Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

Curriculum and Course content for DMD Degree

First edition: 2009

Second edition: 2016

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Contents

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This core-curriculum introduces a pedagogical foundation and specific learning design to assure achievement of high-level learning outcomes and to help students mature as individuals and professionals ready to assume personal responsibility for their actions and decisions, learning throughout their lives, advocating for all patients, and providing the highest-quality medical care with the highest ethical standards.

GU curriculum Revision committee (GU/CRC), Assigned in 1394(2014)

1. Dr. Abdulrahman Hameed MD-Voice chancellor of GU Chairperson
2. Dr. Munir ahmad Ibrahimkhil DMD- Dean of Stomatology Faculty member
3. Dr. Mohammad Ayob Hameed MD- Head of clinical departments member
4. Drs. Shukria Ehsani Head of para clinical departments member
5. DR. Abdul karim Sharif DMD- Lecturer member
6. ……..

Preface

Ghalib University is located in the Shaheed Square. Maidan hawaiee road Kabul Afghanistan which embraces the Faculty of medicine, Faculty of Dentistry, Faculty of Economy, Faculty of Law and Political Science and hosts approximately over 1200 students in above mentioned fields.

The curriculum leading to the degree of Professional doctorate of Dentistry is designed to provide a medical education that prepares graduates comprehensively for residency training, provides them the experience on which to base their career selection, and prepares them for professional lives of continuous learning.

During the last 7 years, the Ghalib University/Curriculum Committee, worked diligently to revise and improve the identified weaknesses of the curriculum various courses and clerkships, and modified the curriculum on the basis of new teaching/learning methodologies. The Ghalib University /Faculty of Dentistry curriculum has been continuously modified to prepare professional graduates that will have the ability to adapt to the over-changing practices of medicine. We are keeping the best of what is proven to work a system-based approach foundation, small group learning, in-depth clinical training, and expanding these elements across all six years of the program. Our education system according to the newly revised curriculum, encourages interaction and bridging between traditional and modem methodologies, such as simulations and virtual reality which are being used in medical and Dentistry faculties worldwide, to ensure a balanced acquisition of knowledge and skills' by the students. Hopefully, we continuously and strategically review, update and enhance the new and proved teaching/learning methodologies. We expect

that this curriculum will be ensuring the required learning skills, and enable students to master the knowledge and skills of the core curriculum contents.

Let me to congratulate the academic staff and students, for the second revision and redesigning of curriculum, and thanks a lot from all who were involved in this phenomenal work, especially GU-Curriculum Committee (GU-CC) with great appreciation.

With best wishes

Dr Abdulrahman Hameed, MD.Voice Chancellor Ghalib University Kabul city, Kabul-Afghanistan

Introduction

The Faculty of Dentistry was established in 2009 in the framework of Ghalib University. This faculty had 2 professional departments (Clinical subjects department and Para clinical subjects Departments).

The curriculum of this faculty was revised in 2014. The faculty of Dentistry at Ghalib University has always insisted from the time of its inception, to provide the students with the updated academic program.

The present curriculum encompasses totally **235** credits of which **136** credits are professional and the remaining credits allocated to the basic science and general medicine.

The six-year academic program leading to the DMD degree was designed on the most innovative ideas and trends, focusing primarily on the students in particular and the needs of the country as a whole.

A Curriculum Development Committee, Assigned by the chancellor of GU-University comprising of the senior staff members, through their ongoing interaction, revises, updates and fine-tunes the academic program to keep abreast of the advancements and emerging trends in the field of Dentistry.

I fully comprehend the philosophy that a full-fledged faculty, for its efficient functioning, depends entirely on its teaching staff members and its Clinical infra-structure. To this end, the staff members of the faculty of Dentistry are encouraged to have a team spirit, to work collectively as one unit.

I would like to take this opportunity to introduce the updated academic program to our students and urge them to go through the study plan, the methods described in evaluating outcomes and the measuring criteria used in assessing expected competencies.

Finally, prayers go to God, the most merciful and the most benevolent to help us.

Prof.Mohammad Sayeed Behrad MD.

Ghalib University Kabul/Afghanistan

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The Six-year DMD program and curriculum at GU-DMD (includes one year internship) not only reflects a strong commitment to developing knowledge and skills in both oral science and oral health care, but also students find an education that builds excellence in Dental medicine by encouraging individual interests and strength to flourish and grow.

