encourage them to assume responsibility for their oral health.
- 6.1.5. Be competent to prescribe and monitor the effects of appropriate pharmaceutical agents including the chemical control of dental plaque.

- 6.1.6. Be competent to provide dietary counseling and nutritional education relevant to oral health.
- 6.1.7. Be competent to develop strategies to predict, prevent and correct deficiencies in patient's oral hygiene regimens and provide patients with strategies to control adverse oral habits.
- 6.1.8. Be competent to evaluate all treatment results and provide or recommend additional action and maintenance.
- 6.1.9. Be competent at performing preventive and restorative procedures that preserve tooth structure, prevent hard tissue disease and promote soft tissue health.

6.2. **ORAL MEDICINE.**

Major Competence: On graduation, the dentist must be competent to diagnose and manage common oral mucosal diseases and disorders in patients of all ages. In particular, he or she must:

Supporting Competences

- 6.2.1. Be competent at counseling patients regarding the nature and severity of non-life threatening oral mucosal diseases and disorders, providing the patient with realistic options and expectations of management.
- 6.2.2. Be competent at performing limited soft tissue diagnostic procedures.
- 6.2.3. Be able to identify and understand oral manifestations of systemic diseases.
- 6.2.4. Be competent to participate in the diagnosis and proper referral of the patient with life-threatening oral mucosal diseases.
- 6.2.5. Be competent at managing acute oral infections, including patient referral and prescription of appropriate drugs.
- 6.2.6. Be familiar with the treatment of common oral medical lesions disorders, both medical and surgical.
- 6.2.7. Have knowledge concerning the effects of tobacco on the oral mucosa and ways in which to help patients who wish to stop using tobacco.

6.3. **PERIODONTAL MANAGEMENT**

Major Competence

The new graduate in dentistry must be competent to manage periodontal diseases in patients of all ages. Specifically, he or she must:

Supporting Competences:

- 6.3.1. Understand Occlusion and be able to identify the multidisciplinary approach in the treatment of occlusion related disorders
- 6.3.2. Be competent at evaluating the periodontium, establishing a

diagnosis and prognosis and formulating a treatment plan.

- 6.3.3. Be competent at educating patients concerning the aetiology of periodontal disease and encourage them to assume responsibility for their oral health.
- 6.3.4. Be competent at instructing patients in appropriate oral hygiene methods compatible with periodontal health.
- 6.3.5. Be competent in the use of local periodontal therapeutic substances, in supragingival and subgingival scaling and root debridement, using both powered and manual instrumentation and in stain removal and prophylaxis.
- 6.3.6. Have knowledge of the secondary periodontal aetiological factors.
- 6.3.7. Be competent to diagnose, explain and discuss the need for advanced periodontal surgical procedures and the proper method of referral for specialty care.
- 6.3.8. Be competent at evaluating the results of periodontal treatment and establish and monitor a maintenance programme, including a discussion of risk factors.

6.4. **OPERATIVE DENTISTRY:**

Major Competence The new dentist must be competent to manage caries, pulpal and peri-radicular disorders in patients of all ages. In particular, he or she must:

Supporting Competences:

- 6.4.1. Be competent at assessing patient risk for caries and implement caries prevention strategies.
- 6.4.2. Be able to correct deficiencies in patient's oral hygiene regimens and develop strategies to control adverse oral habits.
- 6.4.3. Be able to evaluate the diet of communities and individuals and effectively counsel them and those responsible for their wellbeing on the practical diet for good oral health.
- 6.4.4. Apply fluoride containing compounds topically to the teeth of individuals and guide as to the self application of such substances and their use in a community.
- 6.4.5. Be competent at removing or otherwise treating carious tooth tissue using techniques that maintain pulp vitality and restore the tooth to form, function and aesthetics with appropriate materials, preventing hard tissue disease and promoting soft tissue health including the use of fissure sealants.
- 6.4.6. Be competent at performing therapeutic procedures designed to preserve the defense mechanism of the dental pulp.
- 6.4.7. Be competent at performing apexification and endodontic treatment on uncomplicated single and uncomplicated multi-rooted teeth.
- 6.4.8. Be competent at recognising indications for surgical and complicated non-surgical root canal therapy and take appropriate

action.

6.5. **ORAL SURGERY:**

Major Competence.

On graduation, a dentist must be competent to treat and manage conditions requiring simple reparative surgical procedures of the hard and soft tissues in patients of all ages, including the extraction of teeth, the removal of roots when necessary and the performance of minor soft tissue surgery, and to apply appropriate pharmaceutical agents to support treatment. Specifically, he or she must:

Supporting Competences:

- 6.5.1. Be competent to perform uncomplicated extraction of erupted teeth.
- 6.5.2. Have knowledge of the management of trauma in deciduous and permanent dentitions and be familiar with the surgical and non-surgical aspects of the management of maxillofacial trauma.
- 6.5.3. Be competent to perform surgical extraction of an uncomplicated unerupted tooth and the uncomplicated removal of fractured or retained roots.
- 6.5.4. Be competent to perform uncomplicated pre-prosthetic surgical procedures.
- 6.5.5. Be competent to manage and treat common intra-operative and postoperative surgical complications.
- 6.5.6. Be competent to describe the indications and contraindications, principles and techniques of surgical placement of osseointegrated implant fixtures.

6.6. **PAIN AND ANXIETY MANAGEMENT:**

Major Competence.

On graduation, a dentist must be competent to employ appropriate techniques to manage orofacial pain, discomfort and psychological distress. In particular, he or she must:

Supporting Competences

- 6.6.1. Be competent at infiltration and block local anaesthesia in the oral cavity for restorative and surgical procedures or other treatment, as needed, for orofacial pain management, including management of potential complications of local anaesthesia
- 6.6.2. Be able to recognize myo-fascial dysfunction, its etiology and be able to treat such dysfunction recognizing the need of a multidisciplinary approach including psychiatric input in case of stress.
- 6.6.3. Be competent at diagnosing orofacial pain, treating it as appropriate or referring the patient to relevant specialists.

- 6.6.4. Have knowledge of inhalation and intravenous conscious sedation techniques for dental procedures.
- 6.6.5. Be competent to select and prescribe drugs for the management of preoperative, operative and postoperative pain and anxiety.
- 6.6.6. Be competent at identifying the origins and continuation of dental fear and anxiety and manage this fear and anxiety with behavioral techniques.

6.7. **PROSTHODONTIC MANAGEMENT:**

Major Competence.

The new graduate must be competent to restore defective and/or missing teeth to acceptable form, function and aesthetics in patients of all ages. Particularly, he or she must:

Supporting Competences:

- 6.7.1. Understand the dynamics of occlusion and the need to replicate the same for the restoration of function when prostheses are made, and to be able to treat occlusal dysfunction when it exists.
- 6.7.2. Be competent at designing effective indirect restorations, anterior and posterior crowns, post crowns, simple bridges, complete and partial dentures and bite-rising splints and undertake some of these procedures as is relevant to the country of practice.
- 6.7.3. Have knowledge and experience of the design and laboratory procedure used in the production of crowns, bridges, partial and complete dentures and be able to make appropriate chair-side adjustment to these restorations.
- 6.7.4. Be able to rehabilitate edentulous and partially dentate patients and understand their needs.
- 6.7.5. Be competent at describing for patients the principles and techniques of aesthetic treatments including differences between patient expectations and achievable results.
- 6.7.6. Be familiar with the potential and limitations (risks and benefits) of dental technological procedures and the handling of dental materials in restoring the dentition.

6.8. **IMPLANT DENTISTRY**

Major Competences: The graduate dentist must be competent to evaluate patients in need for implants and should be able to carry out simple implant procedures.

Supporting Competences:

- 6.8.1. Be able to do a comprehensive clinical evaluation for implant procedures including understanding medical conditions which may affect implant placement.

- 6.8.2. Be able to provide the patient with accurate information about their implant needs and be competent at describing for patients the principles and techniques involved in the use of osseointegrated implants for restorations.
- 6.9.3. Be able to develop an adequate treatment plan integrated with other aspects of dental care when appropriate.
- 6.9.4. Be able to understand different treatment options and be able to discuss them with patients.
- 6.9.5. Be able to seek and evaluate appropriate diagnostic records.
- 6.9.6. Be able to recognize the need to refer complex cases to the specialist.

6.9. **EMERGENCY TREATMENT**

Major Competences. The graduate dentist must be competent effectively to prevent and manage the majority of medical and dental emergency situations encountered in the general practice of dentistry. In particular, he or she must:

Supporting Competences:

- 6.9.1. Be competent to develop and implement an effective strategy for preventing dental and medical emergencies in the dental surgery and establish policies for the management of such emergencies should they occur.
- 6.9.2. Be competent at carrying out resuscitation techniques and immediate appropriate management of cardiac arrest, anaphylactic reaction, upper respiratory obstruction, collapse, vasovagal attack, epileptic fit, haemorrhage, inhalation or ingestion of foreign bodies, hypoglycaemia, and diabetic coma or other medical emergencies that may occur in the course of dental practice.
- 6.9.3. Be competent to identify and manage dental emergencies including those of pulpal, periodontal or traumatic origin.
- 6.9.4. Be competent to identify and promptly refer dental or medical emergencies, which are beyond the scope of management by a general dentist.

6.10. **ORTHODONTICS**

Major Competence.

On graduation, a dentist must be competent at managing limited developmental or acquired dento-alveolar, growth related and functional abnormalities of the primary, mixed and permanent dentition. Specifically, he or she must:

Supporting Competences:

- 6.10.1. Be able to identify and diagnose anomalies of the dentition,

facial structures and aberrant functional conditions.

- 6.10.2. Detect deviations of the development of the dentition, of facial growth, and occurrence of functional abnormalities
- 6.10.3. Be competent to identify pernicious oral habits that may exacerbate malocclusion, and prevent their consequences through patient education and training and appliance therapy, as needed.
- 6.10.4. Conduct interceptive orthodontic measures, be competent to design, insert and adjust space maintainers.
- 6.10.5. Evaluate need for orthodontic treatment
- 6.10.6. Formulate a treatment plan for simple malocclusions
- 6.10.7. Execute simple treatment procedures, insert and adjust active removable appliances to move a single tooth or correct a crossbite.
- 6.10.8. Be competent at managing appropriately all forms of orthodontic emergency including referral when necessary.

7. Health Promotion and Community Dentistry

7.1. Major Competency.

IMPROVING ORAL HEALTH OF INDIVIDUALS, FAMILIES, COMMUNITY and COUNTRY: The new dentist must be competent at improving the oral health of individuals, families, community and country. Specifically, he or she must:

Supporting Competences:

- 7.1.1. Be competent in applying the principles of health promotion and disease prevention.
- 7.1.2. Be able to understand the need of geriatric patients and the complex relationship of oral and general aging changes and diseases of such patients.
- 7.1.3. Have knowledge of the organisation and provision of healthcare in the community and in the hospital service.
- 7.1.4. Be competent in understanding the complex interactions between oral health, nutrition, general health, drugs and diseases that can have an impact on oral health care and oral diseases.
- 7.1.5. Have knowledge of the prevalence of the common dental conditions in the country of training/practice.
- 7.1.6. Evaluate social and economic trends and their impact on oral health care.
- 7.1.7. Have knowledge of the importance of community-based

preventive measures.

- 7.1.8. Be able to carry out oral health promotion and education programmes for groups and individuals.
- 7.1.9. Advocate community – based preventive measures such as water fluoridation.
- 7.1.10. Be able to provide healthcare in the community with full understanding of the social, cultural and environmental factors, which contribute to health or illness
- 7.1.11. Have knowledge of the social, cultural and environmental factors, which contribute, to health or illness.
- 7.1.12. Have knowledge of country regulations governing the profession of dentistry
- 7.1.13. Have knowledge of professional organisations and associations within the country and abroad, which are in the field of oral health care prevention and public awareness
- 7.1.14. Have knowledge of programs in his community and country, and should know the avenues through which he or she can interact with such programs to promote health care awareness and prevention.
- 7.1.15. Have knowledge of and to be able to understand resource limitations and country needs to be able to play a role in the wider spectrum of oral disease management and prevention.

DISTRIBUTION OF SUBJECTS / COURSES DURING THE VARIOUS YEARS OF BDS TRAINING PROGRAMME:

The distribution of subjects that shall be examined during the various 5-Years BDS training and the proposed scheme of studies are as follows:

YEAR - WISE DISTRIBUTION OF SUBJECTS *

| First year | Second year | Third year | Fourth year | Fifth year |
|---------------------------------|-----------------------------|---|--------------------------------|--|
| Anatomy | General Pathology | General Medicine | Prosthodontics | Comprehensive Dental Care (Subjects details given below) |
| Physiology | General Pharmacology | General Surgery | Orthodontics | Prosthodontics |
| Biochemistry | Preclinical Dentistry | Community Dentistry | Operative Dentistry | Operative Dentistry including Pedodontics * |
| Oral Biology & Tooth Morphology | Oral pathology | Periodontology | Oral and Maxillofacial Surgery | Orthodontics |
| Islamiyat-Pakistan Study | Science of Dental Materials | Oral Medicine / Oral Diagnosis & Oral Radiology | | Oral & Maxillofacial Surgery |
| | Behavioural Science | | | Periodontology |
| | | | | Oral Medicine / Oral Diagnosis / Oral Radiology |
| | | | | Special Care Dentistry ** |
| | | | Elective Projects ** | Elective Projects ** |
| | | | Selective Projects ** | Selective Projects ** |

* The domain of these subjects, to be decided by the concerned university.

** The Elective and Selective Projects shall be taken in the 4th year BDS and completed before the end of the 5th year BDS training. Moreover, the Subjects of Special Care Dentistry and the Elective Projects and Selective Projects shall not have separate university examinations. Details of syllabus / courses / contents for these and other major subjects for 5th year BDS are given later.

CURRICULUM IMPLEMENTATION STRATEGIES:

The aims of the curriculum should be achieved in a dental educational and training climate that emphasizes:

A spirit of forward thinking group cooperation as opposed to undue individual competitiveness.

A spirit of friendliness and collegiality among staff and students.

A recognition and appreciation of cultural diversity and a spirit of harmonious multiculturalism.

Teamwork in the practice of dentistry and the necessity for cooperation and collaboration between all members of the health care team. This will include the practice of close support dentistry (4-handed dentistry) and an appreciation that the dentists may sometimes be called upon to act as the team leader and at other times play the role of a supporting team member.

The strategies for implementing the curriculum by each dental institution will be **SSS-P-I-C-E-D** including:

Systematic

The curriculum has been constructed and planned in such a way that learning takes place in a logical progressive sequence.

Student-centered Learning

The emphasis will be on the learning needs of the individual student rather than on the teachers' teaching.

Self-learning and Self-assessment

Emphasis will be placed on faculty guided self-directed and peer-assisted learning and the curriculum will include opportunities for formative self-assessment.

Problem / Task-based Learning

From the very beginning, much of the student learning will be designed around the daily tasks of the practicing dentist and specially constructed clinical, scientific and epidemiologic problems. Such task-based and problem-based learning will provide a major (but not the sole) teaching/learning strategy.

Integrated

As the use of integrated and modular and comprehensive approach of dental education is gaining popularity, therefore, it will be the future aim and approach to switch over the teaching to an integrated rather than on department or discipline basis as it become feasible.

Community-oriented Emphasis

Active involvement of each student in the health care and disease prevention systems of their home country and community will be supported from students' entry into the BDS Course, and throughout their basic and clinical training.

Distance and Electronic Learning

Each institution imparting dental education and training must be equipped with

modern communication technologies, recorded and computer media to establish and maintain involvement of the faculties of the partner universities in the teaching of the students in the early years. Similar techniques will be an integral part of the student's on-going involvement with the health concerns of their home communities.

TEACHING & LEARNING METHODS:

The general principles for the methods to be used to enhance the learning process include:

Active Learning

Active learning will be encouraged by the use of interactive simulations and multimedia approaches to teaching.

Variety

A variety of teaching / learning methods will be used including, where appropriate, large group teaching (Lecture / plenary / common core lectures / seminars / conferences), small group teaching, task / problem-based tutorial groups, and self-learning.

Appropriate Choices

As much as possible within the constraints of a structured curriculum, students will be able to select methods appropriate to their individual learning style.

Constructive Aligned Teaching

Levels of understanding of content are specified with target activities for students to perform, teaching methods to encourage and assessment tasks to address, in order to judge to what extent the students have been successful in achieving the objectives.

Technologically Advanced

Each student, from the very first day of entry into the BDS Programme, is expected to have a lightweight notebook computer as their most important written communication tool – for scheduling, note-taking, assignments, informatics, statistics and all forms of information processing. The use of the personal computer as daily tool will allow the student to interact with the wide variety of appropriate teaching technologies employing media and software available on the market and developed in-house.

Efficient and Efficacious Education

Curriculum planning and on-going faculty involvement will ensure that teaching methods and technologies chosen to meet specific educational objectives will be efficacious and cost-effective.

ASSESSMENT / EVALUATION & EXAMINATIONS:

The main aims of assessment are to:

1. motivate and direct learning.
2. provide feedback to students.
3. encourage reflective learning.
4. ensure that all stated outcomes are appropriately assessed, in particular the area of communication skills, professionalism and self-directed independent learning.
5. ensure that weak students are given an appropriate length of time to remedy their weaknesses.

6. ensure that weak students repeat the examination they have been found to be weak in.
7. maintain consistency in the desired level of achievement through standard setting.

WEIGHTAGE FOR THE VARIOUS ASPECTS OF EVALUATION AND EXAMINATION OF A SUBJECT:

Students shall be evaluated and examined in each subject through the following components of examination and evaluation:

Written Examination comprising MCQs and Short Essay Questions (SEQs) Continuous Assessment comprising of attendance and punctuality, performance in term test / stage, completion of practical / clinical quota of procedures and assignments and observable behaviours related to the dental practice environment including interactions and relationships with clinical staff and colleagues. The Continuous or Internal Assessment for each examination subject shall carry 30% proportion or weightage out of the total marks reserved for Oral and Practical / Clinical examination in a particular subject.

In each Pre-clinical subject taught in 1st & 2nd year BDS, the method of examination and distribution of the 200 marks shall be as follows:

Written Examination: One Paper of 100 marks comprising of an MCQ Section of 30 marks and SEQ section of 70 marks.

Practical Examination including Continuous / Internal Assessment: This shall comprise of an objectively structured practical examination (OSPE) carrying 70 marks and Continuous / Internal Assessment carrying 30 marks.

Examination in each of the 3rd year BDS clinical subjects of General Medicine, General Surgery, Community Dentistry, Periodontology and Oral Medicine / Oral Diagnosis & Oral Radiology, shall carry 200 marks with their distribution as follows:

Written Examination: One Paper of 100 marks comprising of an MCQ Section of 30 marks and SEQ section of 70 marks.

Clinical & Practical Examination including Continuous / Internal Assessment: This shall comprise of objectively structured clinical examination (OSCE) carrying 70 marks and Continuous / Internal Assessment carrying 30 marks.

5. Examination in each of the Clinical Dental subjects of Orthodontics, Prosthodontics, Oral & Maxillofacial Surgery and Operative Dentistry including Paedodontics shall be held at the end of 4th year BDS Training. Examination in each subject shall carry 200 marks and shall consist of the following format:

Part I: Written Paper I of 100 marks with a MCQs section of 30 marks and SEQ section of 70 marks. The Clinical & Practical Examination shall comprise of OSCE including Viva Voce (70 marks) and Continuous Internal Assessment (30 marks).

The 5th year training shall comprise of the discipline of comprehensive dental care (CDC) of patients. Detailed description of teaching and clinical & practical activities are given later in this document. The 5th year CDC training of each student shall be assessed and examined by the university. This shall comprise of both Written / Theory and Practical & Clinical Examination and shall be done either at the end of the term or end of the year. The Theory examination shall comprise of a written paper of 100 marks with 30 Marks for MCQs and 70 for SEQs (Problem solving & Interpretation skills assessment). The distribution of the 100 marks for the Clinical and Practical Examination will be; 70 marks for OSCE and 30 marks for Internal Assessment (based on consideration of; quality of completed clinical quota, behaviours and ethics and morality including regularity & punctuality, patients management & care, and professional inter-relationships). The examination subjects shall include the following disciplines;

1. Prosthodontics.
2. Operative Dentistry including Pedodontics.
3. Orthodontics.
4. Oral & Maxillofacial Surgery.
5. Oral Medicine / Oral Diagnosis / Oral Radiology.
6. Periodontology.

Note: There will be no separate university examination in the Elective and selective Projects and in the discipline of "Special Care Dentistry (SDS) as mentioned in the syllabus of 4th and 5th year BDS. In the 5th year, the relevant clinical quota for the treatment of special patients will be carried out in the major clinical dental departments during rotation in these departments. This shall comprise of treating at least 2 special patients in each of the major clinical departments of dentistry (Prosthodontics, Operative Dentistry including Pedodontics, Orthodontics, Oral & Maxillofacial Surgery, Periodontology and Oral Medicine/Oral Diagnosis / Oral Radiology).

SYLLABII AND COURSES

FOR BDS 5-YEAR PROGRAMME

FIRST YEAR BDS SUBJECTS

1. Anatomy
2. Physiology
3. Biochemistry
4. Oral Biology including Tooth Morphology
5. Islamiyat & Pakistan Studies (IPS)

CONTACT HOURS ALLOCATIONS

FIRST PROFESSIONAL BDS

| Subject | Lecture hours | Practical hours |
|------------------------------------|----------------------|------------------------|
| Anatomy | 100 | 300 |
| Physiology | 50 | 300 |
| Biochemistry | 50 | 140 |
| Oral Biology & Tooth Morphology | 60 | 200 |
| Pakistan Studies | 25 | - |
| Islamic Studies | 25 | - |
| Grand Total | 310 | 940 |

SYLLABUS / COURSE DETAILS FOR:

ANATOMY:

Introduction:

Human Anatomy is the study of form, structure and composition of the various component parts and systems of the human body. It comprises a consideration of the various structures, which make up the human organism. The subject is subdivided into gross and microscopic anatomy.

Course Description

The subject is divided into various specialties like osteology, syndesmology, mycology, angiology, neurology, splanchnology and embryology.

Students learn to identify specific neural, vascular, glandular, visceral and muscular structures of the human body.

Students gain a three dimensional appreciation of the organization of the human body. Students will apply anatomical concepts and relationships to clinically relevant cases.

Learning Experiences

The course is taught through lectures, demonstrations and by practical dissection.

