

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

**(Revised 2011)**



**HIGHER EDUCATION COMMISSION**  
**ISLAMABAD, PAKISTAN**

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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).

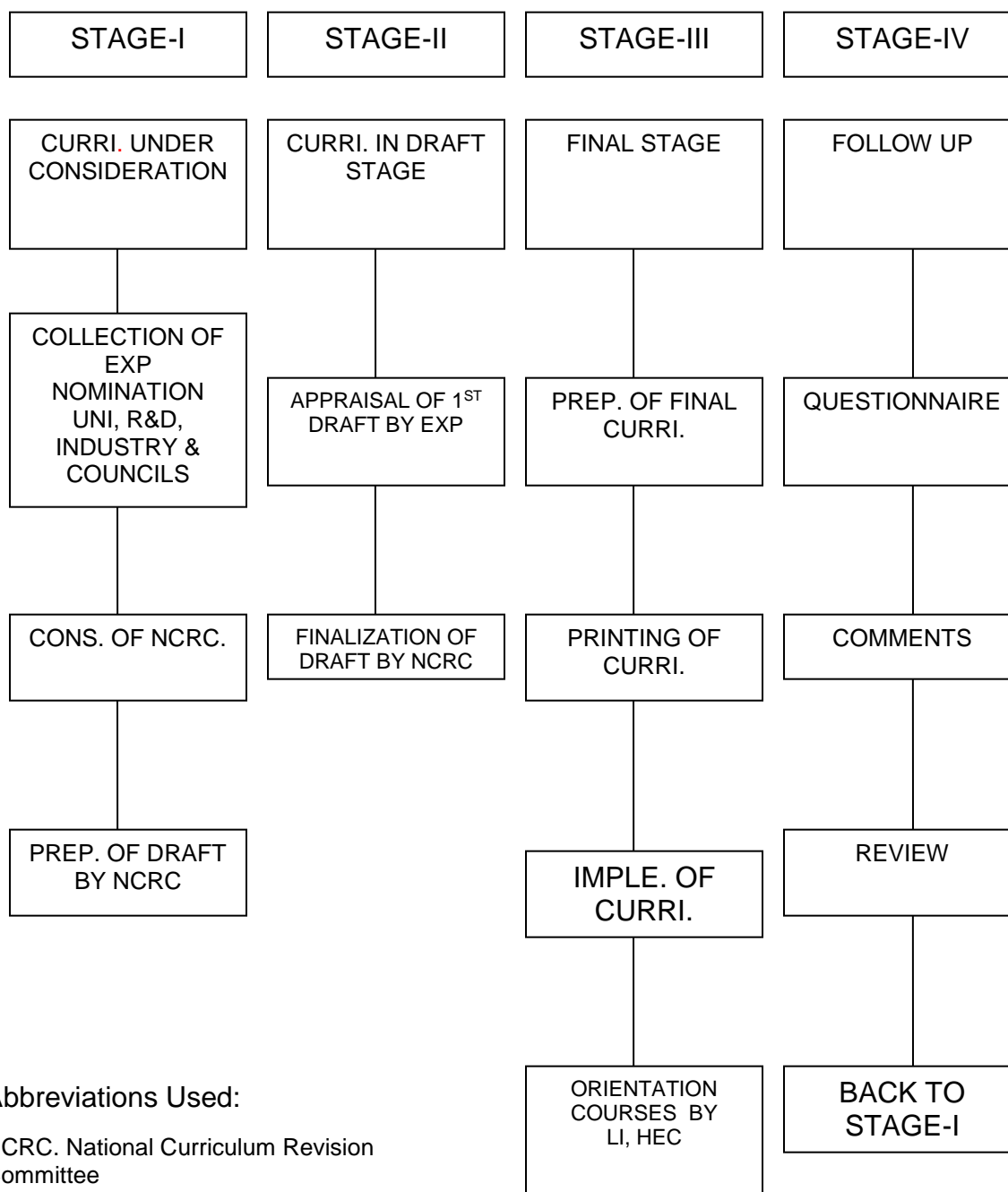
To bring international compatibility to qualifications held from Pakistani universities/DAIs for promotion of students mobility and job seekers around the globe, a Committee comprising of Conveners of the National Curriculum Revision Committee of HEC met in 2009 and developed a unified template for standardized 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**  
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**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 4<sup>th</sup> year BDS and completed before the end of the 5<sup>th</sup> 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 5<sup>th</sup> 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 becomes 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 1<sup>st</sup> & 2<sup>nd</sup> 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 3<sup>rd</sup> 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 4<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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;

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 4<sup>th</sup> and 5<sup>th</sup> year BDS. In the 5<sup>th</sup> 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**

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

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

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

anatomy and clinical aspects of the organs of the head and neck: <b>eye, ear, nose, larynx, pharynx, trachea, and esophagus.</b>	
Mark <b>surface anatomical landmarks</b> of head and neck region.	
<b>BRAIN</b>	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 <sup>rd</sup> and 4 <sup>th</sup> 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)	
<b>Embryology</b>	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>	
<b>Histology</b>	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**

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:**