Every intern is obliged to conduct a clinical research during the one year of internship program on an assigned issue by research committee of GU, and present it at the end of the internship program. Only after the presenting of the scientific research papers he/she is granted the DMD degree, which has the privileges of a master degree.

Philosophy of Dental Education

The faculty of Dentistry's highest commitment is academic excellence and the development of the competent graduate:

1. In the art, science and practice of Dentistry which are the foundation of our educational philosophy.
2. It is paramount that the educational environment be humanistic, and reflects the values of integrity, honesty, respect, fairness and cooperation. It is equally important that faculty and staff develop, integrate, and facilitate effectively.
3. Active learning

These efforts must result in graduates who possess and demonstrate knowledge and skills in the cognitive, psychomotor, and affective domains.

Practice of Medicine (POM)

The three components to the POM course are; Doctor – Patient – Society (DPS). The Clinical Apprenticeship Program (CAP) includes Problem – Based – Learning (PBL) and Case-Based-Learning (CBL). These Learnings mythologies challenges students with weekly clinical cases that integrate biomedicine, psychosocial issues, the art and science of clinical problem solving, and critical appraisal of the medical literature in small groups, facilitated by faculty tutors.

The practice of Medicine is a course that spans all 5 years, provides early patient exposure and the means to develop outstanding clinical thinking, technical skills, and a sense of professionalism. In the first two years, the practice of Medicine offers a clinical apprenticeship in which students are placed with a practicing primary care clinician; students meet in small groups with faculty mentors to learn clinical assessment skills and to consider ethical, social, and professional issues. In addition, problem-based learning is conducted through small-group and case-based tutorials.

Vision

The Faculty of Dentistry is committed to the pursuit of excellence in Dental sciences by being a leader in Dental education, research and development and community services with an emphasis on serving the needs of Afghanistan.

Mission

The educational mission of the faculty of Dentistry is to graduate a scientifically knowledge able, biologically oriented, technically competent, socially sensitive practitioner of Dental medicine who adheres to the highest standards of professional conduct and ethics and who can function effectively as a member of the nation's health care delivery system. Our graduates must be competent in the prevention, diagnosis and care of patients with oral-facial conditions that affect overall health and patient well-being. A competent practitioner is one who is able to begin independent, unsupervised Dental practice.

Education program

Competencies are learning experiences stated in terms of what a student must be able to do to be considered competent by the profession after completion of the Dental curriculum, and imply performance at a clinically acceptable level in each of the identified domains of Dental practice. These competencies must be supported by a working knowledge of the basic biomedical and clinical sciences, by cognitive and psychomotor skills, and by professional and ethical values.

Competencies must be relevant and important to the patient care responsibilities of the general Dentist, directly linked to the oral health care needs of the public, realistic, and understandable by other health care professionals. Specific learning objectives are listed for each course as part of a course syllabus. Thus, this competency document provides a framework for the undergraduate curriculum, whereas, a course syllabus outlines the specific learning objectives and experiences of a particular course which ultimately contributes to the achievement of competency.

The basic and behavioral science foundation knowledge, skills, and values provide the general Dentist a requisite knowledge based upon which sound clinical judgments are made. Specifically, the new Dental graduate must be able to demonstrate and integrated knowledge of the biology, etiology and epidemiology of diseases and conditions affecting the oral cavity.

Basics and behavioral science knowledge and professionalism are the foundation upon which sounds clinical judgments are made. Patient care is a dynamic and interactive process that begins with an assessment of the patient and leads to the restoration of a state of oral health and function, and ultimately to the promotion and maintenance of oral health. We recognize, however, that the patient care process can deviate from this "model". For example, based on an appropriate assessment, the Dentist may decide that no restorative care is needed and the patient will receive preventive and health maintenance care.

Our competency-based curriculum provides learning opportunities that support foundation knowledge, reinforce professional and ethical practice behaviors, and guide the development of sound

clinical judgment and treatment skills. Competencies are interdisciplinary, yet each department or division within a department is responsible for coursework with specific behavioral objectives or clinical activities. Clinical departments or divisions assess most competencies, although some competencies are assessed within in interdepartmental activities.

1- Active learning

Learning which focuses on student's individual responsibility to engage in continued learning, self-assessment in achieving and maintaining competency, and the pursuit of higher skill levels.