Learning Resources

Recommended Textbooks:

- Clinical Anatomy, Richard S. Snell. Lippincott, Williams and Wilkinns.
- Atlas of Human Anatomy by Frank H. Netter. Ocon Learning Systems.
- Cunningham's Manual of Practical Anatomy.
- The Developing Human- Clinically Oriented Embryology. Eight Edition. Keith L. Moore.

| Course description / Objective | Suggested Lecture Hours |
|---|-------------------------|
| Gross Anatomy Course Outline INTRODUCTION & GENERAL BODY ORIENTATION | 12 |
| Define anatomical (general, histological, embryological) terms related to soft and hard tissues of the body, position, axis and movements | |
| Define the following: muscles, bones, joints, nerves, fascia, bursa and vessels . State their gross and histological features, classification and functions. | |
| Name special investigating techniques used for anatomical study. | |
| Interpret head and neck radiographs for salient anatomical features. | |
| Outline the principles of dissection . | |

| HEAD AND NECK | 42 |
|---|----|
| Define skull . Identify the bones, joints and features of the various regions of skull: temporal fossa, bony orbit, cranial cavity, norma basalis, norma lateralis, norma frontalis, paranasal sinuses. | |
| Describe the boundaries, contents and relations of the Pterygopalatine and infratemporal fossae . | |
| Describe meninges (layers, attachments, clinical aspects) and various dural venous sinuses (classify, tributaries, drainage, and communication). | |
| Describe ossification, developmental changes, attachments, and clinical aspects of the mandible, maxilla and hyoid bones . | |
| Identify cervical vertebrae along with their attachments (muscles and ligaments), contents and joints. | |
| Define scalp . Name various layers of Scalp. Relate clinically with black eye and spread of infection. | |
| Relate clinically the anatomical structure of the skin and fascia of the head and neck | |
| Describe the attachments, innervation and functions of the muscles of the face , and the anterior compartment of neck . | |
| Draw and label the triangles of the neck . | |
| Name the contents and muscles of the sub occipital region and identify their attachments | |
| Enlist the functional components, course, branches and clinical aspects of the all the cranial nerves . | |
| Draw and label the cervical plexus . | |
| Locate, identify parts (surfaces and borders), and name the vascular supply and innervation of the following glands: Parotid, Submandibular, Sublingual, Thyroid, and Parathyroid, lacrimal <i>Note: Histology and function of salivary glands is studied in detail in Oral Biology.</i> | |
| Outline boundaries of the oral cavity . Describe the construction of the hard and soft palate and the floor of mouth . | |
| Describe the developmental origin of tongue along with its vascular supply, innervation, microscopic structure and clinical aspects. | |
| Describe the branches and anastomosis of major blood vessels from the heart supplying head and neck and brain. | |
| Describe development, photomicrograph, gross | |

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|---|----|
| anatomy and clinical aspects of the organs of the head and neck: eye, ear, nose, larynx, pharynx, trachea, and esophagus. | |
| Mark surface anatomical landmarks of head and neck region. | |
| BRAIN | 12 |
| Introduction of brain, meninges, subarachnoid space and cisterns | |
| Briefly describe external and internal features along with blood supply of spinal cord (ascending and descending tracts) | |
| Outline external and internal features (sections), relations, functions, lesions of: medulla oblongata; pons, mid brain; cerebellum; cerebellar peduncles; diencephalon ; hypothalamus; basal ganglia; telencephalon | |
| Outline production, circulation, drainage of the CSF along with lateral, 3 rd and 4 th ventricle. | |
| Briefly describe the blood supply of brain. | |
| Identify spinal cord, cerebellum, cerebral cortex and on a histological section | |
| Describe the location of nuclei, functional components, course, branches and clinical aspects of the all the cranial nerves (integrated with head and neck) | |
| Embryology | 17 |
| Outline general human development. | |
| Outline the development of the head and neck. <i>Embryology topics studied in Oral Biology: nasomaxillary complex, palate, maxillary sinus, mandible, TMJ</i> | |
| Histology | 17 |
| General histology | |
| GIT: tongue, lip cheeks, esophagus <i>(Histology of teeth studied in Oral Biology)</i> Respiratory System: nose, trachea, Endocrine system: Thyroid, parathyroid, pituitary <i>(Histology of salivary glands studied in Oral Biology)</i> Eye Ear | |

Practical Course

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| Perform head and neck dissection. Examine histological slides Study of gross anatomy of bones Models study Practical note book maintenance |
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SYLLABUS / COURSE DETAILS FOR:

PHYSIOLOGY:

Introduction:

Human physiology is the science of the mechanical, physical, and biochemical functions of humans in good health, their organs, and the cells of which they are composed. Physiology focuses principally at the level of organs and systems. Most aspects of human physiology are closely homologous to corresponding aspects of animal physiology, and animal experimentation has provided much of the foundation of physiological knowledge. Anatomy and physiology are closely related fields of study: anatomy, the study of form, and physiology, the study of function, are intrinsically tied and are studied in tandem as part of a medical curriculum.

Course Description: the course includes the detailed teaching of physiology of human cell and transport mechanisms, nerve and muscle, cardiovascular system, central nervous system, respiratory system, gastrointestinal tract, renal physiology and endocrinology.

Learning experience: The course is run throughout the academic year

Learning Resources

Recommended Textbooks:

- Textbook of Medical physiology 12th edition 2010 Guyton. Saunders.

Reference list:

- Review of Medical Physiology 23rd edition 2010 Ganong. Appleton & Lange.
- Physiology 2nd Revised edition 1998 Linda S Costanzo. W B Saunders.
- Lecture Notes on human physiology 4th edition Bray JJ, Cragg PA, MacKnight ADC, Mills R G & Taylor DW. Blackwell.
- Human physiology 8th edition 1998 Vander, Sherman & Luciano. McGraw Hill.
- Berne & Levy Physiology 6th edition 2010

Physiology Course

| Course Description / Objectives | Suggested Lecture Hours |
|---|-------------------------|
| CELL PHYSIOLOGY | 2 |
| Draw and label the structure and explain the function of the following: cell membrane; cell organelles; nucleus. | |
| Explain the following processes related to the functional system of the cell: transcription & translation of DNA, pinocytosis, endocytosis, phagocytosis, exocytosis & locomotion. | |
| NERVE & MUSCLE | 3 |
| Explain the following processes: Transport of ions & molecules; diffusion; active transport. | |
| Explain the establishment of resting membrane | |

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| potential and the generation of action potential. Explain the mechanism of nerve impulse conduction . Relate to local anesthesia mechanism of action and failure. | |
| Draw and label the physiological anatomy of skeletal and smooth muscle . Name the function of each structure labelled. Explain mechanisms of muscle contraction Explain Neuromuscular transmission and relate to Myasthenia gravis. | |
| CARDIOVASCULAR SYSTEM | 12 |
| Draw, and label the physiological anatomy of the cardiac muscle and the conducting system of the heart. Name the function of each labelled structure. | |
| Explain the generation and conduction of cardiac impulse . | |
| Explain the events of the cardiac cycle . Explain how normal heart sounds are produced. Interpret normal ECG | |
| Apply physical principles (pressure, flow and resistance, viscosity) to human circulation | |
| Explain microcirculation & lymphatic system Explain the vasodilator theory and the oxygen lack theory of local control of blood flow . Name factors regulating peripheral vascular resistance . | |
| Explain short term & long term arterial pressure regulation and relate to hypertension. | |
| Name the factors regulating venous return . Define cardiac output , name the regulating factors. | |
| Outline the cardiac output measurement methods (oxygen Fick principle, dye dilution method). Relate to insufficiency of circulation. | |
| Define circulatory shock , name the stages and types of shock. Outline the physiology each type of shock. | |
| RESPIRATION | 5 |
| Outline the basic organization of respiratory system. Explain the mechanics of pulmonary ventilation . | |
| Relate pulmonary volumes & capacities to clinical diagnosis of obstructive and restrictive lung disease. | |
| Differentiate between anatomical & physiological dead space . | |

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| Outline principles of gas exchange & transport in blood Explain nervous & chemical regulation of respiration. | |
| Define Hypoxia . Outline its causes, types & effects. Define Cyanosis . Outline its causes, types & effect | |
| BLOOD PHYSIOLOGY | 9 |
| Explain red blood cell production, functions & regulation (erythropoiesis). Describe the structure of Hemoglobin & explain iron metabolism. Explain production & functions of Leukocytes. | |
| Classify anemia's & polycythemia . Outline the pathophysiology of iron deficiency anemia, megaloblastic anemia, erythroblastosis fetalis, sickle cell anemia and thalassemia. | |
| Describe blood groups and principles of blood transfusion. List transfusion reactions and related complications. | |
| Summarize organ transplantation requirements. | |
| Explain Platelet production, regulation & functions. Classify Thrombocytopenias outline the pathophysiology of each type. | |
| Draw and label a flowchart of the extrinsic and intrinsic pathway of coagulation. Explain the regulation of both pathways. Relate to Haemophilia, Von Willebrand disease & Christmas disease. Define Bleeding time & clotting screen. | |
| GASTRO-INTESTINAL SYSTEM | 3 |
| Describe the general structure & organization of the gastrointestinal system (GIT). Outline the principles of GIT movements. Describe mastication, deglutition, vomiting & defecation. Describe secretory functions of saliva, gastric juice, pancreatic juice, intestinal juice & bile. | |
| RENAL PHYSIOLOGY | 3 |
| State the functions of kidney. Draw and label a nephron. Outline the function of a nephron. Describe glomerular filtration and its regulation Explain micturation reflex. Describe mechanism of concentration of | |

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| urine. | |
| ENDOCTINE SYSTEM | 3 |
| Explain the general organization & importance of the endocrine system. Outline the function and regulation of hormones from the following glands: pituitary, thyroid, parathyroid, pancreas & adrenal. Relate clinically to diabetes mellitus <i>and other conditions resulting from hormonal imbalance.</i> | |
| NERVOUS SYSTEM | 10 |
| Explain the organization of the nervous system. Describe synaptic transmission . | |
| Outline the basic concept of sensory, motor & integrative functions of the nervous system. | |
| Describe cerebral blood flow & cerebrospinal fluid system. Outline the functions of cerebral cortex; spinal cord; cerebellum; basal ganglia; thalamus & hypothalamus. | |
| Describe the physiology of pain & endogenous pain control mechanisms. | |
| Discuss temperature regulation. | |
| Explain the organization & general functions of autonomic nervous system. | |
| Outline the structure and physiology of special sense organs. | |

PHYSIOLOGY LABORATORY ASSIGNMENTS

HAEMATOLOGY

1. RBCs count
2. Haematocrit
3. Determination of haemoglobin (HB %)
4. Packed cell volume (PVC)
5. Total leukocyte count (TLC)
6. Differential leukocyte count (DLC)
7. Erythrocyte sedimentation rate (ESR)
8. Bleeding time (BT)
9. Prothrombin time
10. Thrombin time
11. Blood grouping

RESPIRATORY SYSTEM

1. Measurement of pulmonary volumes & capacities (Spirometry)

NERVOUS SYSTEM

1. Examination of superficial & deep reflexes
2. Clinical examination of cranial nerves

CARDIOVASCULAR SYSTEM

1. Cardiopulmonary resuscitation
2. Cold presser test
3. Triple response
4. Examination of arterial pulse

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| <ol style="list-style-type: none"> 5. ECG recording/ interpretation of normal ECG 6. Measurement of arterial blood pressure 7. Examination of apex beat 8. Auscultation of normal heart sounds 9. Recording of body temperature |
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SYLLABUS / COURSE DETAILS FOR:

BIOCHEMISTRY

Introduction:

Biochemistry is the molecular interpretation of cellular/subcellular organization of life. The main goal of Biochemistry Curriculum is to help a Dental Surgeon understand molecular basis of human body and thereby identify the disease/treatment.

Learning Methods:

- Lecture / Group discussions
- Clinical Scenarios
- Self study / Practical Laboratory Sessions

Learning Resources:

Clinical Biochemistry Volume 1 & 2 for Medical Professional by Professor Kamran Aziz

Clinical Biochemistry by Marshal & Tietz.

Clinical Biochemistry Case Presentation Seminar [CPC].

Biochemistry Laboratory with Spectrophotometer/Flame photometer/basic lab

Harper's Illustrated Biochemistry 28th Ed.

Textbook of Biochemistry by Stryer.

| Course Description / Objectives: Student should be able to | Suggested Lecture Hours |
|---|-------------------------------|
| Fluid & Electrolyte Balance & Clinical Scenarios. Fluids: Mechanism of Formation, Quantification [Molarity, Molality, Normality]. ECF & ICF: Formation, Normal Levels. Fluid Forming Areas & Fluid Balance [GIT, Kidney, Respiratory Tract]. Oedema / Dehydration in Clinical Scenarios. Practical Analysis of Normal/Abnormal Urine. Acquire the knowledge of Fluid Formation & its ratio. Formulate and determine the mechanism of Fluid formation by human body. Identify the division of Fluid in different human body Compartments [ICF/ECF]. Evaluate and analyse the basic problems of Oedema & Dehydration in clinical scenarios. | 4 |
| Acid Base Balance & Clinical Scenarios. Acid/Base/Alkali/Salt defined. | 5 |

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| <p>Buffers: Extracellular/Intracellular [Types/Mechanism of Action].</p> <p>Henderson Hassel Balch's Equation in Clinical Scenarios.</p> <p>Management of Acid Base Balance in Human Body [Role of ECF/Lungs/Kidney].</p> <p>Acidosis/ Alkalosis [Pulmonary/Metabolic] with Clinical Scenarios.</p> <p>Practical Performance: Mechanism of Buffer Action.</p> <p>Acquire and identify the knowledge of Basic terms in acid base system.</p> <p>Formulate and determine the mechanism of Acid base management by human body.</p> <p>Evaluate and analyse the basic problems of acidosis & alkalosis.</p> <p>Justify the basis of theses clinical correlations & provide strategy for clinical assistance.</p> | |
| <p>Genomics Digestion & Absorption & Metabolism.</p> <p>Nucleotides/Nucleosides/Nitrogenous Bases.</p> <p>RNA Characteristics, Types & Biosynthesis.</p> <p>DNA Characteristics, Types & Biosynthesis.</p> <p>Digestion & Absorption in GI Tract.</p> <p>Purine Metabolism & Hyperuricaemia with Clinical Scenarios.</p> <p>Pyrimidine Metabolism.</p> <p>Genetic Disorders.</p> <p>Recognise & identify the structure & functions of nucleotides in human body [dental tissue].</p> <p>Categorize & appraise the structural characteristics of RNA/DNA their types & functions.</p> <p>Indicate the process of digestion/absorption of genomics in human body.</p> <p>Apprehend the process of Purine/Pyrimidine metabolic sequences & identify clinical/genetic complications.</p> <p>Analysis of human sera for Uric Acid estimation [Normal/Abnormal Cases].</p> | 4 |
| <p>Bioenergetics.</p> <p>Metabolic Fuels & Energy Generation Principles [Biological Oxidation-Reduction].</p> <p>Respiratory Chain; Components & Functions.</p> <p>Validate & interpret the mechanism of energy production in human body.</p> <p>Illustrate the process of energy production by respiratory chain components.</p> | 2 |

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| <p>Proteomics Digestion & Absorption & Metabolism.</p> <p>Amino Acids [Essential/Non-essential]. Primary Hierarchy/ Secondary Hierarchy/Tertiary Hierarchy/Quaternary Hierarchy. Collagen Biosynthesis & Clinical/Dental Scenarios. Immunoglobulin's types, structure-function relationship. Plasma Proteins & Clinical/Dental Scenarios. Selective Amino Acid Metabolism [Taurine/Histamine/Creatine Phosphate /Epinephrine Metabolism]. Protein Synthesis [transcription, translation & posttranslational modification [Lac Operon Theory]. Krebs Henseleit's Urea Cycle. Genetic Disorders. Structure/Function relationship of Amino Acids in human body. Primary/Secondary/Tertiary/Quaternary Hierarchies in structural determination of peptides/polypeptides/proteins. Collagen, immunoglobulins, plasma proteins biosynthesis & clinical scenarios. Selective Amino Acid Metabolism [Taurine/Histamine/Creatine Phosphate /Epinephrine Metabolism]. Protein Synthesis: transcription, translation & posttranslational modification [Lac Operon Theory] Describe & evaluate Urea Cycle: Amino acid degradation in clinical scenarios. Genetic Disorders in protein metabolic sequences</p> | <p>3</p> |
| <p>Enzymology.</p> <p>Basic Characteristics of Enzymes [Structural characteristics/Nomenclature]. Enzyme Kinetics [Basic kinetic principle / factors effecting enzyme activity]. Enzyme Classification [IUBMB rules & clinical examples]. Clinical Significance of Enzyme Diagnosis. Identify & analyse the Basic Characteristics of Enzymes [Structural characteristics / Nomenclature]. Employ & evaluate the Enzyme Kinetics. [Basic kinetic principle / factors effecting enzyme activity] Apply IUBMB Enzyme Classification strategy & illustrate with clinical examples. Apply Clinical Significance of Enzyme Diagnosis with selected clinical scenarios.</p> | <p>3</p> |

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| <p>Glycomics & Metabolism. Relevant mono/di/polysaccharides. Glycomic Isomerism. Chondroitin Sulphate/Hyaluronic Acid/Chitin/Heparin. Digestion & Absorption of Glycomes. Regulation of Blood Glucose Level. Glycolysis/Lactate Cori Cycle. Hexose Monophosphate Shunt Pathway. Glycogenesis/Glycogenolysis/Gluconeogenesis. Citric Acid Cycle/Metabolic Cross Talk. Detection of Glycomes. Identify & evaluate the Biochemically related glycomes / their structure / isomeric forms in human body. Appraise & identify role of Chondroitin Sulphate / Hyaluronic Acid / Chitin / Heparin in clinical scenarios. Digestion & Absorption of Glycomes. Regulation of Blood Glucose Level. Glycolysis/Lactate Cori Cycle. Hexose Monophosphate Shunt Pathway Glycolysis/Lactate Cori Cycle. Hexose Monophosphate Shunt Pathway Glycogenesis/Glycogenolysis/Gluconeogenesis Citric Acid Cycle/Metabolic Cross Talk</p> | <p>3</p> |
| <p>Lipomics & Metabolism. Relevant Simple/Conjugated/Derived Lipomes. Digestion & Absorption of Lipomes. Biosynthesis of Fatty Acids & Fats. α, β, & γ Oxidation of Fatty Acids. Ketosis & Clinical Relevance. Biosynthesis of Phospholipids. Biosynthesis of Cholesterol & Derivatives & Clinical Scenarios. Metabolism of Lipoproteins & Clinical Scenarios. Outline & appraise Relevant Simple/Conjugated/Derived Lipomes & their significance in human body. Appraise & identify the mechanism of Digestion & Absorption of Lipomes. Analyse, compare & comprehend Biosynthesis of Fatty Acids & Fats along with α, β, & γ Oxidation of Fatty Acids. Appraise & identify Ketosis with Clinical Relevance. Distinguish & describe Biosynthesis of Phospholipids/Biosynthesis of Cholesterol & Derivatives & Clinical Scenarios. Critique and evaluate Metabolism of Lipoproteins &</p> | <p>4</p> |

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| Clinical Scenarios. | |
| <p>Metabolism of Haeme. Biosynthesis of Haeme. Degradation of Haeme. Bilirubin Turnover & Jaundice Classification & Practical Performance of Bilirubin Estimation in Human Sera. Extrapolate & analyse the Biosynthesis of Haeme. Deduce & interpret the Degradation of Haeme. Bilirubin Turnover & Jaundice Classification & Practical Performance of Bilirubin Estimation in Human Sera.</p> | 3 |
| <p>Endocrines. Hormones of Anterior Pituitary: Growth Hormone/FSH/LH/ACTH [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Hormones of Posterior Pituitary: Prolactin/ADH [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Thyroid Hormones [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Insulin/Glucagon/Pancreatic Polypeptide [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Hormones of Adrenal Glands: Aldosterone/Cortisol & Cortisone/Adrenaline & Nor Adrenaline [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Hormones of Male & Female Gonads: Testosterone/Oestrone/Oestradiol/Progesterone [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Acquire/distinguish/analyse & appraise the Hormones of Anterior Pituitary: Growth Hormone/FSH/LH/ACTH [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, and abnormalities]. Acquire/distinguish/analyse & appraise the Hormones of Posterior Pituitary: Prolactin/ADH [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions,</p> | 4 |

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| <p>and abnormalities]. Acquire/distinguish/analyse & appraise the Thyroid Hormones [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Acquire/distinguish/analyse & appraise the Insulin/Glucagon/Pancreatic Polypeptide [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Acquire/distinguish/analyse & appraise the Hormones of Adrenal Glands: Aldosterone/Cortisol & Cortisone/Adrenaline & Nor Adrenaline [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, abnormalities]. Acquire/distinguish/analyse & appraise the Hormones of Male & Female Gonads: Testosterone/Oestrone/Oestradiol/Progesterone [Mechanism of synthesis, discharge, transport, binding to receptors, mechanism of action, functions, and abnormalities].</p> | |
| <p>Vitamins. Fat Soluble Vitamins: A/D/E/K. Biochemical Role & Abnormalities. Water Soluble Vitamins: B Complex/C. Biochemical Role & Abnormalities. Acquire/ analyze/interpret the structural /functional characteristics of Fat Soluble Vitamins: A/E/K. Biochemical Role & Abnormalities. Acquire/ analyze/interpret the structural /functional characteristics of Fat Soluble Vitamin: D. Biochemical Role & Abnormalities in dental tissue. Acquire/ analyze/interpret the structural / functional characteristics of Water Soluble Vitamin: C. Biochemical Role & Abnormalities in dental tissue. Acquire/ analyze/interpret the structural / functional characteristics of Water Soluble Vitamins: B Complex. Biochemical Role & Abnormalities.</p> | 3 |
| <p>Minerals. Macro Minerals: Sodium/Potassium/Calcium/Phosphate/Chloride. Micro Minerals: Copper/Iron/Magnesium/Lithium/Cobalt/Molybdenum/Selenium/Zinc etc. Macro Minerals: Identification, critical evaluation and analysis in role of Sodium/Potassium/Calcium/Phosphate/Chloride in fluid formation & associated functions in human body.</p> | 2 |

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| Micro Minerals: Identification, critical evaluation and analysis in role of Copper / Iron/Magnesium / Lithium / Cobalt / Molybdenum/ Selenium/Zinc in metabolic reactions in human body. | |
| Nutrition. Basic Principles of Human Nutrition. Obesity & Anorexia. Clinical Modules / Scenarios. Categorize/analyze & consider the Basic Principles of Human Nutrition.[BMR / RQ / Nutrition Components] Distinguish/analyse/judge nutritional deficiencies leading to obesity & anorexia. Discuss & elaborate Clinical Modules / Scenarios related to nutrition. | 2 |
| Biochemical Technology. Chromatography. Electrophoresis. Spectrophotometry. PCR Technology. Define basic principal & development of PCR Technology with modern diagnostic application. Define basic principal & development of Spectrophotometry along with modern research procedures in Auto analyzers. Define basic principal & development of Electrophoresis along with modern research procedures in Gel Electrophoresis. Define basic principal & development of Chromatography along with modern research procedures in Chromatography [Malditof / Selditof]. | 2 |

BIOCHEMISTRY PRACTICALS:

Practical Analysis of Normal & Abnormal Urinary Constituents.
Practical Performance: Mechanism of Buffer Action.
Practical Estimation of Uric Acid.
Practical Analysis of Serum Enzymes: LDH, CPK, AP, AST, ALT.
Practical Analysis of Blood Glucose Level.
Practical Assessment of Glucose Tolerance Test.
Practical performance of Detection of Glycomes.
Analysis of human sera for fasting & fed glucose levels.
Performance & evaluation of GTT.
Practical Performance of Bilirubin Estimation in Human Sera.

Biochemical Technology.

Chromatography.
Electrophoresis.
Spectrophotometry.
PCR Technology.

SYLLABUS / COURSE DETAILS FOR:

ORAL BIOLOGY & TOOTH MORPHOLOGY:

Introduction:

Oral Biology includes the study of the development, structure, form and function of the oral cavity and its constituent parts with special emphasis on the gross and microscopic structure of teeth and their supporting structures.

Course Description

Courses is run throughout the academic year.

The first course is on **Tooth Morphology and Occlusion**. Students learn to identify teeth. They study the gross structure of permanent and deciduous teeth and learn about their function.

The second course includes **Oral Embryology, Oral Histology and Oral Physiology**. The study of development of the oral cavity is followed by the microscopic study of teeth, their supporting structures and the bones, joints and glands of the oral cavity. The function and clinical relevance of each structure is concurrently discussed.

Course Requirements

Each student is expected to

1. maintain a practical notebook, with up to date record of all the practical sessions. This includes drawings and record of the experiments conducted during the year.
2. prepare a slide of a ground section of a tooth.
3. achieve a pass mark in the internal evaluation.
4. achieve a minimum of 75% attendance.

Learning Resources

Recommended Textbooks

Oral Histology- Development, Structure and Function by A.R. Ten Cate. 6th Edition

Orban's Oral Histology and Embryology. S.N. Bhaskar

Concise Dental Anatomy and Morphology. James L. Fuller.

Wheeler's Dental Anatomy and Morphology, Major M. Ash

Reading List:

Oral Physiology for Dental Students. Johnson and Moore.

