

## 1<sup>ST</sup> YEAR BDS SUBJECTS

### 1. Anatomy

The subject of Anatomy is taught to first year BDS class of Avicenna dental college. The program of the institution is to provide a detailed anatomical study of gross head and neck with special reference to Maxillo facial region. Neuroanatomy is also taught. Stress is laid on the clinical aspects of both regions. Development of head and neck, both general and special embryology is also a part of the syllabus. BDS students are given a related General and special histology knowledge according to the syllabus.

### 2. Biochemistry

The subject of Biochemistry is taught to the undergraduate BDS students in first academic year in keeping with the curriculum guidelines provided by the University of Health Sciences and Pakistan Medical & Dental Council. Being fundamental medical and dental science subject, the Biochemistry bridges the gap between basic and clinical sciences. It is the science concerned with the biochemical basis of life. It deals with the structure, properties and chemical reactions of biomolecules that are present in a living system. It integrates knowledge of the biochemical processes in living cells with strategies to maintain health, understand disease, identify potential therapies, and enhance our understanding of the origins of life on earth. The taught program covers all normal biochemical processes taking place in human body at the cellular and sub cellular levels, the biochemical and genetic basis of a spectrum of dental diseases that lead to the development of clinical features and laboratory diagnosis. The biochemistry department is equipped with the latest, state of the art laboratory where the students are introduced to a variety of biochemical techniques which are routinely used to carry out the diagnosis of various diseases.

### 3. Physiology

The Subject of Physiology is taught to the Undergraduate BDS students in first year of their Program as per Syllabus laid down by Pakistan Medical & Dental Council & University of Health Sciences Lahore. Human Physiology seeks to understand the mechanism that work to keep the human body alive and functioning through scientific inquiry into the nature of mechanical, physical and biochemical functions of humans, their organs and the cells of which they are composed. The principal level of focus of Physiology is at the level of organs and systems within systems. It describes the chemistry and physics behind basic body functions, from how molecules behave in cells to how systems of organs work together. We offer comprehensive information on human physiology, tailored to

the needs of students of dentistry, to help them gain a deeper understanding of how physiological concepts apply to clinical dental practice. Department of Physiology is fully equipped with Compound binocular, Penta head, Teaching and Projection microscopes. It is provided with state of art Centrifuge machines, Hemocytometer, Hemoglobinometer, ESR apparatus, a Cardiorespiratory portion is equipped with Spirometer, Stethographs, Peak Expiratory Flow meter, ECG machines, Sphygmomanometers. The lab is also fully equipped with Apparatus to test Nervous System and Special senses.

#### 4. Oral Biology

##### Introduction to Oral Biology

Oral Biology is a graduate program in basic sciences, integrated with the curriculum of First Professional BDS. It is that area of knowledge that deals with the structure, development, and function of the oral tissues; their interrelationships; and their relation to other organ systems in both health and disease. The program is planned to deliver training into laboratory skills as well, such as those required for preparation of histological slide sections and carving of teeth on wax blocks. At the end of the program the student has knowledge of the structures of orofacial region, is capable of identifying the structures of this region histologically as well as successfully replicating the adult human dentition.

## 2<sup>nd</sup> Year BDS

### 1. Pharmacology

Pharmacology is taught to the BDS students in 2<sup>nd</sup> year of their undergraduate studies. In addition to the study of general principle of pharmacology, they also study pharmacokinetics and pharmacodynamics of various drug groups. By the time they complete their course, they have a good command on the mechanism of drug action, therapeutic uses, adverse drug reactions and possible drug interactions of drugs used in clinical practice with special emphasis on chemotherapy, analgesics, anesthetics and drugs acting on central nervous system.

### 2. Pathology

The subject of Pathology is taught to undergraduate BDS student as per curriculum of Pakistan Medical & Dental Council and University of Health Sciences. It is considered as basic science subject which bridges the gap between science and medicine. Pathology is taught at two levels as General pathology and Oral Pathology.

In 2<sup>rd</sup> year General pathology is taught in which students are made to understand mechanism of cellular injuries to cells and body tissue, as well body means of responding to and repairing injuries. Areas of study include Cell injury, Inflammation & Repair, Necrosis, Neoplasia. In addition to that basic concept of pathogenic bacteria, viruses, parasites and fungi is given regarding their morphology, pathogenesis, disease produced and laboratory isolation and identification. Special emphasis is given to microorganism related to oral pathology. Introduction of Genetic and immunology is also given.

Oral pathology is taught in 3<sup>rd</sup> BDS course. It specifically covers diseases related to bones, teeth, soft tissues of oral cavity and related bones. Students are given complete knowledge of pathogenesis, etiology and the diagnostic methodologies of related diseases. Students are also encouraged to participate in clinicopathological meeting which are held regularly.