2- Competencies

Statements describing the abilities needed to engage in the independent practice of Dentistry. Competencies combine foundation knowledge, skills, understanding, and professional values which are performed independently in realistic settings.

a- Competency-Based Education

A planned sequence of students' experiences designed to move students through the stages in the competency continuum. Different methods of instruction and evaluation are used as appropriate to each level of professional growth, and the entire sequence is coordinate to produce a competent beginning practitioner.

b- Competency-Based Evaluation

Use of evaluation techniques and decisions that match the stages along the competency continuum. Novices are assessed with tests, beginners with simulation, and competent students with evaluation of direct patient care. Management of students is guided by assessing the correct educational qualification path for each student to decide which experiences are required to satisfy each competency. Educational diagnosis of learning difficulties and remedial interventions are also part of the evaluation system.

2- Behavioral Objectives

Specific statements of expected student behavior as a result of short-term educational experiences, such as a lecture. A course typically has many behavioral objectives, most of which are cognitive in nature, although they might alternatively be in the psychomotor or affective domains. Competencies may cross disciplines and always combine skills, understanding, and supporting values.

3- Best Practices

Evidence-based practice that integrates the best research evidence with clinical expertise and patient values.

4- Curriculum Guidelines

Suggestions from special interest groups, usually disciplines or sub disciplines, about desired course topical coverage.

5- Evidence-Based Dentistry

The approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence , relating to the patient's oral and medical condition and history, with the Dentist's clinical expertise and the patient's treatment needs and preferences.

6- Foundation knowledge and Skills

The necessary core body of cognitive basic and behavioral science and psychomotor skills for novices and beginners. These are what students must know and be able to do to benefit from the curriculum experiences designed to achieve competency.

7- Management

Direction of care so that care is provided in a judicious manner that encourages patient compliance.

8- Perform

To carry to completion a prescribed course of action.

9- Special Needs

Any individual that exhibits a physical, psychological, social, medical or developmental challenge that requires modification of the standard method of Dental delivery.

10- Treatment

Recognize and treat accordingly or refer and follow-up situations beyond the competency of the Dentist the management and care of a patient for the purpose of combating a disease or disorder.

Rationale of this Curriculum

The rationale behind the development of this curriculum is in response to:

- An explosion of knowledge in Dentistry in the last ten years, leading to new philosophies, new techniques and on-going controversies.
- The previous curriculum was more designed to general medicine.
- Major changes in the pattern of Dental disease.
- An increasing proportion of the population retaining their teeth into middle and old age and requiring special consideration.
- Major advances in the field of teaching methodology and student learning.

Goals: The goals of faculty of Dentistry are:

- To educate competent general Dentist.
- To provide quality Dental care.
- To promote and sustain an atmosphere of mutual trust and respect for all patients, students, staff, and faculties.
- To provide life-long learning opportunities for Dental professionals.
- To advance knowledge through research.
- To serve the profession, the university, the community and the nation.

Objectives

The objectives are dealt under three headings namely:

- knowledge
- Skills
- Attitudes

I-knowledge

The student should acquire the following during the period of training:

- Adequate knowledge of the scientific foundations on which Dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and should be able to evaluate and analyze scientifically various established facts and data.
- Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general-state of health and also the bearing on physical and social well-being of the patient.
- Adequate knowledge of clinical discipline and methods, which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive, diagnostic and therapeutic aspects of Dentistry.
- Adequate clinical experience required for general Dental practice.
- Adequate knowledge of biological function and behavior of persons in health and sickness as well as the influence of the natural and social environment of the state of health so far as it affects Dentistry.

II-Skills

Students will be competent in the following concepts and skills, and expected to be able to perform them independently when they begin unsupervised Dental practice. These independent skills are taught in the core curriculum. The competencies relate to the child, adolescent, adult, geriatric and special needs patients.

A graduate should be able to demonstrate the following skills necessary for practice of Dentistry:

A- Independent Skill

Professionalism

Apply standards of care in an ethical and medico-legal context to assure appropriate informed consent, risk management, quality assurance and record keeping and delivered within the scope of the Dentist's competence in a patient-centered environment that interfaces with diverse patient populations.

B- Dependent Skills

Students will be exposed to the following concepts and skills, but are not expected to be able to perform these skills independently.