Oral Physiology. Chistopher Lavelle

An Atlas of Oral Antomy, Berkivtiz, G. R. Holland.

| Course Description & Objectives: | Suggest ed Lecture Hours |
|--|--------------------------|
| Tooth Morphology and Occlusion | 20 |
| Define morphological terms related to teeth and oral cavity (nomenclature). | |
| Describe various tooth numbering and identification systems. | |
| Describe, draw and label, and identify all permanent and deciduous teeth and their pulp systems. | |
| Differentiate between permanent and deciduous teeth. | |

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| Compare occlusion at the time of primary, mixed and permanent dentitions. | |
| Oral Embryology, Histology & Physiology | 40 |
| Describe embryological development of the oral cavity including the teeth, nasomaxillary complex, palate, maxillary sinus, mandible and TMJ. Relate clinically to developmental anomalies. <i>Note: General human development and the outline of head and neck embryology is studied in Anatomy.</i> | |
| Draw and label different developmental stages of a tooth and its associated structures. Name the function of each labeled structure. | |
| Detailed development, structure and function of the following oral tissues: enamel, dentin, pulp, cementum, periodontal ligament, alveolar bone, oral mucosa, salivary glands (saliva), temporomandibular joint | |
| Discuss the theories of dentin sensitivity | |
| Explain the process of eruption, shedding, pre and post eruptive tooth movements. | |
| Describe the life cycle of a tooth. Discuss age changes in oral tissues. Explain the process of repair and regeneration of oral tissues. | |
| Explain the mechanisms of mastication, swallowing and taste perception. <i>Note: Mastication and swallowing studied in Physiology. Only revision needed.</i> | |
| Oral Biology Practicals | |
| Practical experiments may be included Perform ground sectioning of teeth, Estimation of salivary flow rates, interincisal distances, attached gingival width, molar/dental relationships, taste areas, dentin sensitivity and exfoliate cytology. | |

SYLLABUS / COURSE DETAILS FOR:

ISLAMIYAT & PAKISTAN STUDIES;

PAKISTAN STUDIES:

Refers to the discipline that encompasses the study of culture, demographics, geography, history, and politics of Pakistan.

PAKISTAN STUDIES: Suggested Lecture Hours = 25

The role of sufis and saints in the spread of Islam in the subcontinent.

Shah Waliullah and Tehrik – I – Mujahidin.

The war of Independence 1857.

Sir Syed Ahmed Khan and two nation theory.

The Aligarh Movement.

The Muslim League.

The Nehru report and Quaid-I-Azam 14 points.

The Ideology of Pakistan.
The initial problems faced by newly independent Pakistan.
Pakistan and the Muslim World.
The Kashmir problem.
The U.N.O.

ISLAMIYAT:

Within the context of the practice of medicine, it explains moral values and behaviours to be observed, practiced and followed by a muslim physician while performing his / her duties as doctor / administrator / advisor.

ISLAMIYAT: Suggested Lecture Hours = 25 Hours

Books Recommended:

Majawaza Nisab-e-Islamiyat Baray Mulhaqa Medical Colleges wa Idarajat. Published by Khyber Medical University Peshawar 2011. Patron Professor Dr. Hafizullah Khan, Vice Chancellor KMU.

Proposed Syllbus Topics:

Chapter – 1:

Selected Verses from Quran explaining the following. Awlaad ko nahaq qatal karnay ke mumaneat, Munashiyaat say bachney ka Hukam, Parda Poshi ke Ahmiat, Muashira ke Ishlah, Mareez ka rozay ka hukam, Takhleeq-a-Insan ke wazahat,

Chapter – 2:

Selected Ahadees explaining the following; Quran say taaluuq, Iman aur Islam, Sehate aur faraghat ke ahmiat, Husn-e-Akhlaq, Khush Kalami, Mareez ke ladiat, Islam main bimari ke tasawar, nak main dawa dalna, Ghalat dawaioun say bachna, bukhar say pani ko thanda karna, mareez ka liyae duaa, Ilaj ka liya Ilam ke Zaroorat,

Chapter – 3:

Islam kay bunyadi Aqaid; Toheed, Rasalat, Akhrat,

Chapter – 4:

Arkaan-e-Islam; Kalma-a-Tayyaba/Shahadat, Namaz, Zakat, Roza, Hajj

Chapter – 5: Illm-ul-Akhalq ke tareef wa Ahmiat, Insaan ki sifaat, wa khawas, Mazhab wa akhlaq ka taaluuq,

Chapter – 6:

Maqaasid-e-shariat aur insaani sihat, Insaani Jan ki hurmat.

Chapter – 7:

Paisha-e- tibb ki ahmiat aur fazeelat.

Chapter – 8:

Muaalej ki sifaat: Huqooq-ulllah aur huqooq-ul-Ibaad ka ilam, Hikmat wa danaayi, Aisaar wa hamdardi, Zimmadarana zindagi, Sabar, Naram guftaari, tawazu, raaz ki hifazat, Izzat-e- nafz, Afwoo wa darguzar, raham dili, Ihsaan, Khud aitemaadi, Aahd –wo- paimaan, Musaawaat. .

Chapter – 9:

Muaalej ka Muaalej say taaluuq ki ahmiat: Neki ke kaamoon main taawon, Hasad, Ghaibat, Bugh wa Kiina, Amar bil maroof wa nahe aanel mukar, Aadab-e-majlis.

Chapter – 10:

Muaalej aur Mareez ka taaluuq: Khush kalami, Aib-poshi, Raham wa shafqat, Mareez ko tassali dayna, Mareez ki iyadat, Mareez ki akhlaaqi tarbiat, Haraam dawaawoon say parhaiz, Mareez-ki-iyadat.

Chapter – 11:

Jehad aur qudrati aafaat main muaalej ki zimmadari: Jihaad ka mafhoom, Aag mein jalane sey mumaaneat, Mashla ki mumaaneat, Qatal-e-aseer ki mumaaneat.

Chapter – 12:

Muaalej ki zimma darian: Akhlaaq wa kirdar, sarkari shuubah main ghair qanooni wa hair akhlaaqi practice, Sarkaari haspatal main mulazemat, auqat-e-kaar ki pabandi, Ihsaas-e-zimmadari, mareez aur inkay lawaheqeen kay saath bartau, thashkhees wa ilaaj main laaparwahi na karna, Najayez tareeqey se tashheer, Aalaat wa adwiyat ki khareedari, Certificate ka ijra, Najji haspatal, Commission (Unlawful earning), Mehangi adwiyat tajweez karna. Ishtiharbaazi.

Chapter – 13:

Muaalej aur Muashira: Ammar bil maroof aur nahe anil-munkar.

SECOND YEAR BDS SUBJECTS

1. General Pathology
2. General Pharmacology
3. Pre-Clinical Dentistry
4. Oral Pathology
5. Science of Dental Materials
6. Behavioral Science

CONTACT HOURS ALLOCATION

SECOND PROFESSIONAL BDS

| <u>SUBJECTS</u> | <u>LECTURES HOURS</u> | <u>PRACTICAL OURS</u> |
|-----------------------------|------------------------------|------------------------------|
| General Pathology | 40 | 150 |
| General Pharmacology | 40 | 150 |
| Preclinical Dentistry | | 360 |
| Oral Pathology | 40 | 200 |
| Science of Dental Materilas | 40 | 190 |
| Behavioral Sciencs | 40 | |
| Grand Total | 200 | 1050 |

SYLLABII AND COURSE DETAILS FOR:

GENERAL PATHOLOGY:

Introduction:

The branch of medicine dealing with the essential nature of disease, especially changes in body tissues and organs that cause a disease or caused by a disease. It explores the structural and functional manifestations of diseases.

| Course Description & Objectives: | Suggested Lecture Hours |
|---|--------------------------------|
| Cell Injury: a. Terms necrosis, ischemia, hypoxia, infarction and gangrene. b. Sequence of the ultrastructural and biochemical changes which occur in the cell in response to the following: <ul style="list-style-type: none">• Ischemia• Immunological injury-eg. Asthma / SLE / Anaphylactic reaction• Physical agents: eg. Radiation• Genetic defects- eg. Thalassemia / haemophilia• Nutritional deficiency• Infectious agents• Viruses: eg. Hepatitis / Aids / HIV infections• Fungi: eg. Staphylococcus• Parasites: eg. Malaria c. Irreversible and reversible injury. d. Apoptosis and its significance. e. Necrosis and its types. f. Exogenous and endogenous pigment deposition g. Dystrophic and metastatic calcification along with clinical significance. h. Metabolic disorders <ul style="list-style-type: none">• Lipid• Protein• Carbohydrate | 5 |
| INFLAMMATION AND MEDIATORS OF INFLAMMATION a) Describe the role of inflammation in the defense mechanisms of the body. | 5 |

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| <ol style="list-style-type: none"> a) Describe the vascular changes of acute inflammation and relate these to the morphological and tissue effects. b) Describe the process of chemotaxis, opsonization and phagocytosis. c) Describe the role of cellular components in inflammatory exudate. d) Differentiate between exudate and transudate. e) List the important chemical mediators of inflammation f) Describe the pathway of Arachidonic Acid metabolism. g) Discuss the role of products of Arachidonic acid metabolism in inflammation. h) Describe the mechanism for development of fever, with reference to exogenous and endogenous pyrogens. i) Describe chronic inflammation including granulomas. j) Describe granuloma, its type and causes. k) Describe the systemic effects of acute and chronic inflammation and their possible outcomes. l) Describe the significance of ESR. m) Give two examples of induced hypothermia in medicine. n) Describe the pathogenesis, clinical features and lab. Diagnosis of Gout. o) Describe the management of acute and chronic Gout. | |
| <p>WOUND HEALING</p> <ul style="list-style-type: none"> • Describe the differences between repair and regeneration . • Describe wound healing by first and second intention. • Discuss the factors that influence the inflammatory reparative response. • Compare wound contraction with cicatrization. • Describe the formation of granulation tissue. | 3 |

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| <ul style="list-style-type: none"> Describe the complications of wound healing. | |
| <p>DISORDERS OF CIRCULATION</p> <p>a) THROMBO-EMBOLIC DISORDERS AND THEIR MODALITIES:</p> <ol style="list-style-type: none"> Explain the pathogenesis of Describe the possible consequences of thrombosis. <p>b) DISORDERS OF THE CIRCULATION AND SHOCK</p> <ol style="list-style-type: none"> Define edema, ascites, hydrothorax and anasarca. Describe the pathophysiology of edema with special emphasis on CHF. Describe the pathogenesis of four major types of shock (Hypovolemic, cardiogenic, vasovagal and septic) and list their causes. Describe the compensatory mechanisms involved in shock. | 8 |
| <p>MICROBIOLOGY</p> <ol style="list-style-type: none"> Describe the defense mechanisms of the body. Describe the microbial mechanisms of invasion and virulence. Differentiate between sterilization and disinfection. Describe methods of disinfection and sterilization. Describe the principles of aseptic techniques. Describe universal precautions for infection control. Describe the general principles of the following serological tests: <ul style="list-style-type: none"> ELISA – Hepatitis (A,B,C,D,E,G) Rubella, CMV and HIV Haemagglutination – TPHA Western blot – HIV | 8 |

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| <ul style="list-style-type: none"> • ICT – Malaria <ol style="list-style-type: none"> 8. Interpret: a) Culture reports, b) Serological reports and c) microscopic reports of gram stain and AFB stain. 9. Describe the principles of proper collection and submission of specimens for laboratory investigations with due precautions. 10. Describe the general characteristics and taxonomy of Bacteria, Viruses and Fungi. 11. Define communicable endemic, epidemic and pandemic diseases, carriers, pathogens, opportunists, commensals and colonizers. 12. List the microorganisms responsible for infection of the body with especial reference to oral cavity. 13. Describe pathogenesis, treatment, epidemiology, prevention and control of the following organisms. <ul style="list-style-type: none"> • Bacteria, Viruses, Fungus, Protozoa, Helminths: 14. Describe principles of anti microbial action | |
| <p>GENETICS</p> <ol style="list-style-type: none"> 1. Agenesis, Dysgencsis, Aplasia, Hypoplasia, Hyperplasia, Metaplasia, Dysplasia, Neoplasia, Anaplasia, Atrophy and Hypertrophy. 2. Cell cycle and list cell types (stable, labile , permanent) 3. Mechanisms controlling cell growth. 4. Classification systems of tumors. 5. Characteristics of benign and malignant tumors. 6. Grading and staging system of tumors. 7. Biology of tumor growth. 8. Process of carcinogenesis. 9. Host defense against tumors. 10. Mechanism of local and distant spread. 11. Local and systemic effects of tumors. 12. Tumor markers used in the diagnosis and management of cancers. 13. Chemical, Physical agents and Viruses related to human cancer. 14. Epidemiology of common cancers in Pakistan. | 3 |

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| <p>IMMUNOLOGY</p> <p>Antigen, antibody, epitope, hapten and adhesion molecules.</p> <p>Innate and acquired immunity.</p> <p>Type I, type II, type III, and type IV hypersensitivity reactions.</p> <p>Classification of the immunodeficiency disorders.</p> <p>Autoimmunity.</p> | 8 |
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SYLLABII AND COURSE DETAILS FOR:

GENERAL PHARMACOLOGY:

Introduction:

It is the science that deals with the origin, nature, chemistry, effects, and uses of drugs. it includes pharmacognosy, pharmacokinetics, pharmacodynamics, pharmacotherapeutics and toxicology.

| Course Description & Objectives: | Suggested Lecture Hours |
|---|--------------------------------|
| <p>Introduction to Concepts & Principles of General Pharmacology:</p> <p>Definition of drug and drug nomenclature.</p> <p>Branches / Divisions of Pharmacology</p> <p>Sources of drugs</p> <p>Active principles of drug and Pharmacology</p> <p>Dosage forms and doses of drugs.</p> <p>Drug administration.</p> <p>Absorption of drugs and processes involved in drug absorption</p> <p>Factors modifying absorption of drugs.</p> <p>Transport of drugs across cell-membrane</p> <p>Bioavailability, its clinical significance and factors affecting bioavailability</p> <p>Drugs reservoirs, distribution and redistribution of drugs, plasma protein binding</p> <p>Pro-drug, Biotransformation of drugs, enzyme induction, enzyme inhibition and entero-hepatic circulation</p> <p>Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting it.</p> <p>Excretion of drugs.</p> <p>Mechanism of drug action.</p> <p>Dose response curves, structure-activity relationship.</p> <p>Factors modifying action and doses of drugs.</p> <p>Pharmacokinetics, pharmacodynamics and</p> | 3 |

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| Receptors | |
| Locally Acting Drugs Demulcents, Emollients, Irritants, Counter irritants, Astringents, anti-seborrhoeics, locally acting enzymes. Antiseptics and Disinfectants Ectoparasiticides | 2 |
| Drugs Acting on Gastrointestinal Tract Anti Emetics Drugs affecting motility of GIT Ulcer Healing drugs Purgatives / Laxatives | 3 |
| Cardiovascular Drugs Antiarrhythmic Drugs Inotropic Drugs Antianginal Drugs Thrombolytics Antihyperlipidemic Drugs | 5 |
| Diuretics | 1 |
| Alkaloids | 1 |
| Drugs Acting on Autonomic Nervous system Cholinergic Drugs Choline Esters Anticholine-esterases Cholinimimetic Alkaloids Anti- Cholinergic Drugs Anti Muscarinic Non catecholamine Sympatholytics / Antiadrenergics Alpha Adrenergic Blockers Beta Adrenergic receptor Blockers Adrenergic Neuron Blockers Autonomic Ganglionic Blockers Skeletal Muscle Relaxants a) Neuromuscular Blocking Agents – D-tubocurarine, Suxamethanin b) Central Muscle Relaxants, Meprobromate, Mephenesim , Diazepam etc. | 3 |
| Central Nervous System a) Sedative-Hypnotics b) Antiepileptics c) General Anaesthetics d) Local Anesthetics e) Drugs for movement Disorder/Muscle Relaxant f) Alcohol g) Drugs for Migraine h) Stimulants of the Central Nervous System: | 4 |

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| <ul style="list-style-type: none"> • Caffeine, Theophylline, Theobromine • Brain stem stimulants: Picrotoxin, Nikethamide, Ethamivan, Doxapram <p>i) Psychopharmacology</p> <ul style="list-style-type: none"> • Anti-psychotics • Anxiolytics • Anti-Depressant / Anti mania | |
| <p>Analgesics</p> <p>a) Drugs-Hypothalamic Drugs</p> <p>b) Adrenocorticoids</p> <p>c) Sex Hormones</p> <p>d) Thyroid / Parathyroid Drugs</p> <p>e) Pancreatic Hormones and Oral hypoplyglcemic Agents</p> | 4 |
| <p>ANTIBIOTICS:</p> <p>Parameters: Provisional Diagnosis, Investigation, Empirical Therapy, prescribing after culture and sensitivity.</p> | 4 |
| <p>VITAMINS:</p> <p>Parameters: Groups of vitamins prescribed Vitamins prescribed on basis of therapeutic indication or empirical Single / multiple vitamins prescribing Rational with use of vitamins.</p> | 3 |
| <p>ANALGESICS:</p> <p>Parameters: Various groups of analgesics prescribed Single / multiple adverse drug prescription. Non specific indications of analgesic prescribed</p> | 4 |
| <p>ADVERSE DRUG REACTIONS</p> <p>Anti-microbials, cytotoxic drugs, steroids etc.</p> | 3 |

SYLLABUS / COURSE DETAILS FOR:

PRE CLINICAL DENTISTRY:

Introduction:

Pre-clinical dentistry deals with the practice of dentistry using clinical simulation models and performing procedures in the laboratory that will be later in the clinical practice years of training used and applied for making and providing dental appliances / restorations for real patients.

Students shall be exposed to the educational, learning and training experience of dental laboratory techniques and simulated clinical procedures done on phantom head units in the laboratory.. At the end of training, students will appear in the theory and practical examination conducted by the university. This experience of PRE CLINICAL DENTISTRY is to be gained in 2nd year BDS and shall relate to the following areas:

- A. Pre-clinical prosthodontics**
- B. Pre-clinical operative dentistry and endodontics**
- C. Pre-clinical orthodontics**

PRE-CLINICAL PROSTHODONTICS:

TEACHING & LEARNING MATERIAL for Preclinical Prosthodontics

Wilson HJ, Mansfield MA, Heath JR, Spence D. Dental Technology and Materials for Students. 8th edition 1987. Blackwell Scientific Publications, Oxford (UK). 1987.

Lakshmi S. Preclinical Manual of Prosthodontics. Elsevier Health Sciences, India 2010.

Vanitha Reddy. Pre-clinical Prosthodontics. CBS Publishers & Distributors, 2009.

Pre-clinical and Laboratory Manual. ... Text books of Complete Denture Prosthodontics.pdf.rar. available at: <http://www.filefactory.com/file/> <http://ifile.it/>
Morris Mac Hudis. Dental laboratory prosthodontics [Hardcover]. Amazon Books.

Notes / Handouts,

E-Learning Tools Videos, DVD, CDs explaining technical and clinical aspects of prosthodontic procedures) and use of other e-learning websites.

Practical sessions and small-groups tutorial classes.

| Course Description & Objectives: | Suggested Practical Hours |
|---|----------------------------------|
| Pre-clinical Prosthodontics: Removable Prosthodontics (Preclinical Complete Dentures) Students will perform steps / procedures involved in the fabrication and adjustment of complete dentures. These will include: | 150 |

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| <p>Introduction to treating edentulous patients. Use of essential materials and equipments. Producing properly contoured casts of edentulous jaws using moulds. Understanding anatomic landmarks / denture extension and borders. Fabricating custom trays and wax occlusal rims. Making record / temporary denture bases and occlusal registration rims / blocks. Understanding Jaw relations and jaw records. Selecting shade, shape, mould and material for denture teeth. Articulating / mounting jaw records / casts. Setting up denture teeth on complete denture bases. Performing esthetic wax-up for complete dentures by contouring gingival areas and other polished surfaces. Investing / packing mould and processing / curing and finishing complete dentures.</p> | |
| <p>Removable Prosthodontics (Preclinical Removable Partial dentures): This course provides fundamental foundation knowledge and skills related to Removable Partial Denture via simulated patient care model and laboratory exercises. Laboratory exercises will provide the dental student with an understanding of the partially edentulous condition and its classification, as well as the diagnosis, treatment planning and treatment of partially edentulous patients with RPDs. At the end of the course, students will be familiar and skillful regarding the terminology, components and related concepts and principles of RPD design and its construction stages. The course content includes: Introduction to RPDs. Comparison of FPDs and RPDs. Dental surveyors and its uses. Surveying of jaw casts and its clinical importance. Classification of partially dentate jaws and the relevant rules governing. Different types of RPDs. Components of RPDs. Tooth preparation (Rest, guide planes, clasp undercut and reciprocation etc) using patients' simulator units. Making anterior RPD (Saddle outline,</p> | |

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| support, connection and retention). Laboratory steps and procedures for acrylic and metallic cast RPDs: Making wrought wire circumferential and bar clasps. Making Adam Clasp. Designing and preparation of Wax patterns on duplicated prepared master cast in investment material. | |
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PRE-CLINICAL OPERATIVE DENTISTRY:

TEACHING & LEARNING MATERIAL:

Joseph R Evans, John H Wilke. Atlas of Operative Dentistry: Preclinical and clinical procedures. Quintessence books Publishing Co.

Reddy Narendranathan, Vanetha N. Operative Dentistry and Endodontics including Viva Voce Questions. CBS Publishers and Distributors, Karachi.

Richard L Kahn, Pinkerton RJ, Kagihara LE. Fundamentals of Preclinical Operative Dentistry. www.bookdepository.co.uk

E-Learning tools: Videos (DVD, CDs explaining technical and clinical aspects of operative dentistry procedures) and use of other e-learning websites.

Notes, Handouts, practical demonstrations and small-groups tutorial discussions

The objective of this course is to give foundation knowledge of operative instrumentation, dental terminology, tooth anatomy, principles of cavity preparations, and basics of tooth restorations. This will develop the psychomotor skills necessary for basic intra-coronal preparations and restorations of teeth including endodontic procedures. The skills with a hand piece are mainly accomplished through the use of patients' simulation approaches. The restorations for teeth are taught in a dental operative phantom head laboratory. The development and practice of these skills using a hand piece (dental drill) begins at orientation and continues throughout the academic year.

| Course Description & Objectives: | Suggested Practical Hours |
|---|----------------------------------|
| Students will be introduced and trained to: Develop hand skills and a working knowledge of clinical dentistry. Use dental unit / operatory. Use instrument used in cavity preparation. Understand classification of dental carious lesions. Apply principles of cavity preparation. Cavity preparation on plaster / acrylic / extracted teeth / phantom heads. Know about materials used in cavity | 150 |

| | |
|---|--|
| <p>preparation. Know restorative and endodontic materials. Endodontics Pre-clinical Course: The purpose of this course is to introduce students to the basic principles of root canal therapy (technical aspects) and introduce them to the diagnostic elements of root canal procedures.. Students are introduced to endodontic techniques under simulated conditions. Preclinical Practical Conservative Dentistry Procedures: Preparation of Plaster Blocks: 5 x 5 x 5 cm and 2 x 2 x 2 cm. 2. Preparation of Proximal cavity in the prepared block. 3. Preparation of Class II type cavity (Dove tail form) 4. Preparation of teeth made from plaster models / acrylic resin and preparing various types of cavities in these. 5. Mounting teeth in a manikin Jaw. 6. Preparation of cavities on the mounted teeth in the manikin jaw. 7. Preparation of teeth for root canal treatment.</p> | |
|---|--|

PRECLINICAL ORTHODONTICS:

Teaching & Learning Resources:

Richard A Johnson. Preclinical Orthodontics / Pediatric dentistry. Amazon Books, USA.

Notes, Handouts, Tutorials.

Laboratory practical & demonstration sessions.

E-Learning tools: videos, CDs / DVDs / use of e-learning websites.

| Course Description & Objectives: Student should be able to | Suggested Practical Hours |
|--|----------------------------------|
| <p>This course is designed to expose the student to basic orthodontic laboratory and clinical procedures and encourages the development of technical abilities in banding, bonding, wire bending, and orthodontic appliances fabrication & Diagnosis and treatment planning for various categories of malocclusions using jaw casts and models. Laboratory Exercises and demonstrations:</p> | 60 |

| | |
|---|--|
| Introduction to orthodontic appliances and components of orthodontic appliances. Properties of wires used in orthodontics. Principles of wire bending including wire bending on wooden blocks and models. Fitting bands and brackets on teeth. Laboratory procedures for making orthodontic appliances. | |
|---|--|

SYLLABUS / COURSE DETAILS FOR: **ORAL PATHOLOGY:**

Introduction:

The branch of medicine dealing with the essential nature of orofacial diseases and disorders. It explores the structural and functional manifestations of oral diseases.