### 3. Dental Materials

#### Introduction to Dental Materials

Science of Dental Materials is an applied basic science subject being taught in second year of BDS. The subject pertains to the study of mechanical, physical, biological and chemical properties of materials used in dentistry. It solemnly

emphasizes in study of materials in association with both clinical and non-clinical aspects. The objective of teaching is, to provide the scientific background and the practical skills, required by students to make the best use of, novel and available materials.

#### **4. Community Dentistry**

Community/Preventive dentistry is the dynamic field of dentistry which provides basic & advanced health knowledge to an individual and group of people, about prevention of oral/dental diseases & awareness of oral hygiene in any population. This department is dedicated to address many of the society's most pressing oral healthcare challenges by integrating oral health education, prevention and primary clinical care through students, teaching and training. This department serves the community through community outreach programs.

Community Dentistry is a basic science subject taught in the Second Professional year of BDS. It is a non-clinical subject that deals with the prevention of oral diseases and promotion of oral health. The main purpose of the subject is to achieve good oral hygiene & to spread health awareness in the public through organized community efforts. The curriculum provides the student with a broad range of knowledge and practical experience in the philosophy and basis of dental public health, primary health care approach, an introduction to epidemiology of oral diseases as it relates to dental research, biostatistics and oral health services.

#### **5. Behavioral Science**

It is a branch of social science that derives its concept from observation of behaviour of living organisms. Broadly defined, it is the study of human habits, actions, and intentions. It has three main domains i.e. psychology, sociology, and medical anthropology. By combining the knowledge of all these domains with strong observation, research, and communication skills, a behavioural scientist works with communities and individuals examining behavior and decision making.

The relevance of Behavioural Sciences to medicine is demonstrated in aetiology; in the presentation of illnesses; in the delivery of health care; and in aspects of psychological and social treatment. Both psychological and social factors are relevant in causing illness. Behavioural and social aspects are particularly important in the way health care is given to a community.

World Health Organization defines health as “A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. For more than a decade it has been well established that approx. half of causes of mortality and morbidity in world are linked to behavioural and social factors. Medicine now faces complex societal problems like addiction, obesity, violence, and end-of-life care which require behavioral and social science research and interventions.

### **OBJECTIVES OF TEACHING BEHAVIOURAL SCIENCES**

The department of Behavioural Sciences in Avicenna Medical and Dental college is equipped with specialist faculty and the subject is being taught in first two years of BDS curriculum during lectures and clinical rotations. The main objectives of teaching are:

- Doctors must be equipped with knowledge and skills from behavioural sciences needed to recognize, understand, and effectively respond to patients as individuals, not just to their symptoms to make measurable improvements in healthcare of people.
- Medical students with education in behavioural sciences can be better equipped to recognize patients’ risky behaviour and foster changes in their behaviour through appropriate interventions.
- To look into changes in community patterns of diseases
- Psychological knowledge can be valuable in developing the effectiveness of the student’s and doctor's own cognitive processes.
- Communication skills assist doctors in building therapeutic relationship with their patients.
- They can improve their ability to relate to their colleagues and other professionals.
- They can recognize their personal and social biases and perceptions to best serve the needs of their patients.
- Doctors wanting to influence patient’s behaviour must also be aware of their patient’s social context.
- Teaching medical students how to care for themselves, function in a team, use ethical judgment and understand the usefulness of community resources can improve their job satisfaction and prevent burnout when they enter practice.

## 3<sup>rd</sup> Year BDS

### 1. Medicine

Medicine which is a main course subject in MBBS but it is also as important subject in BDS also. It is started in 3<sup>rd</sup> year BDS for one year with final exam. In which students are taught relevant portion of clinical medicine regarding dentistry point of view and they are enabled to diagnose and treat the diseases along with skilled practical knowledge.

### 2. Surgery

Surgery is taught in 3<sup>rd</sup> year of BDS training course. Students are introduced to basic concepts of General Surgery in class tutorials with more focus on Head and Neck Surgery. They also have a clinical rotation in surgical department where they learn about approach to surgical patients, clinical evaluation, requesting and interpreting appropriate investigations to reach a diagnosis. They also visit surgical clinics and learn about management of various surgical diseases.

### 3. Oral Medicine

Oral Medicine is the subject taught in 3<sup>rd</sup> year BDS. Our aim is to expand the knowledge and the exposure of our students to the field of Oral Medicine to diagnose the disease through history, clinical examination and its medical management. Students learn this process through lectures, clinical demonstrations and by performing clinical examination of patients under direct supervision. They have a clinical quota assigned by the university that they have to complete, and they are assessed on the basis of their attendance, performance in tests and clinical quota along with their professional examination.