1. Perform periodontal surgical procedures.
2. Observe placement of end osseous implants.
3. Order and interpret advanced laboratory and radiological evaluations.
4. Administer conscious sedation.
5. Provide limited orthodontic treatment.
6. Treatment for complex orofacial trauma and advanced intraoral infections.
7. Complex restorative and pulpal therapies for primary teeth.

III- Attitudes

A graduate should develop during the training period the following attitudes:

- Willing to apply current knowledge of Dentistry in the best interest of the patients and the community.
- Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- Seek to improve awareness and provide possible solutions for oral health problems and needs throughout the community.
- To help and to participate in the implementation of national health programs.

General outline of DMD Degree Course

- The undergraduate course involves organization of teaching programs year-wise.
- The undergraduate Dental course consists of three main components. The first component consists subjects common to medicine and Dentistry like anatomy, biochemistry and behavioral science, leading to pharmacology, pathology, microbiology and then on to general medicine and general surgery. The second component runs concurrently with the first and deals with special aspects of oral and Dental tissues, oral biology and oral pathology. Finally, the third component based on the foundation of the first two, deals with the clinical and technical aspects of Dentistry as is required for general Dental practice.
- The first component of the course is intended to provide initially, an appreciation of normal human structure, development, function and behavior, leading to understanding of the diseases, its prevention and treatment. The main objective is to provide the student a broad knowledge of the normal structures and functions of the body, the alterations which take place in disease with particular reference to those conditions in which medical and Dental co-operation is essential for proper management. At this stage, the student should also be made aware of the social and

psychological aspects of patient care with special reference to the relationship between Dentist and patient. The behavioral sciences including both sociology and psychology should be introduced at the initial stages of the training program, much before the students actually deal with the patients.

- The second component of Dental undergraduate program includes instruction in the subjects dealing with Dental and oral aspects to ensure a detailed knowledge of the structure and function of the Dental and oral tissues. This enables the student to diagnose, prevent and treat the Dental and oral diseases and disorders, which were not included in the first component. Students should be exposed to the basic aspects of forensic Odontology at this stage of the course along with oral biology/oral pathology.
- The third component of the course comprising the clinical and technical aspects of Dentistry actually prepares the student to undertake total oral and Dental health care of the patients of all ages. The emphasis at this stage should be on the prevention of the various Dental diseases and how to preserve natural teeth with their supporting structures. The importance of the various preventive methods needs to be stressed. The significance of diagnosis of various Dental and oral problems needs to be emphasized along with treatment planning before actual treatment procedures are undertaken. In addition to acquiring the knowledge, the students need to gain adequate clinical hands-on-experience in extractions and other minor oral surgical procedures, all aspects of conservative Dentistry, endodontic, crown and bridge, provision of partial and complete Dentures, various periodontal therapeutic procedures and use of removable and fixed orthodontic appliances.
- Familiarity with various radiological techniques, particularly intra-oral methods and proper interpretation of the radiographs, in an essential part of this component of training and has application in clinical diagnosis, forensic identification and age estimation. Towards the final stage of the clinical training, each student should be involved in comprehensive oral health care of holistic approach to enable him or her to plan and treat patients as a whole, instead of piece-meal treatment provided in each specialty.
- The aim of the undergraduate program is undoubtedly to produce a graduate, competent in general Dental practice.
- The commitment towards the society as a whole needs to be stressed along with the knowledge and treatment skills gained. Instruction in public health Dentistry is to emphasize the sociological aspects of health care particularly; oral health care, including the reasons for the variation in oral and Dental needs of different sections of the society. It is important to know the influence of the social, behavioral, environmental and economic factors on oral and Dental health. Students should be made aware of the National Oral Policy and the importance of being a member of the Health care team delivering medical and oral health care particularly among rural population. Students should also be encouraged to participate in simple research project work.
- The undergraduate curriculum stresses the significance of infection and cross infection control in Dental practice. Aspect like sources of infection, measures to be adopted both general and specific for control, particularly the HIV and hepatitis is incorporated in the curriculum so that the graduates are aware of its significance and follow it in their practice.