Competencies

Upon completion of this course the BDS Students should ...

- Be able to identify the causes and the etiological factors responsible for the occurrence of a disease.
- Have the understanding of the mechanism of development of oral diseases
- Be able to correlate the mechanism of development of the disease with the relevant clinical signs and symptoms
- Be competent to determine the investigation required for oral diseases
- Have the knowledge of laboratory investigations and their principles
- Be able to identify and correlate the histopathological picture with the clinical disease and radiographic finding
- Be able to prescribe and interpret laboratory investigations and make a sound conclusion
- Have enough knowledge to work out differential out diagnosis
- Familiarity with management and prognosis of diseases is important
- Have the attribute for analytic and critical thinking for reaching a conclusive diagnosis and conduct research
- Have the ability and the curiosity to become an in dependence lifelong learner.
- The dental students should be able to diagnose and treat oral diseases.
- They should have knowledge of the following topics:

| Course Description & Objectives: | Suggested Lecture Hours |
|--|--------------------------------|
| • Disturbances of teeth, jaws oral mucosa, gingival ,tongue and Lymphatic tissue | 8 |
| • Dental caries including aetiology, clinical features types, histo pathology of enamel, dentin, & root caries | 3 |
| | 4 |
| | 5 |

| | |
|--|----|
| <ul style="list-style-type: none"> • Diseases of pulp, periapical tissue and spread of infector to spaces. | 10 |
| <ul style="list-style-type: none"> • Cysts, definitions, classification , mechanism & cyst formation, clinical histological and radiologic features | 3 |
| <ul style="list-style-type: none"> • Odontogenic and non odontogenic tumors salivary gland tumours | 4 |
| <ul style="list-style-type: none"> • Non neoplastic swelling | |
| <ul style="list-style-type: none"> • Soft tissue lesions: <ul style="list-style-type: none"> ○ Fibrosseous lesions ○ Giant cell lesions ○ Metabolic bone disorder ○ Genetic bone disease • Temperomandibular joint diseases | 3 |

Practicals

Microscopes & Microscopy

Biopsy

Slid Preparation and Staining Methods

Histochemical Techniques

Study of Histopathology (Nournal logbook)

Study of Radiographs

TEACHING & LEARNING RESOURCES:

Cawson RA & Porter SR, (2002). Essentials of Oral Pathology and Oral Medicine. 7th Edition. Churchill Livingstone

Soames JV and Southam JC (2005) Oral Pathology 4th edition. Churchill Livingstone

Cawson RA and Eveson JW (1987) Oral Pathology and Diagnosis: Color Atlas with integrated Text. Willian Heinemann Medical Books

Fu YS, Wenig B, Abemayor E, Wenig B (2001) Head and Neck Pathology. Churchill Livingstone

Neville BW, Damm DD, White DK (2002) Color Atlas of Clinical Oral Pathology 2nd edition. BC Decker

Prabhu S.R., Wilson D.F., Johnson N.W. and Daftary D.K. (1992) Oral Diseases in the Tropics. Oxford University Press. London

Regezi JA Sciubba JJ, Jordan RC (2003) Oral Pathology 4th Edition. Saunders

Sapp JP, Eversole LR, Wysocki GP (1997) Contemporary Oral and Maxillofacial Pathology. Mosby

Sproat C, Burke G, McGurk M (2007) Essential human diseases for dentists.

SYLLABUS / COURSE DETAILS FOR:

SCIENCE OF DENTAL MATERIALS:

Introduction:

The subject of dental materials' science deals with the properties, composition, development and manipulation of materials used in the provision of dental treatments. It explores the origin, nature, chemistry, effects, and uses of all materials used in the processing, fabrication and provision of dental restorations and also includes aspects of toxicity and safety of these materials for staff and patients.

Learning Resources:

Textbooks

- Applied Dental Materials by John F. McCabe & W.J. Walls 8th edition, 1998.
- Dental materials and their selection, by William J.O' Brien. Third edition. Publisher Quintessence, 2002.
- Introduction to Dental Materials, by Richard Van Noort. 2nd or 3rd edition, Mosby
- Restorative Dental Materials, by R.G. Craig, Publisher Mosby 12th edition, 2006.
- Phillip's Science of Dental Materials. Edited by K.J. Anusavice, Publisher Saunders, 11th edition, 2003.
- Materials Science for Dentistry, by B W Darvell, 7th edition 2002.

Internet resource

- eJournals and eLibrary's utilizations to explore internet resources
- Journal of Dentistry
- Dental Materials (Journal)
-

| <i>Course description / Objective</i> | <i>Suggested Lecture Hours</i> |
|---|--------------------------------|
| Introduction to Dental Materials <u>Properties of materials</u> 1. Physical properties of materials:- <ul style="list-style-type: none">• Characterization solid surfaces• Adsorption, absorption, and sorption.• Surface tension, wetting, capillary rise.• Forces involved in denture retention 2. Thermal, Electrical and other related properties of dental materials 3. Mechanical properties i.e. stress, strain, stress/strain relationship and other related properties. | 4 |
| Impression materials. | 4 |
| Gypsum products and investment materials. | 3 |
| Dental Waxes and other related thermoplastic | 3 |

| | |
|--|---|
| materials like Shellac Base Plate Wax. | |
| Separating media used in dentistry | 1 |
| <u>Polymers and their application in Prosthetics:-</u> Requirements of denture base materials. <ul style="list-style-type: none"> • Properties of Acrylic Resin as a denture base materials, their composition, manipulation and processing. • Alternative denture base materials. • Artificial teeth. • Types of Acrylic Resin polymerization i.e. heat cured Acrylic denture plastics, chemically accelerated plastics, fluid resin acrylic denture plastics, light cured denture plastics, repair, relining and rebasing materials • Tissue conditioning materials and soft liner. | 7 |
| Adhesion i.e. Principal of bond strength, Enamel and Dentine bonding agents and bonding system. | |
| <u>Dental Cements</u> <ul style="list-style-type: none"> • Zinc Phosphate Cement. • Zinc Oxide/Eugenol, • Modified Zinc Oxide/Eugenol, • Ethoxy Benzoic Acid Cement, • Zinc Polycarboxylate , • Silico Phosphate Cement. • Glass Ionomer Cement and modifications | 3 |
| <u>Composite Restorative Materials</u> Introduction of resin system, Bonding mechanism, Types of various composites, Properties of composites, All purpose composite i.e. composition, setting reaction, manipulation, acid-etch techniques, classification of composites and composite for special applications. | 4 |
| <u>Amalgam as a filling material</u> <ul style="list-style-type: none"> • Dental amalgam alloys • Amalgamation process • Properties of amalgam | 3 |
| <u>Metals and metallurgy:</u> <ul style="list-style-type: none"> • Extraction of metals from their ores and their purification. • Micro leakage, creep, galvanism, cold working/strain hardening, Annealing | 4 |

| | |
|---|---|
| <ul style="list-style-type: none"> • Methods of joining the metals i.e. welding and soldering. • Tarnish and corrosion and their types. • Alloys and its types. • Dental casting gold alloys its composition, properties uses. • Base metal casting alloys, their composition, properties and comparison with casting gold alloys. • Wrought alloys, i.e. steel and stainless steel. • Porcelain and bonded porcelain as a dental ceramic, classification of dental porcelain, composition, properties, manufacturing and firing and their uses. • Maxillofacial materials used in dentistry. • Abrasion and polishing materials | |
| <p><u>Miscellaneous Topics</u></p> <p>Dental implants, finishing and polishing materials, endodontic materials, preventive materials, introduction to advanced biomaterials, tissue engineering</p> | 4 |

SYLLABUS / COURSE DETAILS FOR:

BEHAVIORAL SCIENCE:

Introduction:

This involves any of the various interrelated disciplines, such as psychiatry, psychology, sociology, and anthropology, that observe and study human activity, including psychologic and emotional development, interpersonal relationships, values, and mores.

| Course Description & Objectives: | Lecture Hours |
|---|----------------------|
| <p>Introduction to behavioral sciences and its importance in health:</p> <p>Bio-Psycho-Social Model of Health Care and the Systems Approach</p> <p>Normality vs. Abnormality</p> <p>Link of Health with Behavioral Sciences (Psychology, Sociology, Anthropology)</p> <p>Importance of behavioral sciences in health</p> <p>Correlation of brain, mind and Behavioral Sciences</p> <p>Roles of a doctor</p> <p>Desirable Attitudes in Health Professionals</p> | 2 |
| Understanding, Behavior, Sensation and | 8 |

| | |
|--|---|
| <p>sense organs, Perception, Attention and concentration, Memory, Thinking, Communication: Describe sensation, sense organs/special organs Define perception, what factors affecting perception Define attention and concentration. What factors affecting them Define memory and describe its stages, types and methods to improving it Define thinking; describe its types and theories What is cognition and levels of cognition? Discuss problem solving and decision making strategies Define communication. What are types, modes and factors affecting it. Describe ways to recognize nonverbal cues. Characteristics of a good communicator</p> | |
| <p>Individual differences Personality Intelligence: What are the stages and characteristics of psychological growth and development? Define personality. What are cognitive and Psychodynamic theories of personality? What factors affect personality development? How personality can be assessed? Influence of personality in determining reactions during health, disease, hospitalization, stress Define intelligence and the various types of intelligence. Relevance of IQ and EQ in the life of a doctor. Methods of enhancing EQ and effectively using IQ What factors affect it and how it can be assessed?</p> | 2 |
| <p>Emotions Motivation/need/drive: Define emotions. What are the various types of emotions? Emotional Quotient (EQ)- concept & utility, Emotional Literacy Define motivation and what are the types of motivation?</p> | 2 |

| | |
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| Use of motivational theory in improving learning, treatment adherence | |
| Learning: Define learning, Principles of learning, modern methods and styles of learning, types of learners, cognitive theory of learning and its use in enhancing learning Strategies to improve learning skills | 2 |
| Stress and stressors, Stress management: Define and classify stress and stressors Relationship of stress and stressors with illness | 3 |
| Life events: Concept of life events and their relationship with stress and illness | 1 |
| Stress management: What are coping skills? What is psychological defense mechanism? What is conflict and frustration? What is concept of adjustment and maladjustment? | 4 |
| Interviewing /Psychosocial History Taking: Collecting data on psychosocial factors in Medicine/Surgery/Reproductive Health / Paediatrics and other general health conditions Define, types of interview and listening Skills of interviewing and listening | 2 |
| Doctor-Patient Relationship: Discuss the doctor-patient relationship. What is the concept of boundaries and psychological reactions in doctor patient relationship (such as transference and counter transference) | 1 |
| Medical/dental Ethics: Hippocratic oath- Do's and Don'ts What is the concept of medical/dental ethics? Common ethical dilemmas in doctor-patient relations, interaction with families, teachers, colleagues, pharmaceutical industry Rights of patients and doctors (in international law, constitution of Pakistan, PM&DC, Islam) | 2 |
| Culture and medical/dental practice: Concept of group, its dynamics | 2 |

| | |
|---|---|
| Attitude, value, belief, myths, social class, stigma, sick role and illness, health belief models | |
| Psychological Reactions: Grief and bereavement, Family and illness, Dealing with difficult patients Symptoms presentation and culture. Illness and Behavior (sick-roles, stigma, Somatization), Treatment Adherence (Compliance) What are the psychosocial aspects of illness, hospitalization, rape, torture, terminal illness, death and dying? | 2 |
| Breaking bad news: Introduction, Models, Methods, Death of the patient, abnormal baby, intractable illness | 1 |
| Psychosocial aspects of Health and Diseases: Psychosocial correlates of hospitalization, illness behaviour, sick-roles Psychosocial issues in Emergency Departments, Intensive Care and Coronary Care Units, Operating Theatres, Cancer wards, Transplant Units, Anaesthesia | 1 |
| Pain, Sleep, Consciousness: Concept of pain. Physiology of pain, Psychosocial assessment and management of chronic/intractable pain. Stages of Sleep, Physiology of consciousness, Altered states of consciousness. Psychological influences on sleep and consciousness, Non-pharmacological methods of inducing sleep, changes in consciousness | 2 |
| Communication skills, Counseling, Crisis Intervention, Conflict Resolution Informational Care: Principles of effective communication, active listening, the art of questioning, the art of listening. Good and bad listener. Counseling: Scope, Indications and Contraindications, Steps, Do's and Don'ts, How to deal with real life crisis and conflict situations in health settings Informational Care: A practical | 3 |

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| method of communication between the doctor and patient on about diseases, drugs, prognosis etc | |
|--|--|

Reading List Behavioural Sciences:

1. A New Intellectual Framework for Psychiatry – group of 12 A .
2. ER Kandel – AMERICAN JOURNAL OF PSYCHIATRY, 1998–
ajp.psychiatryonline.org
3. The Hierarchy of the Sciences? – group of 3 A >>
4. S Cole – The American Journal of Sociology, 1983 – JSTOR
5. Comprehensive textbook of suicidology
6. RW Maris, AI Berman, MM Silverman – 2000
7. Textbook of Biological Psychiatry
8. J Panksepp – 2003
9. Challenging “Resistance to Change” – group of 2 A EB Dent, SG Goldberg -
JOURNAL OF APPLIED BEHAVIOURAL SCIENCES, 1999 – anomaly.
10. Challenging “Resistance to Change” – group of 2 A
11. History of psychology and behaviour sciences, Watson, Robert Irving,
1978, Smathers Library
12. Behavioural sciences in clinical medicine, Wolf, Stewart, 1976
13. Development Psychology for the Health Care Professions (Behavioural
sciences for health care professionals) by Katherine A. Billingham
14. A Companion to the Life Sciences by Stacey Day (Editor) (Hardcover – July
1980)
15. Dynamic Modeling in the Health Sciences (Modeling Dynamic Systems)
by James L. Hargrove (Hardcover – June 2, 1998)
16. Clinical Vignettes for the USMLE Step 1 : PreTest Self – Assessment and
Review (Pretest Series)
17. Careers in Medicine by Terence J. Sacks (Hardcover – November 11, 1996)
18. Rationalizing Medical Work: Decision Support Techniques and Medical
Practices (Inside Technology) by Marc Berg (Hardcover – April 4, 1997)

THIRD YEAR BDS SUBJECTS

1. General Medicine
2. General Surgery
3. Community Dentistry
4. Periodontology
5. Oral Medicine / Oral Diagnosis & Oral Radiology

CONTACT HOURS ALLOCATION

THIRD PROFESSIONAL BDS

SUBJECTS

LECTURES & PRACTICAL DEMONSTRATION

CLINICAL HOURS

| | | |
|--|------------|------------|
| General Surgery | 45 | 100 |
| General Medicine | 45 | 280 |
| Oral Pathology | 40 | 120 |
| Community Dentistry | 40 | 200 |
| Oral Medicine / Oral Diagnosis & Oral Radiology | 40 | 145 |
| Periodontology | 50 | 145 |
| Grand total | 260 | 990 |

SYLLABUS/ COURSE DETAILS FOR: **GENERAL MEDICINE:**

Introduction:

It is the science of diagnosing and treating diseases and maintaining health by nonsurgical means including drugs, nutrition counseling, physical and behavioural therapy.

SYNOPSIS OF THE COURSE:

The Syllabus in General Medicine comprises of 4 parts:

Part 1 of the course introduces the diseases and management of the heart and its related vascular system.

Part 2 of the course consists of the diseases and management of respiratory, gastrointestinal and hematopoietic systems.

Part 3 of the course covers the diseases and management of renal and endocrine systems.

Part 4 of the course consists of the diseases and management of musculoskeletal and the nervous system.

The signs and symptoms, pathophysiology, oral manifestations and dental management of such patients shall be discussed so that the student should have a sound knowledge regarding the effects diseases on the whole body in general and oral cavity in specific.

OBJECTIVE

The students should have a thorough **knowledge** and understanding about the commonly occurring diseases. In addition acquiring certain essential basic examination **skills** as well as improving **attitudes** as clinicians.

KNOWLEDGE

The instruction in clinical medicine should include the etiology, Pathogenesis, clinical presentation, appropriate investigations and management principles of the diseases of various systems.

It is extremely important that the oral manifestations and clinical significance of various systemic diseases must be highlighted and potential complications of medically compromised patients be appreciated by the student.

Eliciting a through medical history, carrying out a meticulous clinical examination, (general as well as systemic) diagnosis and treatment planning.

Application of invasive and non-invasive diagnostic modalities in medical practice.

| | |
|----------------------------------|-------------------|
| Course Description & Objectives: | Suggested Lecture |
|----------------------------------|-------------------|

| | Hours |
|--|-------|
| DISEASES OF CARDIOVASCULAR SYSTEM: Rheumatic fever Rheumatic heart disease Differential diagnosis of acute chest pain and management principles Cardiac failure Pericarditis Valvular heart disease Infective endocarditis Congenital heart disease Hypertension | 6 |
| DISEASES OF RESPIRATORY SYSTEM: Chronic bronchitis Bronchial asthma Emphysema Bronchiectasis Pneumonia Tuberculosis Pulmonary thrombo-embolism Respiratory failure Bronchial carcinoma Cyanosis Dyspnea | 4 |
| HEMATOLOGICAL DISEASES: Anemias (all types) Polycythemia Leukemias Myeloproliferative and myelodysplastic disorders Thrombocytopenias Hemophilia, von Willebrand disease, Christmas disease and other disorders of blood clotting system | 5 |
| INFECTIOUS DISEASES: Common bacterial infections Common parasitic infection Common protozoal infection Common fungal infection Common viral infection | 4 |
| DISEASES OF NERVOUS SYSTEM: Meningitis Headache Facial Pain with special emphasis on trigeminal neuralgia, vagoglossopharyngeal neuralgia, multiple sclerosis and other central/peripheral causes. Facial paralysis central and peripheral causes with special emphasis on differentiation of upper motor neuron and lower motor neuron lesions and Bell's palsy. | 4 |

| | |
|--|---|
| Cerebrovascular accident Epilepsy Parkinson's disease | |
| DISEASES OF GASTROINTESTINAL SYSTEM: Peptic Ulcer disease Coeliac disease Inflammatory bowel diseases Chronic diarrhea Cancers of GIT | 4 |
| DISEASE OF LIVER: Acute Hepatitis Chronic Hepatitis Liver abscess Hepatic encephalopathy Hepatocellular carcinoma | 6 |
| DISEASES OF KIDNEYS: Nephrotic syndrome Infections of the kidney Acute and chronic renal failure Kidney stones | 6 |
| DISEASES OF ENDOCRINE SYSTEM: Disorders related to the hyper and hypo secretions of the pituitary gland Disorders related to the hyper and hypo secretions of the thyroid gland Disorders related to the hyper and hypo secretions of the parathyroid glands Disorders related to the hyper and hypo secretions of the pituitary gland Disorders related to the hyper and hypo secretions of the adrenal cortex with special emphasis on steroid therapy Disorders related to the hyper and hypo secretions of the adrenal medulla Disorders related to the hyper and hypo secretions of the Islets of Langerhans with special emphasis on Diabetes Mellitus | 6 |

RECOMMENDED BOOKS

Text Book of Medicine By Davidson
Clinical Medicine By P.J. Kumar
Hutchison's Clinical Methods. ELBS
Medical Problems in Dentistry By Crispian Scully

COURSE DESCRIPTION / OBJECTIVES FOR GENERAL MEDICINE

| Contents | Specific Learning Outcomes |
|-------------|----------------------------|
| Diseases of | Rheumatic fever |

| | |
|-------------------------------------|---|
| the cardiovascular system | Rheumatic heart disease Differential diagnosis of acute chest pain and management principles Cardiac failure Pericarditis Valvular heart diseases Infective endocarditis Congenital heart disease Hypertension |
| Diseases of respiratory system | Chronic bronchitis Bronchial asthma Emphysema Bronchiectasis Pneumonia Tuberculosis Pulmonary thromboembolism Respiratory failure Bronchial carcinoma |
| Hematological diseases | Anemias Polycythemia Leukemias Myeloproliferative and myelodysplastic disorders Thrombocytopenias Hemophilia, Von Willebrand disease, Christmas disease and other disorders of blood clotting system |
| Infectious diseases | Common bacterial infections Common parasitic infections Common protozoal infections Common fungal infections Common viral infections |
| Diseases of the nervous system | Meningitis Headache Facial pain with special emphasis of trigeminal neuralgia, vagoglossopharyngeal neuralgia, multiple sclerosis and other central/ peripheral causes Facial paralysis; central and peripheral causes with special emphasis on differentiation of upper motor neuron and lower motor neuron lesions and Bell's palsy Cerebro-vascular accidents Epilepsy Parkinson's disease |
| Diseases of gastrointestinal system | peptic ulcer disease coeliac disease inflammatory bowel disease chronic diarrhea cancers of GIT |
| Diseases of liver | Acute hepatitis Chronic hepatitis |

| | |
|------------------------------|---|
| | Liver abscess Hepatic encephalopathy Hepatocellular carcinoma |
| Diseases of kidney | Nephritic syndrome Infections of the kidney Acute and chronic renal failure Kidney stones |
| Diseases of endocrine system | Disorders related to hyper and hypo secretions of Pituitary gland Thyroid gland Parathyroid gland Adrenal cortex with special emphasis on steroid therapy Adrenal medulla Islets of langerhans with special emphasis on diabetes mellitus |

SYLLABUS/COURSE DETAILS FOR: **GENERAL SURGERY:**

Introduction:

General surgery is the science of treating injury, deformity, and disease using operative procedures. General surgery is frequently performed to alleviate suffering when a cure is unlikely through medication alone.

Surgical operative procedures may range from routine procedures performed in a physician's office, such as vasectomy, to more complicated operations requiring a medical team in a hospital setting, such as laparoscopic cholecystectomy (removal of the gallbladder).

Areas of the body treated by general surgery include the stomach, liver, intestines, appendix, breasts, thyroid gland, salivary glands, some arteries and veins, and the skin. The brain, heart, eyes, and feet, to name only a few, are areas that require specialized surgical repair.

New surgical methods and techniques are less invasive than previous practices, permitting procedures that were normally impossible in the past. For example, microsurgery is now routinely used in re-attaching severed body parts by successfully reconnecting small blood vessels and nerves.

CORE KNOWLEDGE AND PRINCIPLES OF SURGERY

1. Eliciting a thorough medical history, carrying out a meticulous clinical examination, diagnosis and treatment planning.
2. Application of invasive and non-invasive diagnostic modalities in surgical practice
3. Cross infection control and sterilization
4. Surgical instruments and their use
5. Sutures and suturing techniques
6. Protocols of operation theatre ward work, patient clerking and out-patient clinics Introduction to basic surgical skills
7. Principles of anaesthesia

8. Pathophysiology and management of shock including fluid and electrolyte imbalance.
9. Nutrition of surgical patients

HEALING AND REPAIR OF WOUNDS

Mechanism of healing and repair in both hard and soft tissues Complications of wound healing and their management

INFECTIONS

Clinical presentation, diagnosis and treatment of bacterial, viral, fungal, and protozoa infections including hospital infections.

Cellulitis, spread of infection through fascial planes, Ludwig's angina, and intracranial complications of dental infection Hospital infections

Intracranial complications, dental infection Osteomyelitis. Chronic sinuses and fistulae of the oral & maxillofacial region.

TRAUMA CARE

Principles of pre-hospital, emergency and definitive care of trauma victims with special emphasis on the management of airway, bleeding and circulation and CPR protocols. Principles of management of head, chest and abdominal injuries

Principles of nutrition and fluid intake in trauma victims

Presentation, diagnosis and treatment of maxillofacial trauma including fractures of maxilla, mandible and the zygomatic complex Principles of fracture healing

HEMORRHAGE, SHOCK, BURNS

Causes, presentation, diagnosis and management of primary and secondary hemorrhage; vasovagal, cardiogenic, septic, anaphylactic, neurogenic hypoglycemic, and hypovolemic shock Presentation and management of burns victims.

ORAL & MAXILLOFACIAL PATHOLOGY

Epidemiology, classification, clinical presentation, diagnosis and treatment of benign and malignant tumors of oral cavity including epithelial, soft tissue, and bone tumors. Special emphasis should be laid down on the oral squamous cell carcinoma, basal cell carcinoma, melanoma and osteosarcoma

Epidemiology, classification, clinical presentation, diagnosis and treatment of odontogenic tumors and cysts with special emphasis on ameloblastoma, Pindborg tumor, dentigerous cyst, radicular cyst and keratocyst.