### 4. Oral Pathology

The subject of Oral Pathology is taught in the 3<sup>rd</sup> year of undergraduate BDS as per the curriculum laid down by the Pakistan Medical & Dental Council and the University of Health Sciences. It is a basic science subject which bridges the gap between basic and clinical sciences. It covers diseases affecting the hard tissues (teeth and bones) and soft tissues (mucosa, skin, muscles and nerves etc) occurring in the head and neck region. In addition, all those systemic diseases which affect the oral cavity are taught. The taught program covers etiological factors involved in pathological processes taking place at the cellular and sub-cellular levels, radiological features, clinical features, histopathological features and their management approaches. In the practical component, students are

introduced to basic laboratory procedures that are employed to carry out diagnosis of diseases of the head and neck region which includes staining and study of cellular responses in disease under light microscopy. Also, the students are exposed to clinical presentations of such diseases to enable them to identify and investigate pathological processes as future dentists.

## 5. Periodontology

Periodontology is an undergraduate program in pre-clinical sciences integrated with the curriculum of the third year BDS. It comprises of theoretical and practical (clinical skills) comprehension and implementation for the undergraduates to get a complete understanding of the periodontium, its anatomy, diseases that afflict these structures, surgical and non-surgical intervention required in specific periodontal diseases.

The Bachelor of Dental Surgery (BDS) undergraduate periodontology curriculum is concerned with the complete understanding of periodontology in both physiologic and pathologic states and making the undergraduates capable of understanding the etiology of disease as well as being able to perform clinical techniques for removing the etiological factors through manual scaling in the hospital setting.

## 4<sup>th</sup> Year BDS

### 1. Prosthodontics

Prosthodontics is branch of dentistry that is concerned with patient rehabilitation, ranging from loss of a single tooth to the replacement of complex maxillofacial structures. The educational role of our department is to provide didactic pre-clinical teaching & training of 2<sup>nd</sup> year BDS & clinical/laboratory training to 3<sup>rd</sup> and 4<sup>th</sup> year of BDS in removable prosthodontics for the diagnosis, treatment planning & management of dental patients with problems related to missing teeth & oral structures

Our aim is to provide students with an environment of learning that will enable them to face challenges of the future and emerge as a leader in the field of prosthodontics

### 2. Operative Dentistry

#### Definition

It is the branch of dentistry that deals with the restoration of the parts of the teeth that are defective as a result of disease, trauma or abnormal to a state of normal function, health and esthetics.

## **Curriculum**

According to the rules of PMDC the BDS is a Four-year program. Operative dentistry usually started from the second year the following is the syllabus that shows the per year training.

### **Second Year BDS**

In this year students practice the all cavities on the plaster model. Five cavities are designed under supervision and students are evaluated on these models.

### **Third Year BDS**

After being mastered on plaster models the students are then allowed to practice the cavity design on the Phantom (i-e models with head simulation) so that they have an idea how to work in oral cavity.

### **Fourth Year BDS**

In the final year BDS the students first diagnose the case and then they design the cavities on the patients because they are already mastered on the models.

### **Importance in Dental Practice**

As most of the people are concerned about the esthetics these days. Operative dentistry mainly covers the most of the important daily practice procedures. Hence, it is considered as the backbone of the dentistry.

## **3. Orthodontics**

Orthodontics is a dental specialty that is taught to the students of final year. Orthodontics deals with diagnosis, interception and treatment of various kinds of dental malocclusions and facial deformities.

It is a major examinable subject of final year. Students will be attending clinic of orthodontics to learn diagnosis, interpretation of diagnostic records, and removable appliances and their usage during clinical rotations.

In terms of class room teaching, our goal is to provide an in-depth education on growth of face, development of dentition and occlusion, diagnosis, interception and treatment of orthodontic anomalies along with biological and biomechanical principles related to orthodontics aiming at developing and delivering an orthodontic teaching facility that help students to adapt themselves to current challenges of becoming good clinicians and academicians.

Department of orthodontics is a state of art department, which is fully equipped with all modern gadgets and armamentarium. We aim at providing excellent patient care, research and educational facilities.

We have a fully functional orthodontic laboratory, which provides us with all sort of technical support. We have a proper functioning cephalometric room that can cater up to 16 students.

Our team of well-trained doctors and technical staff strive to provide unparalleled orthodontic treatment to our patients and unsurpassed education to our orthodontic students.

#### **4. Oral & Maxillofacial Surgery**

Oral and Maxillofacial Surgery department of Avicenna Medical and Dental College is well developed and fully equipped department. We have a team of highly qualified trained and dedicated Maxillofacial Surgeons to educate and train students. We deliver lectures and supervise clinical training of 3<sup>rd</sup> year and final year BDS students in the maxillofacial surgery field.

We train future doctors indoor and outdoor patient care, sedation, pre and post anesthesia care, management of diseases of the teeth and their supporting soft and hard tissue ( dentoalveolar) surgeries, dental implants, assessment and management of head and neck trauma, diagnosis and treatment of temporomandibular joint (TMJ) diseases, diagnosis and multidisciplinary treatment of benign and malignant lesions and tumors of oral cavity including oral cancers and reconstructive and corrective jaw surgeries. In addition, the department is fully committed to the community and profession, continuing dental and medical education, scientific research and publications.