- The information technology and academic English language have touched every aspect of an individual's personal and professional life. The University hence recommends that all undergraduates acquire Academic English language proficiency and minimum computer proficiency, which will enable them to enhance their professional knowledge and skills.
- The undergraduate Dental training program leading to DMD degree shall be five-year duration in addition to rotating internship. During this period, the students shall be required to engage in full time study at Dental faculty of GU.
  During the first five years of undergraduate course, the instructions in clinical subjects are about more than three years.

Subjects for DMD course

- Basic Medical & Dental Subjects: The basic medical and Dental sciences comprise of:

Anatomy-Gross and Microscope, Physiology, Biochemistry, Pharmacology, Science of Dental Materials. Subjects like behavioral sciences, which would be useful to develop communication skills. An introduction to Public Health Dentistry also will be useful to develop the concept of commitment to community. The laboratory skills like pre-clinical prosthodontics, Crown and Bridge, Conservative Dentistry and Orthodontics are to be developed by the students.

At the end of this period the student should be in a position to understand and comprehend in general the development, structure and function of the human body in both health and disease.

- The instruction in basic Dental sciences should include knowledge and skills aspects of oral anatomy and physiology, to provide a detailed knowledge of the form and structure of teeth associated tissues and occlusal relationship. The study should also aim to development of a concept regarding physiological and biochemical processes relevant to oral cavity for better understanding of the changes that occur with the onset of disease in the oral cavity. The student should be made aware of the importance of various Dental tissues in forensic investigation.
- Clinical, Medical and Dental Subjects:
  The students should be introduced to clinics in the initial stage, preferably in the first year, as an observer to familiarize with clinical set-up and working. During this, the student shall attend a Dental hospital, general hospital, community camps and satellite clinics, in order to obtain instruction and experience in the practice of Dentistry. The main objective of training in clinical Dental subjects is to produce a graduate able and competent to recognize or diagnose various Dental and oral diseases, to undertake general Dental treatment, advice on the provision of specialized treatment available and finally advise the patient on prevention. The student should also understand the relationship between oral and systemic diseases.
- The general medicine and surgery training should provide sufficient knowledge on human disease to enable the student to understand its manifestations as relevant to the practice of Dentistry. This requires clinical teaching on patients and shall be carried out in in-patient and outpatient medical departments and clinics.

This clinical instruction should enable the student to understand and perhaps diagnose common systemic diseases, which have relevance to Dental practice, by adopting a systematic approach of history taking and clinical examination. The student should also realize the significance of various general and special investigations in the diagnosis of diseases. The ability to recognize physical and mental illness, dealing with emergencies, effective communication with patients, and interaction with professional colleagues also become important aspects of this training.

- All Dental students should receive instruction in first-aid and principles of cardiopulmonary resuscitation. The students should also spend time in an accident and emergency department of a Medical Hospital.
- The purpose of the clinical training is to provide sufficient skills skill in all aspects of clinical Dentistry. The instruction should also include patient management skills, treatment of patient of all ages with special reference to children (pediatrics), very elderly (geriatrics), medically compromised and disabled patients.
- During the three years of clinical course, the students should receive thorough instruction which involves history taking, diagnosis and treatment planning in all aspects of Dentistry and should be competent on graduation to carry out all routine general procedures.
- In Oral & maxillofacial Surgery, instruction should include the knowledge of various maxillofacial problems like injuries, infections and deformities of the jaws and associated structures. The clinical experience should include those procedures commonly undertaken in general practice like extraction of teeth, minor oral surgical procedure etc.
- In conservative Dentistry and endodontic. Prosthodontics and Crown & Bridge and Periodontology students should be competent on graduation to carry out routine treatments like restorations of various kinds, endodontic procedures, removable Prosthodontics and finally various kinds of periodontal therapy.
- In Orthodontics & dento facial Orthopedics, students should carry out simply appliance therapy including myofascial appliances for patients. Students should also be able to appreciate the of dentofacial growth in the development and treatment of malocclusion. In addition, students should be aware of their limitations on graduation, need to refer patients for consultant opinion and/or treatment and also the need for postgraduate and continuous education programs.
- In Pediatric & Preventive Dentistry, the students should concentrate on effective management of the behavior of the child patient to instill appositive attitude, on efficacy of preventive measures and clinical management, including the treatment needs particularly for children with disabilities.
- In oral medicine and Radiology, the student should receive instruction in various common lesions, occurring in the oral cavity and its diagnosis with particular reference to oral cancer. All students receive instructions and gain skills experience. In taking various types of intra and extra oral radiographs and its processing and interpretation. They should be aware of the hazards of radiation and proper protective measures from radiation for the patient, operator and other staff.
- The successful control and management of pain in an integral part of Dental practice. Upon graduation the students should be competent to administer all forms of local anesthesia. The value of behavioral methods of anxiety management should be emphasized. The students should also have the skills experience in the administration of intra-muscular and intra-venous injections.