Maxillary sinusitis, carcinoma and other pathological lesions of maxillary sinus Sialadenitis, sialolithiasis, sialosis, Sjogren's syndrome, Mickulicz syndrome.

Cystic lesions like mucocele, ranula of salivary glands. Epidemiology, classification, clinical presentation, diagnosis and treatment of benign and malignant tumors of salivary glands.

NECK PATHOLOGY

Cervical lymphadenopathy, thyroid gland, thyroglossal cyst, parathyroid gland, branchial cyst, dermoid cyst, , sternomastoid tumor, cervical rib, carotid body tumor, carotid aneurysm, thymic swellings, cystic hygroma, pharyngeal pouch, spinal abscess etc. Carcinomata of the esophagus and larynx

DEVELOPMENTAL PATHOLOGY

Developmental defects of oral and para-oral structure with special emphasis on the cleft lip and palate.

THORAX:

Post op chest infections
 Basal lung collapse
 Pneumothorax
 Haemothorax
 Chest tube intubation

ABDOMEN

Diagnosis and investigations of dysphagia
 Carcinoma of esophagus
 Achalasia
 Diagnosis and management of Upper GIT Bleeding
 Peptic ulcer diseases
 Intestinal obstruction
 Acute appendicitis
 Ulcerative colitis
 Liver abscess
 Hydatid cyst
 Portal hypertension
 Hepatocellular carcinoma
 Obstructive jaundice
 Cholelithiasis
 Cholecystitis
 Acute pancreatitis

| Course Content |
|---|
| Core Knowledge and Principles of Surgery |
| Healing And Repair Of Wounds |
| Infections |
| Trauma Care |
| Hemorrhage, Shock, Burns |
| Oral & Maxillofacial Pathology |
| Neck Pathology |
| Developmental Pathology |
| Thorax: |
| Abdomen |

Clinical Assignments: General surgical OPD, wards and emergency

ESSENTIAL SKILLS TO BE ACQUIRED:

1. Eliciting a thorough medical history, carrying out a meticulous clinical examination, diagnosis and treatment planning.
2. Provide First Aid: Resuscitation (ABC) of poly-trauma, CPR.
3. Collect samples of blood, urine, sputum, pus swab etc.
4. Should be able to administer drugs by intramuscular and intravenous routes
5. Understand the principles of pre-operative preparations, sterilization, and disinfection techniques.

6. Understand principles of wound care, skin suturing and suture removal, incision and drainage of superficial abscesses, excision of small soft tissue lumps, needle biopsies, aspiration of localized fluids, etc.
7. Should observe common surgical procedures, treatment of fracture / dislocation
8. Should observe administration of general/local anesthesia.

RECOMMENDED BOOKS

- ❖ Text book of general surgery by Bailey & Love
- ❖ An Introduction to the Symptoms & Signs of Surgical Disease Norman Browse
- ❖ Clinical Methods in General Surgery by S. DAS
- ❖ Clinical Methods in General Surgery by Hamilton & Bailey
- ❖ Text book of Surgery by Ijaz Ahsan

DETAILS & DESCRIPTION OF COURSES FOR GENERAL SURGERY

| Contents | Specific Learning Outcomes | Suggested Lecture Hours |
|---------------------|--|--------------------------------|
| Surgical Infections | Definition of infection The factors that determine wound infection The classification of sources of infection The indications for and choice of prophylactic antibiotics The characteristics of the common surgical pathogens and their sensitivities The spectrum of commonly used antibiotics in surgery and the principles of therapy The management of abscesses The importance of aseptic and antiseptic techniques delayed primary or secondary closure in contaminated wounds | 4 |
| Sterilization | Definition Difference between disinfection and sterilization Methods of sterilization Scrubbing and gowning techniques | 6 |

| | | |
|---------------------------------|---|---|
| Sutures & Suturing Technique | <ul style="list-style-type: none"> Identification of sutures Characteristics of sutures Techniques of hand knotting Suturing techniques | 4 |
| Principles of Anesthesia | <ul style="list-style-type: none"> Definition Types of anesthesia Technique of regional blocks Technique of intubation Technique of IV line Technique of CV line Complications of anesthesia Pain control Pre-operative evaluation Perioperative monitoring Side effects of anesthetic drugs | 6 |
| Bleeding disorders & management | <ul style="list-style-type: none"> Different types of bleeding disorders Investigations for bleeding disorder Management of bleeding disorders | 6 |
| Wound Healing | <ul style="list-style-type: none"> Definition Types of healing Pathogenesis of healing process Factors affecting healing process Examination of wound Management of wound Management of pressure sores Scars Adverse scars | 2 |
| Bacterial Infection | <ul style="list-style-type: none"> Clinical presentation Diagnosis Technique of taking pus sample for culture Treatment of bacterial infection Technique of incision and drainage Abscess | 2 |
| Viral Infection | <ul style="list-style-type: none"> Clinical presentation Diagnosis Treatment Preventive measures | 1 |

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| Fungal Infection | Clinical presentation Diagnosis Treatment Side effects of antifungal drugs Preventive measures | 2 |
| Protozoa Infection | Clinical presentation Diagnosis Treatment Prevention | 1 |
| Hospital infections | Methods of spread Prevention Hand washing technique Isolation of patients | 2 |
| Intracranial complications of dental infection | Causes Organisms involved Complications Treatment | 1 |
| Osteomyelitis | Definition Types Diagnosis Management | 2 |
| Sinus | Definition of sinus Causes of sinus Examination of sinus Technique of sinogram Treatment | 2 |
| Fistula | Definition Causes Clinical features Examination of fistula Diagnosis Technique of Fistulogram Treatment | 2 |
| Ulcers | Definition Causes Clinical features Examination of ulcers Diagnosis Treatment | 3 |

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|----------------------------|--|---|
| Neoplasia | Definition Difference between Benign and malignant tumors Carcinogens Characteristics of malignancy Methods of spread Diagnosis Treatment of benign and malignant tumors | 4 |
| Shock | Definition Classification Clinical features Pathophysiology Management | 2 |
| Fluid therapy | Dehydration Water intoxication Types of IV fluids Post op fluids therapy | 2 |
| Electrolyte balance | Hypokalemia Hyperkalemia Hyponatremia Hypernatremia Metabolic acidosis Metabolic alkalosis Respiratory acidosis Respiratory alkalosis | 2 |
| Chronic Specific Infection | | 3 |
| Tetanus | | 1 |
| Gas Gangrene | | 1 |
| Neck | Differential diagnosis of neck swelling Cervical lymphadenopathy Tuberculosis lymphadenitis Branchial cyst and fistula Cystic hygroma Carotid body tumors Sublingual dermoid Cervical rib Lymphoma Metastatic lymph nodes Diagnosis and management of metastatic lymph nodes Neck dissections | 8 |

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|-----------------------------------|---|---|
| Thyroid | Hypothyroidism Thyrotoxicosis Examination of thyroid gland Multinodular goiter Solitary nodules Graves diseases Cancers of thyroid gland Thyroiditis Thyroidectomy Complication of thyroidectomy Thyroglossal cyst and fistula | 6 |
| Parathyroid Gland | Hyperparathyroidism Hypoparathyroidism | 2 |
| Oral Cavity | Ulcers of tongue Leukoplakia Erythroplakia Carcinoma of tongue Examination of oral cavity Ludwig's angina Carcinoma lip Carcinoma cheek Odontogenic tumors & cyst Ameloblastoma Pindborg tumors dentigerous cyst Radicular cyst keratocyst | 8 |
| Diseases of the salivary gland | Surgical anatomy of salivary gland Infections of parotid gland Tumors of parotid gland Infections of submandibular gland Tumors of submandibular gland Obstruction of submandibular duct Examination of salivary gland | 5 |
| Benign & malignant tumors of skin | Lipoma Nero fibroma Basal cell carcinoma Squamous cell carcinoma | 2 |
| Thorax | Post op chest infections Basal lung collapse Pneumothorax Haemothorax Chest tube intubation | 2 |
| Esophag | Diagnosis and investigations of | 1 |

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| us | dysphagia Carcinoma of esophagus Achalasia | |
| Stomach | Diagnosis and management of Upper GIT Bleeding Peptic ulcer diseases | 1 |
| Intestine | Intestinal obstruction Acute appendicitis Ulcerative colitis | 1 |
| Liver | Liver abscess Hydatid cyst Portal hypertension Hepatocellular carcinoma | 1 |
| Gall bladder | Obstructive jaundice Cholelithiasis Cholecystitis | 1 |
| Pancreas | Acute pancreatitis | 1 |
| Trauma including Faciomaxillary injury | Soft tissue injury face Fracture maxilla Fracture mandible Management of Faciomaxillary injury Diseases of temporomandibular joint Types of injury Primary survey and resuscitation Secondary survey Triage Management Examination of trauma patient Neck trauma Chest trauma Abdominal trauma Head injuries Cervical injury Vascular injury | 7 |
| Nutrition | Assessment of nutrition Indications Methods Complication of TPN | 4 |
| Cleft lip Cleft palate | Types Complications Management | 4 |
| Tracheostomy | Anatomy Indications Technique Post op complication Post op care of tracheostomy | 4 |

**Essential
Skills to be
Aquired**

| Skills | Objectives | Competencies |
|--------------------------------------|---|---------------------|
| History Taking | Carve diagnosis | 5 |
| Communication with patient | Develop patient –doctor relationship | 5 |
| Informed consent | Ethical consideration | 5 |
| Counseling | Legal consideration | 5 |
| Perform general physical examination | To identify the general signs | 5 |
| Examination of cervical lymph nodes | To differentiate between inflammatory and metastatic lymphadenopathy | 5 |
| Examination of swelling | To find out physical signs of different swellings | 5 |
| Examination of wound | To differentiate between healing wound and infected wound | 5 |
| Examination of ulcer | To identify different types of ulcer especially head and neck region | 5 |
| Examination of sinus and fistula | To know different types of sinuses and fistulae in head and neck region | 5 |
| Examination of thyroid gland | To differentiate multinodular goiter from diffuse goiter To identify the signs of hyperthyroidism and hypothyroidism | 5 |
| Examination of salivary glands | To identify physical signs of different diseases of salivary glands | 5 |
| Examination of oral cavity | To identify different lesions of tongue, palate and buccal cavity | 5 |
| Examination of cranial nerves | Hypoglossal nerve Facial nerve Vagus nerve Trigeminal nerve | 5 |
| Abdominal examination | | 5 |
| Take blood sample | Draw sample and label | 3 |
| Secure I/V line | Passing I/V cannula | 3 |
| Record vital signs | Pulse, Temperature Blood pressure | 5 |
| Adjust drip set | Able to adjust drops | 3 |

| | | |
|---------------------------|---|---|
| To passing NG tube | For feeding or decompression of stomach | 3 |
| To Pass Foley's catheter | Monitor out put | 3 |
| To pass endotracheal tube | To secure airway | 1 |
| To pass chest tube | For management of pneumothorax | 1 |
| Tracheostomy | To secure airway | 1 |
| Haemorrhage control | To know the different methods to control bleeding | 1 |
| Suturing | Simple interrupted Vertical mattress Continuous Subcuticular | 3 |
| Hand tie | Two hand tie | 3 |
| Incision making | Handling of knife | 3 |
| Gloving and gowning | Aseptic measure | 3 |
| Scrubbing | Aseptic measure | 3 |
| Incision and drainage | Management of abscess | 1 |
| Barrel bandage | Fracture mandible | 4 |
| Turban bandage | Scalp wounds | 4 |
| Fine needle aspiration | For diagnosis of swellings | 3 |
| True cut biopsy | For diagnosis of swelling | 3 |
| Incision biopsy | Oral cavity lesions | 1 |
| Lymph nod biopsy | For diagnostic purpose | 1 |
| Thyroidectomy | To understand steps | 1 |
| Wound debridement | Principles | 1 |
| Parotidectomy | To understand steps | 1 |

COMPETENCY LEVEL:

- 1- Observer Status
- 2- Assistant
- 3- Perform under supervision
- 4- Perform under indirect supervision
- 5- Perform independently

SYLLABUS / COURSE DETAILS FOR:

COMMUNITY DENTISTRY:

Introduction:

It is a branch, discipline, or specialty of dentistry that deals with the community and its aggregate dental or oral health rather than that of the individual patient.

Synopsis of Course:

This course introduces the basic principles and application of Epidemiology, Public Health and the Pakistani Dental-Health Care System.

This course covers current issues on the prevalence, distribution and influence of plaque-related diseases and emerging oral conditions and the impact of social, cultural and environmental factors on dental health and disease. It introduces the organisation of oral healthcare in Pakistan, application of oral epidemiology research activities and community based oral health promotion activities.

Objectives:

Knowledge

The multi-factorial causes of disease, including the interaction of the physical, biological, social (socio economic, cultural and lifestyle) and environmental factors

Principles of how interactions between the physical, social and biological factors cause disease

Principles underlying variation in geographical distribution, prevalence and incidence of disease.

Principles underlying the prevention of disease.

Modes of transmission of communicable diseases

Modes of prevention of communicable diseases

Measurements of disease

Oral healthcare system in Pakistan

Introduction to health promotion

Primary health care approaches in dentistry

Application of basic statistics

Introduction to oral epidemiology

The social, cultural and environmental factors which contribute to health and illness

Measuring oral disease and conditions: common oral indices used

Common oral disease pattern: prevalence and impact of disease trends of caries, periodontal disease and some other dental conditions

The complex interactions between oral health, nutrition, general health, drugs and diseases that can have an impact on dental care and disease

Oral Health Education for the patients and careers :
Principles and Practice

Principles of general and oral epidemiology

Indices used in measuring oral diseases

The importance and cost effectiveness of community based oral health promotion and preventive measures

Principles of prevention for oral diseases and conditions (Total patient care concept, Population and High Risk Concept, Common Risk Approach)

Principles and importance of health promotion, health education and prevention in relation to dental diseases

Prevention of Oral Diseases I : Specific disease issues (include issues related to diet and dental caries, fluorides, malocclusion, dental trauma, periodontal problems, oral cancer)

Prevention of Oral Diseases II : Targeted population groups (elderly, disadvantaged population, disabled)

The importance and cost effectiveness of preventive measures and community based oral health promotion

Introduction to the oral healthcare system in Pakistan

Skills

Ability to identify the causative and risk factors of disease.

Ability to describe disease patterns in epidemiological and statistical terms.

Ability to take appropriate action in disease prevention and promotion of wellness and health of individuals and the community.

Collection, analysis and presentation of oral health data

Oral health promotion

Attitude

Positive attitude and behaviour towards prevention of disease and the promotion of wellness and health

Appreciate the role of the health team in the prevention of disease and promotion of wellness and health

Develop concern and caring attitude towards the community

| Course Description & Objectives: | Suggested Lecture Hours |
|---|--------------------------------|
| Introduction to Community Dentistry and Dental Public Health: Concepts of health; disease and illness and factors affecting these states; activities carried out in the field of community dentistry. | 2 |

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|--|---|
| <p>Oral epidemiology: Definition, uses and principles of epidemiology; Research designs; dental surveys; clinical trials; screening; oral health assessment indices; current concepts about etiology, natural history and epidemiology of oral diseases and conditions having public health implications; assessment of disease risk and predictive tests.</p> <p>Prevention of oral and dental diseases: Levels of prevention; health promotion; specific protection; dental plaque and its role in the etiology of dental diseases; diet; nutrition and dental health; water fluoridation; fluoride supplements; professionally and self-applied topical fluorides; fissure sealing; methods of plaque control; principles and strategies of dental health education and promotion; infection control; protection from radiation and mercury hazards in dental practice.</p> | 6 |
| <p>Dental health care delivery system: The structure and financing of dental care, role of dentists, dental auxiliaries and general health workers in oral health care, dental care of people with special needs including the elderly, the handicapped, HIV / AIDS patients, school children, principles and elements of primary health care, ethical issues in dental care.</p> | 7 |
| <p>Behavioral sciences: Health behavior and its determinates, attitudes, beliefs and values about health and illness, theories of health behavior, dentist – patient communication, management of stress, fear and anxiety in dentistry, child psychology and behavior management and modification techniques, counseling, motivation and compliance.</p> | 6 |
| <p>Introduction to bio – statistics: Types of variables, frequency distribution, measures of central tendency and variability in data, methods of sampling, sampling error, probability, normal distribution, confidence interval, tests of statistical significance, Kappa test.</p> | 6 |
| <p>Community Dentistry practical & field assignments:</p> <p style="padding-left: 40px;">A. Clinical Oral Examination</p> <p style="padding-left: 80px;">i Exercise on Models and Extracted teeth</p> <p style="padding-left: 80px;">ii Exercise on patients in out patients</p> | 6 |

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| department iii Examination of institutionalized population like school children B. Questionnaire / interview study i Designing a questionnaire ii. Pilot testing the questionnaire iii Data coding, processing and analysis C. Planning and conducting a dental health education (D.H.F.) session: i. Designing D.H.E. material ii Planning, conducting and evaluating (D.H.E) sessions | |
| Chairside preventive dental procedures i High fluoride gel application ii Fissure sealing iii Dietary counseling iv Plaque disclosing v Instructions about Oral Hygiene measures <ul style="list-style-type: none"> • Tooth Brushing demonstration • Inter-dental cleaning • Chemical control of dental plaque | 7 |

BOOKS / TEACHING & LEARNIN AIDS:

Burt, B. & Eklund, S. (1999) **Dentistry, Dental Practice & The Community**. 5th ed. Saunders

Daly B, Watt R, Batchelor P & Treasure E (2002) **Essential Dental Public Health**, Oxford University Press.

Gluck G & Morganstein WM (2002) **Jong's Community Dental Health** 5th edition, Mosby

Harris, N.O. & Christen, A.C. (1987) **Primary Preventive Dentistry**. 2nd ed. Reston Pub. Co.

Kent GC, AS Blinkhorn. (1993) **The Psychology of Dental Care**. 2nd edition, Wright Publication, London

Murray, J.I. (ed.) (1996) **Prevention of Oral Diseases**. 3rd ed. Oxford University Press,

Phoon WO & PCY Chen (Eds). (1986) **Textbook of Community Medicine in South East Asia**. John Wiley & Sons

Pine CM (ed.). (1997) **Community Oral Health**. Oxford: Wright Publication

Scrambler Graham. (2003) **Sociology as Applied to Medicine**. 5th ed. WB Saunders Company

Wallace RB. Maxcy-Rosenau-Last (1998) **Public Health and Preventive Medicine** Prentice-Hall International

SYLLABUS / COURSE DETAILS FOR: PERIODONTOLOGY:

Introduction:

Relates to the science of diagnosis, prevention and management of the diseases of the tissues and structures surrounding and supporting the teeth.

The Primary objective of the course in Periodontology is to train a General Dental Practitioner who is clinically proficient, scientifically orientated, analytical, empathetic and ethical and committed to the improvement of periodontal health in the community.

The learning outcomes expected from the student on completion of the course are:

To achieve mastery of knowledge in the diverse disciplines involved in providing care for patients with periodontal disease.

To understand the interrelationship between periodontal health and other oral/systemic problems and to be able to work efficiently as a team in improving the quality of life of patients presenting with periodontal disease

To have in depth knowledge of basic science applicable to Periodontology

To be able to communicate with patients effectively to improve the oral health status and adherence with health care recommendation

Competencies

Major Competence

The new graduate in dental surgery must be competent to manage periodontal diseases in patients of all ages. Specifically, he or she must:

Supporting Competences:

Understand Occlusion and be able to identify the multidisciplinary approach in the treatment of occlusion related disorders

Be competent at evaluating the periodontium, establishing a diagnosis and prognosis and formulating a treatment plan.

Be competent at educating patients concerning the aetiology of periodontal disease and encourage them to assume responsibility for their oral health.

Be competent at instructing patients in appropriate oral hygiene methods compatible with periodontal health.

Be competent in the use of local periodontal therapeutic substances, in supragingival and subgingival scaling and root debridement, using both powered and manual instrumentation and in stain removal and prophylaxis.

Have knowledge of the secondary periodontal etiological factors.

Be competent to diagnose, explain and discuss the need for advanced periodontal surgical procedures and the proper method of referral for specialty care.

Be competent at evaluating the results of periodontal treatment and establish and monitor a maintenance programme, including a discussion of risk factors

Periodontology

1) The normal Periodontium: Periodontal Anatomy: Clinical & Histological Characteristics

2) Etiology of Periodontal Disease/ Microbiology of Periodontal disease

3) Classification of Periodontal Disease

4) Gingival diseases

Course Details

| <u>Course Description / Objectives</u> | <u>Suggested Lectures Hours</u> |
|--|--|
| <p><u>Periodontal Anatomy: Clinical & Histological Characteristics:</u></p> <p>a) Periodontium & its structures.</p> <p>1) Gingiva</p> <ul style="list-style-type: none"> • <i>Microscopic features:</i> • <i>Gingival epithelial</i> • <i>Gingival connective tissue</i> <p>2) Periodontal Ligaments</p> <ul style="list-style-type: none"> • <i>Periodontal fibers</i> • <i>Cellular element</i> • <i>Ground substance</i> • <i>Functions of the periodontal ligaments</i> <p>3) Alveolar bone</p> <ul style="list-style-type: none"> • <i>Cells of intercellular matrix</i> • <i>Socket wall</i> • <i>Bone marrow</i> • <i>Periosteum and endosteum</i> • <i>Inter dental septum</i> • <i>Osseous topography</i> • <i>Fenestration and dehiscence</i> • <i>Remodeling of alveolar bone</i> <p>4) Cementum</p> <ul style="list-style-type: none"> • <i>Permeability of cementum</i> • <i>Cemento enamel junction</i> • <i>Cemento dentinal junction</i> • <i>Thickness of cementum</i> | <p>12</p> |

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| <ul style="list-style-type: none"> • <i>Cementum resorption and repair</i> • <i>Exposure of cementum to oral environment</i> <p>b) Gingiva & its types.</p> <ol style="list-style-type: none"> 1) Marginal Gingiva 2) Attached Gingiva 3) Gingival sulcus 4) Interdental Gingiva 5) Correlation of clinical and microscopic features <ul style="list-style-type: none"> • <i>Color</i> • <i>Size</i> • <i>Contour</i> • <i>Shape</i> • <i>Consistency</i> • <i>Surface texture</i> • <i>position</i> | |
| <p><u>Basic Etiology of Periodontal Disease</u></p> <p>Etiology of periodontal disease & classify its types</p> <p>Periodontitis</p> <ul style="list-style-type: none"> • <i>Chronic periodontitis</i> • <i>Aggressive periodontitis</i> • <i>Periodontitis as a manifestation of systemic disease</i> • <i>Necrotizing periodontal disease</i> • <i>Abscesses of the Periodontium</i> • <i>Periodontitis associated with endodontic lesion</i> <p>Types of etiological factors. Plaque and Calculus.</p> <p>Local (extrinsic) factors.</p> <ol style="list-style-type: none"> 1) Irritating factors 2) Functional factors <p>Systemic (intrinsic) factors.</p> <p>Intrinsic (systemic) & extrinsic (local) factors.</p> <p>Microbiology of Periodontal disease</p> <ul style="list-style-type: none"> • <i>Diversity of intra oral surfaces for bacterial adhesion</i> • <i>Structure and composition of dental plaque</i> | 13 |

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| <ul style="list-style-type: none"> • <i>Plaque as a biofilm</i> • <i>Plaque formation at the ultra-level</i> • <i>Growth dynamics of dental plaque</i> • <i>Physiologic properties of dental plaque</i> • <i>Special bacterial behavior in biofilm</i> • <i>Principle of bacterial transmission, translocation or cross-infection</i> • <i>Association of plaque microorganisms with periodontal disease</i> • <i>Microbial specificity of periodontal disease</i> • <i>Key characteristics of specific perio pathogens</i> • <i>Future advances in periodontal microbiology</i> <p>Host responses in Periodontal disease</p> <ul style="list-style-type: none"> • <i>Microbiologic aspects of the microbial host interaction</i> • <i>Immunologic aspect of the microbial host interaction</i> <ol style="list-style-type: none"> 1) Cell-mediated 2) Humoral immunity | |
| <p><u>Classification of Periodontal Disease:</u></p> <ol style="list-style-type: none"> a) Periodontal disease according to the tissue affected. b) Bone loss and patterns of bone destruction c) Periodontal response to external forces d) Chronic periodontitis e) Necrotizing ulcerative periodontitis f) Aggressive periodontitis g) Periodontal disease as recommended by ADA. h) Etiological factors and Treatment. | 13 |
| <p><u>Gingival Diseases:</u></p> <ol style="list-style-type: none"> a) Gingivitis & classify its types. b) The types of gingivitis. c) Acute necrotizing ulcerative gingivitis & give its clinical characteristics. d) Acute primary herpetic gingivostomatitis. e) Gingival diseases in childhood. f) Etiological factors and Treatment of gingival diseases | 8 |

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| <p>g) Desquamative gingivitis</p> <p>h) Epidemiology of Gingival and Periodontal diseases</p> <p>i) Gingival Enlargement</p> <p>j) Periodontal diseases</p> <p>k) Early Onset Periodontitis</p> | |
| <p>IMPLANTS</p> <p>Oral implantology, basic concepts</p> <p>Biological aspects of oral implants</p> <p>Clinical aspects and evaluation of patient</p> <p>Diagnostic imaging for the implant</p> <p>Standard implant surgical procedures</p> <p>Periodontal implications, implant-mucositis, peri-implantitis and prevention strategies.</p> | 6 |
| <p>Epidemiology of Gingival and Periodontal diseases</p> <p>a) What is Epidemiology?</p> <ul style="list-style-type: none"> • <i>principles of diagnostic testing</i> • <i>risk versus prognosis</i> • <i>how to measure gingival disease</i> • <i>how to measure periodontal disease</i> <p>b) Epidemiologic study designs</p> <p>c) Index, Plaque, gingivitis and periodontitis</p> | 2 |
| <p><u>Gingival Enlargement:</u></p> <p>a) Gingival enlargement.</p> <p>b) Gingival enlargement associated with medications</p> <p>c) Familial gingival enlargement.</p> <p>d) Neoplastic gingival enlargement.</p> | 2 |
| <p><u>Periodontal diseases</u></p> <p>a) Periodontitis & discuss its clinical characteristics.</p> <p>b) Radiographic features of periodontitis.</p> <p>c) Periodontal pocket formation.</p> <p>d) Periodontal pockets – detail and classification</p> <p>e) Pattern of alveolar bone periodontal ligament destruction and bone loss</p> <p>f) Mechanism of periodontal tissue destruction.</p> <p>g) Etiology of periodontitis.</p> <p>h) Gingivitis & periodontitis.</p> <p>i) Treatment of periodontitis.</p> <p>j) Preventive measures for periodontitis</p> <p>k) Systemic manifestations of Periodontal disease</p> | 6 |

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| l) Oral Malodor m) Smoking and Periodontitis | |
| <u>Early Onset Periodontitis:</u> a) Prepubertal periodontitis. b) Juvenile periodontitis & describe its clinical characteristics. c) Radiographic features of juvenile periodontitis. d) Treatment of juvenile periodontitis. e) Rapidly progressive periodontitis. f) Chronic Periodontitis g) Periodontitis in HIV patients 9) Periodontal Occlusal Trauma: 10) Gingival Recession: 11) Pericoronitis, Gingival Abscess, Periodontal Abscess & Cysts 12) Pathogenesis of Periodontal disease. 13) Role of systemic diseases in periodontal disease | 5 |
| <u>Periodontal Occlusal Trauma:</u> a) Periodontal occlusal trauma & describe its clinical characteristics. b) Radiographic features of periodontal occlusal trauma. c) Histopathology & pathogenesis of periodontal occlusal trauma. d) Etiology of periodontal occlusal trauma. e) Prognosis, treatment & preventive measures of periodontal occlusal trauma. f) Splinting | 2 |
| <u>Gingival Recession:</u> a) Gingival recession & describe its clinical characteristics & radiographic findings b) Histopathology, pathogenesis & etiology of gingival recession. c) Nutritional implications, prognosis, treatment & preventive measures of gingival recession. | 2 |
| <u>Pericoronitis, Gingival Abscess, Periodontal Abscess & Cysts:</u> a) Define pericoronitis & describe its clinical characteristics along with radiographic signs b) Histopathology, pathogenesis & etiology of pericoronitis. c) Treatment & prognosis of | 5 |

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| <ul style="list-style-type: none"> pericoronitis. d) Dental abscess. e) Gingival abscess. f) Periodontal abscess. g) Gingival & periodontal abscess. h) Clinical characteristics of periodontal abscess. i) Radiographic features of periodontal abscess. j) Etiology & treatment of periodontal abscess. k) Cyst & its types. <p>Treatment of Periodontal disease</p> <ul style="list-style-type: none"> 12) Periodontal Examination, Diagnosis, Prognosis & Treatment Plan 13) Plaque Control In Periodontal Therapy 14) Basic Instrumentation for Scaling & Root Planning 15) Surgical Periodontal Procedures 16) Periodontal medicine 17) Saliva | |
| <p><u>Periodontal Examination, Diagnosis, Prognosis & Treatment Plan:</u></p> <ul style="list-style-type: none"> a) Practice periodontal examination. b) Furcation involvement. c) Mucogingival defects. d) Tooth mobility & describe its mobility grades. e) Periodontal treatment plan & describe its phases. <ul style="list-style-type: none"> 1) Phase I 2) Phase II 3) Phase III | 2 |
| <p><u>Plaque Control in Periodontal Therapy:</u></p> <ul style="list-style-type: none"> a) Plaque formation & oral hygiene aids b) Types of brushing techniques. c) Types of brushing techniques. d) Bass method & modified bass method. e) Stillman's method & modified stillman's technique. f) Dental floss. g) Disclosing tablets & solutions & its use. h) Dentifrices. i) Dietary counseling in plaque control. j) Preventive periodontics. | 3 |

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|---------------------------|--|---|-----|
| Clinical Practical | <u>Non- surgical Therapy: Basic Instrumentation for Scaling & Root Planning:</u> a) Parts of instruments. b) Instrument grasp 1) Standard pen grasp 2) Modified standard pen grasp 3) Palm & thumb grasp c) Use of scaling instruments. d) Subgingival scaling & root planning instrumentation. e) Procedure of instrument sharpening | 4 | and |
| | <u>Surgical Periodontal Procedures:</u> | 5 | |
| | <u>Principles of Periodontal Therapy</u> a) Gingival curettage. b) Scaling & deep curettage. c) Gingivectomy & its indication. d) Periodontal flap procedures. e) Ostectomy & osteoplasty. f) Treatment of tooth sensitivity. g) Periodontal regeneration procedures h) Periodontal dressing i) Splinting | 4 | |
| | <u>Periodontal restorative interrelationships</u> Biologic considerations Margin placement and biologic width Biologic width evaluation Marginal placement guidelines Clinical procedures in marginal placement Marginal fit Crown contour Esthetic tissue management Occlusal considerations in restorative therapy Special restorative considerations | 4 | |
| | <u>Periodontal maintenance</u> Maintenance program: <i>Examination and evaluation</i> <i>Checking of plaque control</i> <i>Treatment</i> <i>Recurrence of periodontal disease</i> | 3 | |

requirement in Periodontology:

CLINICAL REQUIREMENTS

| Procedure | No. of Cases |
|--|---------------------|
| Medical history, dental history and its interpretation | 25 |
| Extra oral and intra oral exam. With charting | 25 |
| Other investigations and their | 25 |

| | |
|---|----|
| interpretation | |
| Diagnosis, prognosis and treatment plan | 10 |
| Case discussion and case presentation | 05 |
| Oral hygiene instruction and follow-up | 25 |
| Manual Scaling | 25 |
| Polishing | 10 |
| Ultrasonic Scaling | 10 |
| Fluoride Application | 05 |
| Root Planning | 02 |
| Gingival Curettage | 02 |

OBSERVED CASES:

| Procedure | No. Of Cases |
|-------------------------|---------------------|
| Gingivectomy (simple) | 02 |
| Splinting | 02 |
| Various flap procedures | 02 |

BOOKS RECOMMENDED:

1. Clinical Periodontology by Glickman & Carranza
2. Clinical Periodontology and Periodontics by Reddy, Shanti Priya
3. EOP by Elisabeth & Hoe
4. Periodontics: Current Concepts and Treatment Strategies, Peter N. Galgut, Sherie A Dowsatt
5. Manual of Clinical Periodontics, Francis G Serio, Charles E. Hawley
6. Outline of Periodontics by J.D Manson

JOURNALS RECOMMENDED

1. Journal of clinical Periodontology
2. Journal of Periodontology
3. Periodontology 2000

SYLLABUS / COURSE DETAILS FOR:

ORAL MEDICINE/ ORAL DIAGNOSIS & ORAL RADIOLOGY:

Introduction:

Oral Medicine is the science of diagnosing, treating, or preventing orofacial disease. According to this specialty treatment of the diseases is done by drugs, diet, exercise, and other nonsurgical means.

Learning Resources

Textbooks

Oral and Maxillofacial Medicine, The basis of Diagnosis and Treatment; By CRISPIAN SCULLY

Oral and Maxillofacial Diseases, An illustrated guide to the diagnosis and management of diseases of the oral mucosa , gingivae, teeth, salivary glands, bones and joints; By CRISPIAN SCULLY, STEPHEN R FLINT, STEPHEN R PORTER

Burket's Oral Medicine; By GREENBERG, GLICK, SHIP

Medical problems in Dentistry; By CRISPIAN SCULLY

Internet resources

Medline/Pubmed

- Journal of Oral Medicine (J Oral Med)
- British dental journal (BDJ)
(<http://www.nature.com/bdj/index.html>)
- American academy of Oral Medicine
(<http://www.aaom.com/displaycommon.cfm?an=5>)
- The international academy of Oral Medicine & Toxicology
(<http://www.iaomt.org/>)

Resources Required

- Audiovisual conferences with international universities/institutes by using fibre optics technology and discussing and even visualizing patients “live” on line.

Course Outline

| Course Contents & Objectives | Suggested Lecture Hours |
|---|--------------------------------|
| Introduction to Oral Medicine , Brief introduction about Oral Medicine including Aim of studying Oral Medicine, Terminologies used in Oral Medicine | 02 |
| Oral Mucous Membrane: Brief introduction about Epithelium Brief introduction about Connective tissue Keratinization Keratinized and Non-keratinized parts of the Oral mucosa Cells of Oral mucous membrane Basement membrane zone Sub-mucosal layer Role as barrier (Oral mucous membrane) Permeability Haematinics and Oral mucous membrane Age changes in Oral mucous membrane Regulation of production of Normal Oral mucous membrane | 02 |
| Oral Ulceration Recurrent Aphthous Stomatitis RAS like Oral ulceration (Recurrent oral | 03 |

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|--|----|
| <ul style="list-style-type: none"> ulceration) Vesiculobullous diseases Immunologically mediated Oral Ulceration Drugs causing Oral ulceration Trauma and Oral Ulceration Oral Malignancy and Oral Ulceration | |
| <p>Infections</p> <ul style="list-style-type: none"> Bacterial Infections Viral Infections Fungal Infections | 02 |
| <p>Potentially Malignant Disorders</p> <p>White and Red patches</p> <ul style="list-style-type: none"> Oral Epithelial Dysplasia Erythroplakia Leukoplakia Chronic hyperplastic candidosis Oral Lichen Planus Oral Squamous Cell carcinoma Oral Submucous fibrosis Haematinic defeciencies Fanconi anaemia Scleroderma Dyskeratosis congenita | 03 |
| <p>Oral Cancer</p> <ul style="list-style-type: none"> Oral Squamous Cell Carcinoma Non- Hodgkins Lymphoma Kaposi's sarcoma | 02 |
| <p>Salivary Gland Diseases</p> <ul style="list-style-type: none"> Developmental Infectious <ul style="list-style-type: none"> Salivary Gland Diseases Mucocele Ranula Xerostomia Sjogren's Syndrome Salivary Gland Neoplasia | 03 |
| <p>Oral Pigmentation</p> <ul style="list-style-type: none"> Localized Syndromic Malignant Others | 02 |
| <p>Endocrine Diseases</p> <ul style="list-style-type: none"> Cushing's Syndrome Addison's disease Corticosteroid adverse effects Corticosteroid supplementation Acromegaly Phaeochromocytoma Hamartoma with endocrine abnormalities <ul style="list-style-type: none"> Cowden's syndrome Gardner's syndrome | 02 |

| | |
|--|----|
| Oral Manifestation of Systemic Diseases Oral manifestations of HIV disease (AIDS) Oral manifestations of GIT diseases Oral manifestations of Endocrine diseases Oral manifestations of Haematological diseases Oral manifestations of cardiovascular diseases Oral manifestations of respiratory diseases | 03 |
| Medical Emergencies Relevant to Dentistry Loss of consciousness Vasovagal syncope Acute hypoglycemia Adrenal crises Anaphylactic reaction Cardiac arrest Strokes Acute chest pain Angina Myocardial infarction Difficulty in breathing Asthma Anaphylactic reaction Convulsions Epilepsy Other emergencies Hemorrhage Drug reactions and interactions Local anesthesia with adrenaline G.A Corticosteroids | 02 |
| Granulomatous Diseases Oro-facial granulomatosis Crohn's Disease Sarcoidosis Wegener's granulomatosis | 02 |
| Oral Diagnosis and Radiology (See details below) | 12 |

ORAL DIAGNOSIS & ORAL RADIOLOGY:

Lecture Hours : 12 hours

Synopsis of Course:

This course builds and uses the knowledge, skills and attitudes acquired during the teaching and practices of the subjects of dental radiology, oral pathology, oral medicine and oral diagnosis. The oral pathology component systematically deals with the pathological aspects of anomalies and benign and malignant pathological lesions and conditions involving the teeth and odontogenic tissues, the oral / peri-oral soft tissues, the jawbones and the temporomandibular joint, and the minor and major salivary glands.

Oral medicine is a clinically-based subject that deals with the diagnosis and management of diseases of the mouth, jaws and salivary glands, orofacial pain and the oral manifestations of systemic diseases. The oral diagnosis and radiology component will link primary care clinical experiences with the more formal oral pathology and oral medicine components.

This course builds upon the knowledge as the student makes progress in the course studies. Detailed aspects of benign tumors and cancers in the mouth and oral region and the pathology of organ systems such as the jawbones and salivary glands will be better understood. Learning and skills development in relation to the three components is maintained.

BOOKS / TEACHING & LEARNING AIDS:

Birnbaum W and Dunne S (2000) **Oral diagnosis: a clinicians' guide**. Butterworth Heinemann

Bork K et al (1996) **Diseases of the oral mucosa and lips**. Saunders

Brocklebank L (1997). **Dental Radiology – Understanding the X-ray Image**. 1st Edition, Oxford University Press

Carlsson GE and Magnusson T (2001) **Management of temporomandibular disorders in the general practice of dentistry**. Quintessence Publishing

Gandolfo S, Scully C, Carrozzo M (2006) **Oral Medicine**. Churchill Livingstone

Langland OE & Langlais RP (1997). **Principles of Dental Imaging**. 1st Edition, Williams & Wilkins

Little J, Falace D Miller C, Rhodus NC (2002) **Dental management of the medically compromised patient 6th edition**. Mosby

McMahon S and Koltzenburg M (2005) **Wall and Melzack's Textbook of Pain 5th edition**. Churchill Livingstone

Okeson JP (2005) **Bell's orofacial pains: the clinical management of orofacial pain 6th edition**. Quintessence Publishing

Prabhu SR (ed) (2004) **Textbook of Oral Medicine**. Oxford

Scully C and Cawson RA (2004) **Medical problems in dentistry 5th edition**. Churchill Livingstone

von Pickartz H (2007) **Craniofacial pain**. Butterworth Heinemann

Wilson DF Wilson MK Wilson LP (2007) **Non-infectious inflammatory diseases of the oral mucosa** (digital text CD) Novus Res Australia Pty Ltd

Wood NK (1997) **Differential diagnosis of oral and**

maxillofacial lesions. Mosby

Zakrzewska J and Harrison SD (2002) **Assessment and management of orofacial pain.** Elsevier

FOURTH YEAR BDS SUBJECTS

1. Prosthodontics
2. Orthodontics
3. Operative Dentistry including Paedodontics
4. Oral and Maxillofacial Surgery

CONTACT HOURS ALLOCATIONS

FOURTH PROFESSIONAL BDS

| <u>SUBJECTS</u> | LECTURES | PRACTICAL HOURS |
|--|-----------------|------------------------|
| Prosthodontics | 100 | 225 |
| Orthodontics | 100 | 200 |
| Operative Dentistry Including Pedodontics | 100 | 225 |
| Oral and Maxillofacial Surgery | 100 | 200 |
| Grand Total | 400 | 850 |

In addition to the above examination subjects, each student or group of students shall take an **Elective Project** and **Selective Project** during the 4th year BDS training. Upon selection of projects and necessary introduction and guidance, relating to projects will be given to students by the concerned tutor / supervisor. Subsequently, most of the work related to these projects will be undertaken / completed outside the normal working hours of the college during the vacations breaks of the year. These projects shall be completed before the end of the 5th year BDS training. There will be no formal university examination in the Elective and Selective Projects carried out by students. Details of these are given in the syllabus / subjects of 4th Year BDS.

SYLLABUS / COURSE DETAILS FOR:

PROSTHODONTICS:

Introduction:

It is the branch of dentistry that deals with the replacement of missing teeth and related mouth or jaw and other craniofacial structures by artificial appliances including bridges, dentures, obturators and maxillofacial prostheses or other artificial devices.

| Course / contents Details | Suggested Contacts Hours |
|---|---------------------------------|
| REMOVABLE PARTIAL DENTURES: | |
| Introduction: Terminologies and classification <ul style="list-style-type: none">• Components of a removable partial denture: Major connectors, Minor connectors, Rest and rest seats, Direct retainers, Indirect retainers, and tooth replacement• Principles of Removable Partial Design• Examination and evaluation of diagnostic data• Survey and design – in detail: Surveyor, Surveying, and Survey lines, Tripoding. Designing• Different designs of RPDs removable partial denture• Mouth preparation and master cast• Impression materials and procedures for removable partial dentures: Special reference to distal extension bases.• Preliminary jaw relation and esthetic try-in for some anterior replacement teeth.• Laboratory procedures for framework construction• Trial of the framework• Special impression procedures for tooth-tissue supported removable partial denture• Established occlusal relationships• Try-in and completion of the partial denture• Delivering the removable partial denture• Post insertion observations• Temporary and immediate removable partial denture• Complete denture opposing removable partial dentures• Other forms of the removable partial dentures e.g. sectional dentures, swing | 30 |

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| <ul style="list-style-type: none"> lock design • Relining, rebasing, and repairing the removable partial dentures. • Attachments for removable partial denture • Removable partial denture in maxillofacial prosthetics • Removable partial denture for the older adult. | |
| FIXED PARTIAL DENTURES: | |
| <ul style="list-style-type: none"> • Introduction to fixed prosthodontics • Fundamentals of occlusion • Articulators, their types and classifications • Inter occlusal records different materials used and techniques employed • Articulation of casts on semi adjustable articulators • Treatment planning for single tooth restorations • Treatment planning for the replacement of missing teeth • Fixed partial denture configurations • Principals of tooth preparations for retainer units • Preparations for full veneer crowns as retainer units • Preparations for partial veneer crowns as retainer units • Preparations of intracoronar restorations as retainer units • Preparations for extensively damaged teeth • Preparations for periodontally weakened teeth • Provisional restorations • Fluid control and soft tissue management • Impressions for fixed prosthodontics • Working casts and dies • Wax patterns • The functionally generated path technique • Investing and casting • Finishing and cementation • Esthetic considerations • All- ceramic restorations • Metal-ceramic restorations • Pontics and edentulous ridges • Solder joints and other connectors • Resin – Bonded fixed partials denture | 20 |

| COMPLETE DENTURES | 30 |
|--|----|
| <p>Basic Anatomy and Physiology: Biomechanics of the edentulous state, Residual ridge resorption. Communicating with the patient: Understanding the patients Instructing the patient.</p> <p>Diagnosis and treatment planning for patients:</p> <ol style="list-style-type: none"> 1. With some teeth remaining 2. With no teeth remaining: Mental attitude, Systemic status. Local factor, the geriatric patient, and Diagnostic procedures, Articulators – discussion in detail, including historical perspective. Improving the patient’s denture foundation and ridge relation. <ul style="list-style-type: none"> ▪ Pre-operative examination ▪ Initial hard tissue & soft tissue procedure ▪ Secondary hard & soft tissue procedure ▪ Implant procedure ▪ Congenital deformities ▪ Postoperative procedure. <ul style="list-style-type: none"> • Rehabilitation of the edentulous patient <ol style="list-style-type: none"> 1. Impressions: <ul style="list-style-type: none"> ▪ Muscles of facial expression ▪ Biologic considerations for maxillary and mandibular impression including anatomy landmark and their interpretation. ▪ Impression objectives and principals ▪ Impression materials ▪ Impression techniques ▪ Maxillary and mandibular impression procedures ▪ Laboratory procedures involved with impression making 2. Biological consideration in jaw relation & jaw movements – craniomandibular relations. <ul style="list-style-type: none"> ▪ Mandibular movements ▪ Maxillo-mandibular relation including vertical and horizontal jay relations. ▪ Concept of occlusion | |

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| <ul style="list-style-type: none"> ▪ Gnathology <ol style="list-style-type: none"> 3. Record bases and occlusion rims. <ul style="list-style-type: none"> ▪ Materials & techniques ▪ Useful guidelines and ideal parameters ▪ Recording and transferring bases and occlusal rims 4. Relating the patient to the articulator. <ul style="list-style-type: none"> ▪ Hinge axis location techniques ▪ Terminal hinge axis and arbitrary hinge axis ▪ Face bow detailed discussion – types & uses ▪ Face bow transfer procedure 5. Recording maxillo – mandibular relation. <ul style="list-style-type: none"> ▪ Vertical relations ▪ Centric relation records ▪ Eccentric relation records 6. Tooth selection and arrangement. <ul style="list-style-type: none"> • Anterior teeth • Posterior teeth • Esthetic and functional harmony 7. Relating inclination of teeth to concept of occlusion. <ul style="list-style-type: none"> • Neurocentric concept' • Balanced occlusal concept 8. Trial dentures. 9. Laboratory procedures. <ul style="list-style-type: none"> • Wax contouring • Investing of dentures • Preparing of mold • Preparing & packing acrylic resin • Processing of dentures • Recovery of dentures • Lab remount procedures • Recovering the complete denture from the cast. • Finishing and polishing the complete denture • Plaster cast for clinical denture remount procedure | |
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| <p>10. Denture insertion</p> <ul style="list-style-type: none"> • Insertion procedures • Clinical errors • Correcting occlusal disharmony • Selective grinding procedure <p>11. Treating problems with associated denture use – detailed discussion</p> <p>12. Treating abused tissues</p> <p>13. Relining and re-basing of dentures</p> <p>14. Repair of dentures</p> <p>15. Immediate complete dentures construction procedure</p> <p>16. The single complete denture</p> <p>17. Tooth supported complete denture (over dentures)</p> <p>18. Sectional dentures</p> <p>19. Copy dentures</p> <p>Dental implants in complete dentures (Implant supported complete dentures).</p> | |
| <p>GERODONTOLOGY</p> <p>1. Management strategies for the dental care of the elderly.</p> <p>2. Dental and oral diseases and disorder in the elderly.</p> <p>3. Range of psychological and social factors involved with geriatric patients.</p> <p>4. Distinguish between normal and abnormal consequences of aging.</p> <p>5. Excessive tooth wear.</p> <p>6. Root dental caries.</p> | 4 |
| <p>IMPLANTOLOGY</p> <p>1. Rationale for dental implants</p> <p>2. Types(classification) of dental implants</p> <p>3. Science of osseointegration (factors affecting osseointegration)</p> <p>4. Indications and contraindications for dental implants</p> <p>5. Implant supported rehabilitation options for partially dentate and completely edentulous</p> <p>6. Medical conditions and their implications for implant supported prostheses</p> <p>7. Success criteria for dental implants</p> <p>8. Complication associated with dental implants and</p> | 4 |

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| their management | |
| OCCLUSION 1. Evolution of occlusal concepts with emphasis on : a. Bilaterally balanced occlusion b. Unilaterally balanced occlusion/ group function c. Mutually protected occlusion d. Canine guided occlusion e. Group function f. long centric/ freedom in centric 2. Determinants of occlusion | 4 |
| TEMPOROMANDIBULAR DISORDERS 1. Functional anatomy and physiology of the temporomandibular structures 2. Etiology of the temporomandibular disorders 3. Classification/types of temporomandibular disorders 4. Diagnosis of temporomandibular disorders 5. Management of temporomandibular disorders | 4 |
| MAXILLOFACIAL PROSTHODONTICS | 4 |

Clinical Assignments:

| Description of Work | Clinical Quota / No. of Cases |
|---|-------------------------------|
| Clinical and laboratory procedures involved in the fabrication of acrylic removable partial dentures for patients. | 12 |
| Clinical and laboratory procedures involved in the fabrication of cast removable partial dentures for patients. | 01 |
| Clinical and laboratory procedures involved in the fabrication of complete dentures for patients. | 08 |
| Clinical and laboratory procedures involved in the fabrication of a metal-ceramic full-coverage artificial crown for a patient. | 01 |
| Clinical and laboratory procedures involved in the fabrication of tooth-supported 3-units fixed partial dentures (FPD) for a patient. | 01 |

BOOKS / TEACHING & LEARNING AIDS:

REMOVABLE PARTIAL DENTURES:

Boucher's treatment of partially edentulous patients by Gavin P Renner

Carr AB, MaGivney GP & Brown DT (2004) McCracken's Removable Partial Prosthodontics 11th edition Mosby

Davenport JC, Basker RM, Helath JR, Ralph JP.(1989) Colour Atlas of Removable Partial Dentures, 1st edition, Wolfe Medical Publications.

Heartwell & Rahn AO. Syllabus of complete dentures.

Jenkins G & Gidden J Precision Attachments: A Link to Successful Restorative Treatment Quintessence Publishing Co Inc

Tyson KW, Yemm R & Scott BJJ (2006) Understanding Partial Denture Design University Oxford Press.

Walter JD. Designing Removable partial dentures.

Grasso & Miller's Removable Partial Dentures.

COMPLETE DENTURES:

Zarb GA, Bolender CL, Carlsson GE, (1997). Boucher's Prosthodontic Treatment for Edentulous Patient. 10th edition The C.V Mosby Company.

Hobkirk JA. Atlas of Complete Dentures. Wolfe Medical Publications.

Hopkins R. (1987) A Color Atlas of Preprosthetic Oral Surgery. Wolfe Medical Publications

McCord JF, Smith P & Grey N (2004). Treatment of Edentulous Patients Churchill Livingstone

Basker RM, Davenport JC. (2002) Prosthetic Treatment of the Edentulous Patient. 4th edition. Blackwell Publishing

Ghani F. A reappraisal of complete Denture Syllabus. 1997, KMC Bookshop, Khyber Medical College Peshawar (Pakistan).

Iwao H Principles and Practices of Complete Dentures Quintessence Publishing Co Inc

Morrow, Rudd and Eissman. Dental laboratory techniques

Fixed Partial Dentures (FPDS) / Crowns & Bridges:

Smith BGN, Howe LC. Planning and Making Crowns and Bridges. Informa Healthcare 2006.

Wassel RW et al. A clinical Guide to Crowns and other Extra-Coronal restorations. BDJ Books series. British dental association (BDA) London 2002.

Rosenstiel SF, Land MF & Fujimoto J (2006) Contemporary Fixed Prosthodontics 4th edition Mosby

Gurel G (ed) The Science and Art of Porcelain Laminate Veneers Quintessence Publishing Co. Inc.

Shillingburg HT, Hobo SA & Whitsett LD (1997) Fundamentals of Fixed Prosthodontics, 3rd Edition, Quintessence Publishing Co. Inc. Chicago.

Shillingburg. Atlas of Tooth preparation for crown and bridges. Quintessence Pub Co.

Tay WM. Resin Bonded Bridges: A Practitioners' Guide. Taylor & Francis. Ltd 1992.

Tillman's Principles of Crown and Bridge.

Dental Implants:

Drago CJ. Implant Restorations: A step by Step Guide. 2nd Ed. Blackwell

Munksgaard.

Misch C. Contemporary Implant Dentistry.

Occlusion and Temporomandibular Disorders (TMD):

Okeson JP (2005) Bell's orofacial pains: the clinical management of orofacial pain 6th edition. Quintessence Publishing

Bumann A, Lotzmann U, Mah J (2003) TMJ disorders and orofacial pain – the role of dentistry in a multidisciplinary diagnostic approach. Thieme New York

Carlsson GE and Magnusson T (2001) Management of temporomandibular disorders in the general practice of dentistry. Quintessence Publishing

Dawson PE (2006) Functional Occlusion: From TMJ to Smile Design Mosby

Gremillion H (2007) Temporomandibular disorders and orofacial pain, an issue of Dental Clinics 51-1 Saunders

Gross, Martin D. (1992) Occlusion in Restorative Dentistry: Technique & Theory. Churchill Livingstone

Okeson JP. Management of Temporomandibular Disorders.

Geriatric Dentistry:

Budtz-Jørgensen, Ejvind. Prosthodontics for the Elderly: Diagnosis and Treatment Quintessence Publishing Co Inc

Holm-Pedersen P & Walls A Textbook on Geriatric Dentistry 2nd edition Blackwell Publishing

Anderson J, Storer J. Immediate and Replacement Dentures. 3rd Edition. Blackwell Scientific Pub Co.

Esthetic Dentistry:

Irfan Ahmad. Anterior Dental Esthetics: A Clinical Guide. BDJ Book Series. BDA London.

Romano R (ed) The Art of the Smile: Integrating Prosthodontics, Orthodontics, Periodontics, Dental Technology, and Plastic Surgery in Esthetic Dental Treatment Quintessence Publishing Co Inc

E-learning Resources: CDs, DVDs, Videos and other Internet resources

SYLLABUS / COURSE DETAILS FOR:

ORTHODONTICS:

Introduction:

It is the dental specialty and practice of preventing and correcting irregularities of the teeth with or without the use of orthodontic appliances (braces).

| Course Description & Objectives | Suggested Lecture Hours |
|---|--------------------------------|
| Introduction a. Definitions and Terminologies b. Types ii) Preventive iii) Interceptive iv) Corrective c. Aims and needs for Orthodontic Treatment | 5 |
| Growth and Development a. Basic concepts and definitions b. Variables affecting growth c. Prenatal and postnatal craniofacial growth b. Methods of studying growth c. Theories of growth d. Clinical application of growth and development in orthodontics e. TMJ Development Development of dentition and occlusion a. Prenatal development of dentition c. Features of Primary dentition d. Mixed dentition period e. Permanent dentition period f. Dimensional Changes in dental arch g. Variations in development including size, form, number and position of teeth h. Factors affecting development. | 12 |
| Occlusion a. Normal Occlusion b. Andrews Six Keys of Occlusion Malocclusion a. Definitions b. Classification Etiology of Malocclusion a. Local factors c. Heredity d. Environmental Factors | 15 |

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| <p>Diagnostic Aids in Orthodontics</p> <ul style="list-style-type: none"> a. History b. Clinical Evaluation <ul style="list-style-type: none"> ii) Extraoral examination iii) Intraoral examination' c. Radiographs <ul style="list-style-type: none"> iv) Periapical Xrays v) Orthopantomogram vi) Occlusal Xrays vii) Cephalometric Xray <ul style="list-style-type: none"> (1) Identifying relevant anatomical structures and landmarks (2) Tracing (3) Analyses d. Tooth mass and size analyses <ul style="list-style-type: none"> viii) Cast analysis ix) Bolton Analysis x) Mixed Dentition analysis f. Formulation of problem list <p>Radiographic Interpretations</p> <ul style="list-style-type: none"> a. Roontgen Anatomy of teeth, jaws and T.M.Joints b. Variations within normal limits, and abnormalities c. Different types of X-Rays machines d. Varieties of X-Ray Films: Extra Oral Intra Films bite wing and occlusal films e. Film taking and exposure procedures f. Film development techniques g. Indications and uses of dental radiology h. Interpretation of films i. Radiation Hazards | 12 |
| <p>Preventive and Interceptive Orthodontics</p> <ul style="list-style-type: none"> a. Diagnosis and Management of Habits b. Space supervision c. Space maintainers d. Space regainers e. Serial Extractions | 4 |
| <p>Bone metabolism</p> <ul style="list-style-type: none"> a. Normal Structure of Periodontal Ligament and Bone b. The role of bone in eruption and stabilization c. Effects of Orthodontic force e. Factors affecting tooth movement | 4 |
| <p>Biomechanics</p> | 6 |

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| <ul style="list-style-type: none"> a. Concepts, Types and Control of Anchorage b. Types of Wires and Alloys used in orthodontics c. Ideal properties of Orthodontic wires and comparison of different alloys | |
| <p>Retention and relapse</p> <ul style="list-style-type: none"> a. Concepts of retention and relapse b. Occlusal Stability and factors related to retention c. Strategies of management | 4 |
| <p>Removable appliances</p> <ul style="list-style-type: none"> a. Functional appliance <ul style="list-style-type: none"> i) Types ii) Indications iii) Construction b. Introduction to various extraoral appliances for tooth movement c. Expansion appliances | 8 |
| <p>Fixed appliances</p> <ul style="list-style-type: none"> a. Introduction and background of different systems b. Indications and Drawbacks c. Components and its accessories d. Edgewise and Straight Wire systems (Brief) e. Bonding and Banding materials | 12 |
| <p>Treatment Planning</p> <ul style="list-style-type: none"> a. Non-skeletal problems including Class I malocclusion, crowding, spacing, crossbite, open bite, deepbite b. Skeletal problems c. Class II <ul style="list-style-type: none"> i) Division 1 ii) Division 2 d. Class III f. Extractions in Orthodontics a. Adjunctive treatment goals and principles | 10 |
| <p>Surgical Orthodontics</p> <ul style="list-style-type: none"> a. Indications | 4 |
| <p>Cleft Lip and Palate</p> <ul style="list-style-type: none"> a. Etiology & Clinical Features | 4 |

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Practical and Clinical Orthodontics

1. Wire beding exercise including
 - a) Adams Clasp
 - b) Labial Bow
 - c) Canine Retractor
 - d) Cantilever and Z spring
 - e) Arch wire fabrication
2. Making of removable applicances
3. Cephalometric tracing
4. A comprehensive orthodontic case presentation of a non-skelatal malocclusion.
 - a) History
 - b) Examination
 - c) Cast analysis
 - d) Ceph Analysis
 - e) Diagnosis
 - f) Suggested Treatment Plan
 - g) Mixed dentition analysis
 - h) Fixed Appliance

Recommended Books

- *Contemporary Orthodontics*, Profit
- *Introduction to Orthodontics*, Luar Mittehels
- *Hand Book of Orthodontics*, Robert-E-Moyers

Adams, C.P. Kerr, W.J. (1995) *The Design and Construction and Use of Removable Orthodontic Appliances*. 6th ed. Wright, Oxford.

Cozzani G *Garden Of Orthodontics* Quintessence Publishing Co Inc

Heintze SD, Finke C, Jost-Brinkman PG & Miethke RR *Oral Health for the Orthodontic Patient* Quintessence Publishing Co Inc

Hosey MT & Chadwick BL. *QuintEssentials 9—Child Taming: How to Manage Children in Dental Practice* Quintessence Publishing Co Inc

Ireland AJ & McDonald F (2003) *The Orthodontic Patient : Treatment and Biomechanics* Oxford University Press.

Korbendau JM & Patti A *Clinical Success in Surgical and Orthodontic Treatment of Impacted Teeth* Quintessence Publishing Co Inc

Millet, D, Welbury, R. (2000) *Orthodontic and Paediatric Dentistry. Colour Guide*. Churchill Livingstone. Edinburgh

Nanda R (2005) *Biomechanics and Esthetic Strategies in*

Clinical Orthodontics Saunders

Orton HS Functional Appliances in Orthodontic Treatment:
An Atlas of Clinical Prescription and Laboratory Construction
Quintessence Publishing Co Inc

Patti A & D'Arc GP Clinical Success in Early Orthodontic
Treatment Quintessence Publishing Co Inc

Romano R (ed) The Art of the Smile: Integrating
Prosthodontics, Orthodontics, Periodontics, Dental
Technology, and Plastic Surgery in Esthetic Dental
Treatment Quintessence Publishing Co Inc

Tuncay OC The Invisalign System Quintessence Publishing Co Inc

Wray APM & Rodd HD. Treatment Planning for the
Developing Dentition Quintessence Publishing Co Inc

SYLLABUS / COURSE DETAILS FOR:

OPERATIVE DENTISTRY INCLUDING PAEDODONTICS:

Introduction:

It is the branch of dentistry concerned with the diagnosis, prevention, and treatment of diseases of the tooth structure including the repair or restoration of defective teeth. It also includes the care and treatment of children's teeth.

| Course Description / Objectives | Suggested Lecture Hours |
|---|--------------------------------|
| OPERATIVE DENTISTRY Introduction Diagnosis & Treatment Planning History taking and record keeping. Reasons for restoration of teeth. Clinical diagnosis and pathology of disease. Application of radiology in operative dentistry. Instruments and their usage. Operator environment and self-protection. Methods of sterilization. Occlusion Restoration Selection of Materials, techniques according to the size and type of the tooth loss Black's and Minimal Intervention principles of cavity preparation. Fissure sealants, PRR, tunnel preparation. Amalgam restorations Treatment of surface lesions Composite and glass ionomer-related restorations Complex restorations Indirect tooth colored restorations. Additional conservative aesthetic procedures Common complications/failures of restorative dentistry. Maintenance of restorations in long term Cavity Lining Linings bases and Temporary restorations Pulp capping Direct and indirect pulp capping Dental trauma Diagnosis & Restorative management Causes and management of tooth discoloration Cast Restoration Direct filling gold, cast metal restorations and porcelain restorations for single crown | 45 |
| ENDODONTICS Introduction and scope of endodontics | 15 |

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| <p>Normal anatomy of dental pulp Pulpal reaction to caries, operative procedures and materials Diagnosis and differential diagnosis of pulp disorders. Assessment for endodontic therapy Role of radiography in endodontics Endodontic microbiology, prevention and infection control in dental clinics Pathobiology of primary apical periodontitis. Sterilization in endodontic Application of rubber dam. Endodontic instruments and standardization Management of pain and anxiety, local anaesthesia in endodontics Non- odontogenic tooth ache Endodontic emergency and management Pulp capping, apexification Selection of cases and treatment planning Rationale of endodontic treatment. Access opening and anatomy of root canals Anatomical variations in individual tooth negotiation and preparation of root canals. Shaping and irrigation of root canal system Endodontic cement sealers Obturation techniques Traumatic injuries and their management Non-vital bleaching of teeth Over denture preparation of root treated teeth Single visit endodontic. Management of broken instruments in root canal Perforations and their management Endo-perio lesions and their management Non- surgical re- treatment Surgical endodontics: apicectomy and root resection, retrograde fillings and materials used for root end fillings Re implantation and transplantation Endodontic implants and their significance. Root resorption : types and management. Methods of removal of old fillings and posts from the root canals Endodontic failure and re-treatment.</p> | |
| <p>SINGLE UNIT INDIRECT RESTORATIONS Indications and contra indications History taking and clinical examination Diagnostic casts and related procedures Diagnosis and treatment planning Principles of occlusion Periodontal considerations Mouth preparation Basic principles of preparation</p> | <p>15</p> |

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| <p>Types of crowns, indications and contra indications, advantages and disadvantages Porcelain crowns-indications and contraindications, clinical assessment and steps of preparation Cast Metal crown-indications and contraindications, clinical assessment .and steps of preparation. Partial veneer crown preparation Tooth preparation for All ceramic restorations Interim single unit indirect restorations Post and core crowns. Impression and impression materials, impression techniques Laboratory technique for single unit indirect restorations Cementation and try-in Follow up and repair Endodontic considerations in crown and bridges</p> | |
| <p><u>PEDODONTICS (SYLLABUS / COURSE DETAILS)</u> Child management in dental practice Prevention of Dental Disease Prenatal Counseling Oral prophylaxis Fluoride administration Dietary management Diet counseling Home care The Acid etch Technique in caries prevention Pit & Fissure Sealants & Preventive resin restorations Radiology Problem of Pain & Sedation Periodontal disease in children Injury to the primary & permanent teeth Pulp therapy for the primary & young permanent teeth Apexification Apexogenesis Restorative dentistry for the primary dentition Anesthesia Oral habits</p> | <p>25</p> |

| | |
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| Space maintenance in the primary dentition | |
| Treatment planning & interceptive orthodontics | |
| Rampant caries | |
| Space maintenance in the primary dentition | |
| Treatment planning & interceptive orthodontics | |
| Rampant caries | |
| Fluorides | |
| Treatment of handicapped children | |

Synopsis of Course in Paedontics:

The theoretical learning and practical training in endodontics is to equip the student with knowledge, basic skills and caring attitude and communication skills with parents and child that are necessary for restoring the primary and mixed dentition and know when to refer a child for specialist advice and assistance in management. It also covers management of dental emergencies, appropriate diagnostic procedures in such circumstances, treatment planning with relation to dental care for the child.

BOOKS / TEACHING & LEARNING AIDS FOR OPERATIVE DENTISTRY / ENDODONTICS:

Sturdevant's Art and Science of Operative Dentistry: Theodore M. Roberson , Herald O. Heymann, Edward J. Swift. Mosby; (latest available edition)

Fundamentals of Operative dentistry; A contemporary approach. Summitt James B. , Robbins, William J. , Hilton, Thomas J. , Schwartz, Richard S. Quintessence publishing Co. (latest available edition)

T.R. Pitt Ford, FJ. Harty: Hartys endodontics in clinical practice. Wright Publishers (latest edition)

Inlays, crowns and bridges; a clinical handbook by Colin R. Cowell, Ivan Curzon, George F. Kantorowicz, David S. Shovelton, F. Ivor Whitehead. Edited by Kantorowicz, George (latest edition)

Reference Books:

Endodontics: Principles and practice by Torabinjad. Richard E Walton, Mahmoud Torabinjad. Saunders company Co. (latest edition)

Textbook of Operative Dentistry by Marzouk et al.

Fundamentals of fixed prosthodontics by Schillinberg HT, Jacobi R,Hobo S and Brackett S. ,Inc (latest edition)

BOOKS / TEACHING & LEARNING AIDS FOR PEDODONTICS:

Blinkhorn AS & Mackie IC Practical Treatment for the Paedodontic Patient Quintessence Publishing Co Inc

Curzon MEJ, Duggal MS, Fayle SA, Koch G, Robertson AJ & Toynba KJ Restorative Techniques in Paediatric Dentistry: An Illustrated Guide to the Restoration of Carious Primary Teeth Taylor & Francis.

Deery C, Hosey TM & Waterhouse P Paediatric Cariology Quintessence Publishing Co Inc

MacDonald RE, Avery DR & Dean JA (2004) Dentistry for the Child and Adolescent, 8th edition Mosby

Malamed SF (2004) Handbook of Local Anesthesia 5th edition Mosby.

Malamed SF (2004) Malamed's Local Anesthesia Administration DVD Mosby

Pinkham JR, Casarnassimo PS, Fields HW, McTigue DJ & Nowak A (2005) Pediatric Dentistry: Infancy Through Adolescence 4th edition Mosby.

Roberts G & Scheer B (2006) Oral and Dental Trauma in Children and Adolescents 2nd edition Oxford University Press

Scully C, Welbury R, Flaitz C & de Almeida OP Colour Atlas of Orofacial Health and disease in Children and Diagnosis and Management 2nd edition, Taylor & Francis, A Martin Dunitz Book.

Hosey MT & Chadwick BL. QuintEssentials 9—Child Taming: How to Manage Children in Dental Practice Quintessence Publishing Co Inc

Welbury RR, Duggal MS & Hosey MT (eds)(2005) Paediatric Dentistry 3rd edition Oxford University Press.

SYLLABUS / COURSE DETAILS FOR:

ORAL & MAXILLOFACIAL SURGERY:

Introduction:

The branch of dentistry that deals with the diagnosis and treatment of dental and oromaxillofacial injury, deformity, and disease by manual and instrumental means. A surgical operation or procedure, especially one involving the removal or replacement of a diseased tooth / teeth or orofacial tissue is involved.

| Course Description / Objectives | Suggested Lecture Hours |
|--|--------------------------------|
| Introduction to Oral Surgery Definition, Scope, Aims & Objectives of the | 2 |

| | |
|---|---|
| Clerking & Consent History taking, Examination, Investigations, Role of Consent. | 3 |
| Instrumentation Type & Uses of Instruments | 3 |
| Prescribing in Oral Surgery Use & Application of Drug s including Analgesics, Antibiotics etc. Drugs Interaction, Special Group | 4 |
| Routine Investigations Interpretation of Routine of Haematological, Chemical and Radiological Investigations | 3 |
| Principles of Surgery Incisions, Flaps, Sutures, Biopsy, MOS Techniques and Bone Cutting & Removal. | 5 |
| Extraction of Teeth Indications, Individual Teeth Instrumentation, Positioning & Techniques, Steps of Extraction, Post-operative Instructions and Complications of Extraction. | 7 |
| Surgical Extractions Indications, Techniques, Assessment, Flap Design, Bone Removal, Tooth Sectioning, Wound Closure, Post-operative Instructions and Complications. Impacted Teeth Definition, Etiology, Classification, Indications, Assessment, Flap Design, Bone Removal, Sectioning, Wound Closure, Post-Operative Care and Complications | 5 |
| Surgical Endodontics Indications, Assessment, Flap Design, Technique Wound Closure, Post-Operative Instructions and Complications. | 3 |
| Medically Compromised Patients Management of Oral Surgery in cases with Bleeding Disorders, Immunocompromised, Ischemic & Congenital Heart Diseases, Deficiency States, Endocrinal & Respiratory Disorders, Bone Disorders, Liver Disease and Malignancy | 4 |
| Dento-alveolar Injuries Classification, Etiology, Management | 4 |
| Minor Oral Surgery Procedures Biopsy, Frenectomy Labial & Lingual, Alveolectomy & Alveoloplasty, Cryosurgery, Laser Excisions. | 5 |
| Local Anesthesia Definition, Types, Classification, | 4 |

| | |
|--|---|
| Application, Techniques and Complications. | |
| Sedation Techniques Agents, Uses, Complications. | 4 |
| General Anesthesia Definition, Classification, Types, Indications, Stages of Anesthesia, Monitoring, Intubation & Pre-Anesthetic Evaluation, Pre-medication and Complications | 4 |
| Emergency In Dental Office Chest Pain, Fainting, Inhalation, Respiratory Embarrassment | 4 |
| Pain Control Methods of Pain Control Including Analgesics, Pain Control in Neuralgias. | 4 |
| Dento-Facial Pain Pain Arising from Teeth, Periodontium, TM Joint, Salivary Glands, Mucosa, Muscles, Maxillary Sinus, Vascular, Neurological and Psychogenic. Their Management | 4 |
| Oro-dental Infections Etiology, Spread of Infection, Facial Spaces, Clinical Features, Diagnosis, Management and Complications. | 4 |
| Cysts Definition, Classification, Clinical Features, Diagnosis, Management & Complications. | 4 |
| Odontogenic Tumours Definition, Classification, Clinical Features, Diagnosis, Management & Complications. | 4 |
| Bone & Fibro-osseous Lesions Osteopetrosis, Paget's Disease, Hyperparathyroidism, Rickets, Fibrous Dysplasia. | 4 |
| Pre-prosthetic Surgery Ridge Reduction & Augmentation, Sulcus Deepening Procedures etc | 4 |
| Maxillary Sinus Disorders Definition, Classification, Clinical Features, Diagnosis, Management & Complications | 4 |
| Dental Implants Introduction, Indication, Types, Procedures and Complications. | 4 |

ELECTIVE & SELECTIVE PROJECTS:

The aim of these projects is to encourage students to acquire problem solving skills, attain critical thinking attitude and to understand the importance of research and presentation and communication skills.

Timing in curriculum: 4th & 5th Year BDS

A. ELECTIVE PROJECTS:

In Elective studies, students gain useful educational experience outside the confines of the formal curriculum by participation in research projects under supervision or in elective programmes outside the school environment. It is desirable, though not essential, for dental students to visit other dental schools or dental clinical centres, during the period of clinical study. The main objective is to broaden the undergraduates' education by exploring the dental problems and dental management systems in another context. Elective visits are to be arranged around a project consisting of either audit or research, and the results presented on return by students in written form or verbally before an audience. Elective projects are carried out during the vacations breaks or as is convenient. Each student or a group of students will elect to carry out any posting or project / activity of choice to broaden their experience. This is preferably to be carried outside the dental hospital / college within the country or even overseas.

Objectives :

Knowledge

Depending on topic of choice (may not necessary be dentistry related).

Presentation skills.

Skills

This is dependent on selected activity.

Able to make an oral presentation using PowerPoint

Attitude

Confident to present in front of an audience.

Mode of Delivery

The contact hours are different for individual elective projects as each will take its own form of activity. There is no rules regarding the minimum and maximum contact hours required.

Methods of Assessment

A Written Report of the project will be submitted by the student / group of students. There is no formal assessment of the Elective project but a day will be dedicated for students to present their experience to the whole class (session may be opened to other students / staff).

B. SELECTIVE PROJECTS:

Timing in curriculum: 4th & 5th Year BDS

In this a student or group of few students will investigate / explore, in greater depth, a problem / question / topic.

Objectives:

Knowledge:

More in depth knowledge of the selected topic of study.

Skills:

Students learns how to carry out a thorough literature search / review,

Compile a writing / essay / paper and give an oral presentation.

Attitude

Generally students are exposed to patients so that they are able to empathise with patients,

to avoid prejudice against certain patients e.g. patients with ADIS by doing interview with these patients and their family members. Students are encouraged to develop team spirit by working on group projects and presentations

Mode of Delivery

The contact hours are different for individual selective as each has its own structure and method of delivery. There is no rule regarding the minimum and maximum contact hours required. The course may consist of one or more of these methods: lectures, workshop, practical, project and /or site / field visits. As individual selective would have its own structure, it would vary in the number of contact hours.

Methods of Assessment

Evaluation of a written report / paper and its presentation to the class. A certificate of completion will be awarded to student / students based on the quality of presentation and work carried out.

SYLLABUS / COURSE DETAILS FOR:

5th YEAR BDS SUBJECTS: COMPREHENSIVE DENTAL CARE

Total Contact Hours: 1250 Hours

Comprehensive Dental Care (CDC):

It pertains to the coordinated delivery of the total dental care (Integrated total patient care for elderly, adults, adolescent and children including those with disabilities) patients. Students are motivated, directed, guided and exposed to patients dental treatment activities by planning and preferably completing full courses of care for each patient in the relevant department in which they will be attached during their rotation period. Patients will receive, under the supervision of his / her tutor / supervisor, from the trainee student most or all of his comprehensive dental care. The student will also be responsible for coordinating any specialist work that may be necessary. In this way, the CDC strategy in 5th year will be simulating general dental practice. Student in a concerned department / discipline will be working on a full-time basis with diagnosis and treatment planning and treatment sessions and group discussions and review meetings with the supervisor. Students will be, also exposed to the management activities of children and special patients of all categories including elderly, those with physical disability, medical conditions and learning disability.

To make them familiar with real environment of general dental practice, students will be introduced to the roles and responsibilities of the dentist and safe practice in the dental clinic. Training shall also include interpretation of oral radiology and detection of caries and periodontal disease from radiographs. Knowledge of dental materials and techniques utilized in restoring carious and defective primary & permanent teeth and in fabricating dentures and other indirect restorations, moisture control, endodontic therapy, management of periodontal diseases and fabrication of partial and complete dentures shall also be advanced. Common aesthetic problems and their management, basic principles of surgery and exodontias and an introduction to the management of the child patient are also included. Students will also gain more advanced knowledge and skills in the comprehensive dental care of patients. In addition, students will learn how and when to integrate knowledge and skills derived from behavioural science, communication skills and professional and personal development in the provision of

dental care.

Objectives:

Knowledge shall be further improved regarding the following:

Role, responsibilities and activities of a dentist in the provision of healthcare to the community

Inter-professional relationships that exist in provision of the oral care.

Responsibilities of consent, duty of care and confidentiality

Patients' rights.

Regulatory function of the Pakistan Medical & Dental Council

Philosophy underpinning the prevention and treatment of oral diseases

Basic clinical activities, procedures and regulations of the dental clinic

Risks and hazards to health of dentists and oral care team

Infection control procedures and concepts of universal precautions

Emergencies in dental practice

Case notes and record keeping

Underlying principles of dental radiography

Hazards of ionizing radiation and safety regulations

Indications and techniques of intra oral and extra oral dental radiographic views

Interpretation of radiographs and report writing

Other imaging techniques

Detection and diagnosis of the carious lesion

Detection and diagnosis of periodontal diseases

Practice of close-support dentistry

Concepts of minimal intervention and tests for caries risk assessment

Management strategies for early carious lesions

Wear of the dentition

Scientific concepts and principles related to Dental Material Science

Properties and handling characteristics of dental restorative materials

Properties and handling characteristics of materials used in the fabrication of dentures

Selection of appropriate material and technique for

restoration of small and medium sized tooth lesions / defects

Methods of assessing quality of restorations

Aetiology, diagnosis and management of secondary caries

Prevention of periodontal diseases

Non-surgical management of periodontal diseases

Causes and sequelae of tooth loss

Principles governing the replacement of missing teeth and oral structures

Anatomy of denture bearing area

Principles of occlusion

Materials and technology involved in the fabrication of full denture.

Denture duplication and repair

Properties and handling of investment materials, alloys, ceramics

Indirect restorations – resin-based, ceramic and metal alloys

Maintenance of restorations

Factors influencing repair or replacement of existing restorations

Restoration of the primary dentition

Isolation and moisture control

Principles, clinical investigations and techniques of vital pulp therapy of primary and permanent dentition

Principles, clinical investigations and techniques of root canal therapy of primary and permanent dentition

Clinical features of periodontal diseases

Indices used in measuring periodontal disease

Principles and procedures in non-surgical treatment of periodontal disease

Principles and procedures in surgical treatment of periodontal disease

Designing partial dentures

Fabrication of partial dentures

Principles of dental aesthetics

Causes and management of aesthetic problems

Bleaching of teeth

Direct and indirect veneer restorations

Indications and techniques for tooth extraction and management of common complications

Principles of surgery and basic surgical techniques including the removal of impacted teeth

Dental management of medically compromised patients

Gingival and periodontal diseases in children

Caries pattern in children

Problems in tooth eruption and exfoliation

Child management in the dental setting

Diet counselling for children

Fluoride therapy and fissure sealing for children

Development of occlusion and space management

Role of clinical photography to patient management and the associated consent issues

The difference between ethics and jurisprudence

Ethics of treating patients with debilitating disease and carriers of infectious disease

Adverse events in the dental clinic and processes of litigation

Essential business principles of Dental Practice

Dental practice management

Building practice relationships with the patient

Aspects of dental team building

Integrated dental treatment planning

Technical aspects related to simple and more advanced restorative techniques

The diagnosis and management of simple periodontal cases and patients presenting soft tissue lesions

The diagnosis and management of simple prosthodontic cases

The diagnosis and management of simple orthodontic cases

The scientific basis for common preventive protocols

The scientific basis for dental materials applications in tooth restorations

Skills relating to the following shall be further improved:

Professional and safe conduct in the dental clinic.

Familiar with procedures and processes of the dental clinic

History taking

Extra oral and intraoral examination of the oral cavity

Correct handling of basic clinical instruments

Familiar with X-ray facilities of dental clinic, selection of required accessories and setting of exposure factors

Familiar with intraoral, panoramic and cephalometric radiographic techniques

Differentiate between sound and carious teeth

Differentiate the clinical appearance sound and diseased periodontal tissues

Technical skills in the handling of filling materials.

Explaining the significance of the major components in the composition and properties of dental materials used for restoring tooth structure or for fabrication of dentures.

Technical skills in the restoration of small and medium sized carious lesions.

Technical skills in the conservative treatment of root caries and tooth defects caused by abrasion/erosion/abfraction with glass ionomer cement, composite resin and amalgam

Master technical skills in the restoration of angle fracture of teeth.

Technical skills in the fabrication of full denture denture and denture repair.

Recognition the ideal arrangement, alignment and occlusal relationships of teeth and their roles in function and aesthetics

Recognition of wear of the dentition and tooth defects.

Ability to provide individualized oral hygiene instructions

Clinical skills in oral prophylaxis and caries risk assessment.

Explaining factors that contribute to long term success of restorations and dental prostheses.

Explaining reasons for failure of restorations and denture prostheses and understand the remedial actions to be taken.

Isolating teeth with rubber dam

Technical skills in the restoration of medium-sized to large restorations with indirect restorations – resin, ceramic and cast restorations

Technical skills in the restoration of primary teeth with amalgam and tooth-coloured materials

Technical skills in root canal therapy

Clinical skills in examining and diagnosing active caries, planning and delivery of appropriate non-invasive and restorative care

Clinical skills in examining and diagnosing periodontal disease and appropriate treatment planning

Technical skills in the fabrication of partial dentures

Clinical skills in the non-surgical management of periodontal disease.

Clinical skills in the treatment of children

Maintaining full dental records

Treatment planning

Diagnosis of incipient, active and arrested caries

Clinical treatment of carious lesions using a variety of restorative materials

Infection control protocol maintenance

Identification and removal of calculus and tooth stains

All phases of removable denture case management

All phases of orthodontic case management

Attitude

Appreciate the importance of professional behaviour and safety precautions in the dental clinic

Appreciate the dynamics of patient/dentist relationship

Appreciate the importance of practising universal precautions in the delivery of dental care

Appreciate the collaborative teamwork of dental team and the implications of behaviour in the delivery of oral health care

Punctually, dress code, initiative, self-directed learning

Cooperative team work

Appreciate the importance of proper isolation and moisture control for the successful outcome of restorative dental care.

Use cooperative learning and self-reflection to improve performance.

Work effectively as a team member

Appreciate the psychological impact of dental aesthetics on patients well-being.

Increasing professionalism in relation to execution of clinical work

Increasing professionalism in relation to clinic staff and other members of the oral health team

Increasing professionalism in relation to patients

Increasing ability to interact with patients and deal with patient concerns

The student is required to do comprehensive dental treatment but each student must cover the prescribed Lectures and Clinical Hours as described below:

| <i>Teaching Course Contents Distribution</i> | <i>Suggested Lecture Hours</i> |
|---|---------------------------------------|
| Prosthodontics : Lectures, Tutorials, Group discussion | 30 |
| Operative Dentistry including Pedodontics : | 30 |

| | |
|--|----|
| Lectures, Tutorials, Group discussion | |
| Oral and Maxillofacial Surgery: Lectures, Tutorials, Group discussion | 30 |
| Orthodontics: Lectures, Tutorials, Group discussion | 30 |
| Periodontology: Lectures, Tutorials, Group discussion | 10 |
| Oral Medicine and Oral Diagnosis: Lectures, Tutorials, Group discussion | 10 |
| Special Care Dentistry: Lectures, Tutorials, Group discussion | 10 |

| <i>Clinical Practical Work Contents Distribution</i> | <i>Suggested Lecture Hours</i> |
|---|---------------------------------------|
| Prosthodontics | 220 |
| Operative Dentistry including Pedodontics | 220 |
| Oral and Maxillofacial Surgery | 220 |
| Orthodontics | 220 |
| Periodontology | 75 |
| Oral Medicine and Oral Diagnosis | 75 |
| Special Care Dentistry | 75 |

Specialty Related Clinical Assignments:

| Description of Clinical Assignments | Minimum Clinical Quota / No. of Cases |
|---|--|
| Prosthodontics clinical assignments: Records of patients treated with Removable Partial dentures (RPDS). Records of patients treated with Crowns & Bridges / Fixed partial dentures (FPDs). Records of patients treated with Complete Dentures (CDs). | 06 06 06 |
| Operative Dentistry Including Pedodontics clinical assignments: Records of patients treated with simple fillings Records of patients treated with root canal therapy Records of children treated with various conservative dental and surgical treatments | 30 10 05 |
| <u>Oral and Maxillofacial Surgery clinical assignments:</u> <u>Records of simple exodontia work performed for patients.</u> <u>Records of impacted teeth surgical removal.</u> <u>Records with treatment for fractured</u> | 50 15 01 05 |

| | |
|---|----------|
| <u>mandible (IMF)</u> <u>Records with treatments including frenectomy, operculectomy, tongue tie, alveolectomy, alveoplasty, dry socket,</u> | |
| Orthodontics clinical assignments: Records of Treatment planning for orthodontic patients | 06 |
| Periodontology clinical assignments: Records of patients treated with non-surgical periodontal therapeutic approaches. Records of patients treated with surgical periodontal therapeutic approaches. | 10 02 |
| Oral Medicine / Oral Diagnosis & Oral Radiology clinical assignments: Records of planning & Treatment of patients presenting various clinical conditions related to the specialty | 10 |
| Special Care Dentistry clinical assignments *: Dental treatment records of special patients. | 12 |

- There will be no separate university examination in the discipline of “Special Care Dentistry (SDS) and the electives and selective projects. The relevant clinical quota for the treatment of special patients will be carried out in the major clinical dental departments during rotation.

The 5th year CDC training of each student shall be assessed and examined by the university. This shall comprise of both Written / Theory and Practical & Clinical Examination and shall be done either at the end of the term or end of the year. The Theory examination shall comprise of a written paper of 100 marks with 30 Marks for MCQs and 70 for SEQs (Problem solving & Interpretation skills assessment). The distribution of the 100 marks for the Clinical and Practical Examination will be; 70 marks for OSCE and 30 marks for Internal Assessment (based on consideration of of; quality of completed clinical quota, behaviours and ethics and morality including regularity & punctuality, patients management & care, and professional inter-relationships). The examination subjects shall include the following disciplines; Prosthodontics.

Operative Dentistry including Pedodontics.

Orthodontics.

Oral & Maxillofacial Surgery.

Oral Medicine / Oral Diagnosis / Oral Radiology.

Periodontology.

Note: There will be no separate university examination in the discipline of “Special Care Dentistry (SDS) as mentioned in the syllabus of 5th year BDS. The relevant clinical quota for the treatment of special patients will be carried out in the major clinical dental departments during rotation. This shall comprise of treating at least 2 special patients in each of the major clinical departments of dentistry (Prosthodontics, Operative Dentistry including Pedodontics, Orthodontics, Oral & Maxillofacial Surgery, Periodontology and Oral Medicine/Oral Diagnosis / Oral

Radiology. Similarly, there will be no separate university examination in the the electives and selective projects (mentioned below) as performed by students.

ELECTIVE & SELECTIVE PROJECTS:

Details of these given in the Syllabii and courses for Fourth Year BDS.

Suggested Teaching, Reading & Learning Material for 5th Year BDS Studies:

Main References:

Albrektsson TO, Bratthall D, Glantz POJ & Lindhe JT. Tissue Preservation in Caries Treatment Quintessence Publishing Co. Inc.

Kidd EAM (2005) Essentials of Dental Caries. The disease and its management, 3rd edition Oxford University Press.

Kidd EAM, Smith BGN & Watson TF (2003) Pickard's Manual of Operative Dentistry 8th edition Oxford University Press.

Summit JB, Robbins JW., Hilton TJ & Schwartz RS. Fundamentals of Operative Dentistry – A Contemporary Approach, 3rd edition, Quintessence Publishing Co. Inc.

McCabe JF, Wells AWG,(1999) Applied Dental Materials. 7th edition, Blackwell Science, Inc.

Welbury RR, Duggal MS & Hosey MT (eds)(2005) Paediatric Dentistry 3rd edition Oxford University Press.

Manogue M, Patel S & Walker RT (2005) The Principles of Endodontics Oxford University Press.

Newman MG, Takei H, Carranza FA Jr & Klokkevold PR (2006) Carranza's Clinical Periodontology. 10th edition, Saunders.

Malamed SF (2004) Malamed's Local Anesthesia Administration DVD Mosby

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Tyson KW, Yemm R & Scott BJJ (2006) Understanding Partial Denture Design University Oxford Press.

Davenport JC, Basker RM, Helath JR, Ralph JP.(1989) Colour Atlas of Removable Partial Dentures, 1st edition, Wolfe Medical Publications.

Mickenautsch S, Yengopal V, Bonecker M, Leal SC,

Bezerra SCB, Oliveira LB (2006) Minimal Intervention (MI)–
A new approach in Dentistry. 1st edition Midentistry Corp.

Croll TP Enamel Microabrasion Quintessence Publishing Co. Inc.

Kidd EAM (2005) Essentials of Dental Caries. The disease
and its management, 3rd edition Oxford University Press.

Baratieri LN Direct Adhesive Restoration on Fractured
Anterior Teeth Quintessence Publishing Co. Inc.

Smith BGN, Howe LC. Planning and Making Crowns and
Bridges. Informa Healthcare 2006.

Gurel G (ed) The Science and Art of Porcelain Laminate
Veneers Quintessence Publishing Co. Inc.

Nanda R (2005) Biomechanics and Esthetic Strategies in
Clinical Orthodontics Saunders

Walton, R.E. & Torabinejad, M (2002) Principles and
Practice of Endodontics. 3rd Ed. Saunders

Newman MG, Takei H, Carranza FA Jr & Klokkevold PR
(2006) Carranza's Clinical Periodontology. 10th edition,
Saunders.

Paravina R & Powers JM (2004) Esthetic Color Training in
Dentistry Mosby

Aschheim KW & Dale BG (2000) Esthetic Dentistry: A
Clinical Approach to Techniques and Materials 2nd edition,
Mosby.

Romano R (ed) The Art of the Smile: Integrating
Prosthodontics, Orthodontics, Periodontics, Dental
Technology, and Plastic Surgery in Esthetic Dental
Treatment Quintessence Publishing Co Inc

Greenwall L Bleaching Techniques in Restorative Dentistry:
an Illustrated Guide Taylor & Francis

Mitchell DA (2005) An Introduction to Oral and Maxillofacial
Surgery Oxford University Press.

Robinson PD (2000) Tooth Extraction: A Practical Guide
Butterworth- Heinemann

Patterson, R.C. and Watts, A. and Saunders, W.P. and Pitts,
N.B Modern Concepts in the Diagnosis and Treatment of

Fissure Caries Quintessence Publishing Co Inc
Summit JB, Robbins JW., Hilton TJ & Schwartz RS.
Fundamentals of Operative Dentistry – A Contemporary
Approach, 3rd edition, Quintessence Publishing Co. Inc.
Dawson PE (2006) Functional Occlusion: From TMJ to Smile
Design Mosby
McCord JF, Smith P & Grey N (2004) Treatment of
Edentulous Patients Churchill Livingstone
Basker RM, Davenport JC. (2002) Prosthetic Treatment of
the Edentulous Patient. 4th edition. Blackwell
Publishing
Holm-Pedersen P & Walls A Textbook on Geriatric Dentistry
2nd edition Blackwell Publishing
Allen PF Quintessentials 7 – Teeth for Life for Older Adults
Quintessence Publishing Co Inc
Bird DL & Robinson DS (2005) Torres and Ehrlich Modern
Dental Assisting. 8th edition, Saunders
D’Cruz L (2006) Legal Aspects of General Dental Practice.
Churchill Livingstone.
Finkbeiner BL & Finkbeiner CA (2005) Practice Management
for the Dental Team. 6th edition, Mosby
Haring JI & Howerton LJ (2005) Dental Radiography:
Principles and Techniques. 3rd edition, Saunders
Scannapieco FA (2005) Periodontics, An Issue of Dental
Clinics, Volume 49-3, Saunders
Adams, C.P. Kerr, W.J. (1995) The Design and Construction
and Use of Removable Orthodontic Appliances. 6th ed.
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Cozzani G Garden Of Orthodontics Quintessence Publishing Co Inc
Heintze SD, Finke C, Jost-Brinkman PG & Miethke RR Oral
Health for the Orthodontic Patient Quintessence Publishing
Co Inc
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Clinical Orthodontics Saunders
Orton HS Functional Appliances in Orthodontic Treatment:

An Atlas of Clinical Prescription and Laboratory Construction
Quintessence Publishing Co Inc
Ireland AJ & McDonald F (2003) The Orthodontic Patient :
Treatment and Biomechanics Oxford University Press.
Drago C (2007). Implant Dentistry : A Step-by-Step Guide
Blackwell Publishing

Additional References

Anusavice KJ (1996) Phillips' Science of Dental Materials.
10th edition, WB Saunders.

Axelsson P An Introduction to Risk Prediction and
Preventive Dentistry Quintessence Publishing Co Inc

Axelsson P Diagnosis and Risk Prediction of Periodontal
Diseases (Volume 3) Quintessence Publishing Co Inc

Axelsson P Diagnosis and Risk: Prediction of Dental Caries
(Volume 2) Quintessence Publishing Co Inc

Axelsson P Preventive Materials, Methods, and Programs,
Vol 4 Quintessence Publishing Co Inc

Bengel W (2006) Mastering Digital Dental Photography
Quintessence Publishing Co Inc

Bergenholtz G, Horsted-bindsiev P & Reit C Textbook of
Endodontology Blackwell Publishing Ltd

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Bucking W (ed) A Dental Treasure Chest: Tips and Tricks
for Daily Practice Quintessence Publishing Co Inc

Maher RM Simple High Tech Case Presentation and
Imaging Quintessence Pub Co

Goldstein MB The Hidden Fracture and Caries
Picture Book Quintessence Pub Co

D'Cruz L (2006) Legal Aspects of General Dental
Practice. Churchill Livingstone.

Burke T & Freeman R (2004) Preparing for Dental
Practice Oxford University Press.

fanac SJ (2006) Treatment Planning in Dentistry, 2nd edition,
Mosby

nkbeiner BL & Finkbeiner CA (2005) Practice Management for the Dental Team. 6th edition, Mosby

ring JI & Howerton LJ (2005) Dental Radiography: Principles and Techniques. 3rd edition, Saunders

y BM & Manson JD (2004) Outline of Periodontics 5th edition Wright

Burt, BA. & Eklund, SA. (2005) Dentistry, Dental Practice & The Community. 6th ed. Saunders,

Chiche GJ & Oshima H Smile Design: A Guide for Clinician, Ceramist, and Patient Quintessence Publishing Co Inc

Chu SJ, Devigus A and Mieleszko, AJ Fundamentals of Color: Shade Matching and Communication in Esthetic Dentistry Quintessence Publishing Co Inc

Cohen S & Hargreaves KM (2005), Pathways of the Pulp, 9th Edition, Mosby

Gross, Martin D. (1992) Occlusion in Restorative Dentistry: Technique & Theory. Churchill Livingstone

Gutmann J.L., Dumsha T.C., Lardahl P.E. Hovland E.J.,(1997) Problem Solving in Endodontics – Prevention, Identification and Management, 3rd , ed. Mosby

Kay EJ, Shearer AC, Bridgman AM & Humphris GM (2005) Integrated Dental Treatment Planning: A Case-Based Approach Oxford University Press.

Levoy B (2004) 201 Secrets of a High-Performance Dental Practice Mosby

Lynch E Ozone: The Revolution in Dentistry Quintessence Publishing Co Ltd

Mitchell DA & Mitchell L (2004) Oxford Handbook of Clinical Dentistry Oxford University Press

Morris RB Strategies in Dental Diagnosis and Treatment Planning Taylor & Francis

Nesbit SP & Stefanac SJ (2006) Treatment Planning in Dentistry 2nd edition Mosby

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edition Churchill Livingstone

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5th edition, Butterworth-Heinemann.

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Dental Materials 12th edition Mosby

Ratcliff S Digital Dental Photography - A Clinician's Guide
Quintessence Publishing Co Inc

Roberson T, Heymann HO & Swift EJ (2006) Sturdevant's
Art and Science of Operative Dentistry 5th edition Mosby

Roulet JF and Vanherle G (eds) Adhesive Technology for
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