Knowledge of pain mechanisms and strategies to control post-operative pain is essential for practice of Dentistry.

- Instruction should be given in Dental jurisprudence, legal and ethical obligations of Dental practitioner.
- Infection and cross infection control assume significance in Dental practice. The students should be made aware of the potential risk of transmission in the Dental surgery, various professional responsibilities for the protection of the patients, themselves and their staff and the requirements of the health and safety regulations.
- The subjects of Esthetic Dentistry, Oral Implant ology, Behavioral sciences and Forensic Odontology have assumed great significance. Hence, these four specialties are incorporated into the undergraduate curriculum. The instruction and clinical training in esthetic Dentistry shall be carried out by the departments of Prosthodontics and Crown & Bridge and Conservative Dentistry & Endodontic.
- Similarly, the instruction and clinical training in Oral Implant ology shall be done by the departments of Oral & Maxillofacial surgery, Prosthodontics and Crown & Bridge and Periodontology. The instruction in behavioral sciences should ideally commence before the students come in contact with the patients. Forensic Odontology will be a part of Oral Pathology & Oral Microbiology and Oral Medicine and Radiology.

Goals of DMD Curriculum

At the completion of the undergraduate training program the graduates shall be competent in the following:

- Apply knowledge & skills in day to day practice.
- Apply principles of ethics.
- Analyze the outcome of treatment.
- Evaluate the scientific literature and information to decide the treatment.
- Participate and involve in professional bodies.
- Be capable of self-assessment and be willing to update the knowledge & skills from time to time.
- Inclined to do simple research projects.
- Acquire minimum computer proficiency to enhance knowledge and skills.
- Be aware of one's limitations and know when to refer patients to specialists.
- Be familiar with basic Forensic Odontology techniques and manage Geriatric Dental problems.

B. Practice Management

* Evaluate practice location, population dynamics & reimbursement mechanism.

* Able to communicate freely, orally and in writing with all concerned.

* Maintain records.

* Implement & monitor infection control and environmental safety programs.

* Practice within the scope of one's competence Communication & Community Resources.

* Assess patient's goals, values and concerns to establish rapport and guide patient care.

* Co-ordinate & supervise the activities of allied Dental health personnel.

* Participate in improving the oral health of the individuals through community activities.

C. Patient Care – Diagnosis

- Obtaining patient's history in a methodical way.

- Performing thorough clinical examination.

- Selection and interpretation of clinical, radiological and other diagnostic information.

- Obtaining appropriate consultation.

- Arriving at provisional, differential and final diagnosis.

D. Patient Care – Treatment Planning

- Integrate multiple disciplines in to an individual comprehensive sequence.

- Using Diagnostic, treatment plan and prognostic information.

- Be able to order appropriate investigations.

E. Patient Care – Treatment

- Recognition and initial management of medical emergencies that may occur during Dental treatment.
- Perform basic cardiac life support.
- Management of pain including post-operative.
- Administration of all forms of local anesthesia.
- Administration of intra muscular and venous injections.
- Prescription of drugs, pre-operative, prophylactic and therapeutic requirements.
- Uncomplicated extraction of teeth.
- Trans-alveolar extractions and removal of simple impacted teeth.
- Minor oral surgical procedures.
- Management of Oro-Facial infections.
- Simple orthodontic appliance therapy.

- Taking, processing and interpretation of various types of intra oral radiographs.
- Various kinds of restorative procedures using different materials available.
- Simple endodontic procedures.
- Removable and fixed prosthodontics.
- Various kinds of periodontal therapy.

Competencies Expected-Specialties

A- Oral Medicine

At the completion of the undergraduate training program the graduate should:

- Be able to identify the common Dental problems like Dental Caries and Periodontal Disease and their sequel.
- Be able to differentiate the normal variation and oral mucosal lesions.
- Be able to identify pre-cancerous lesions of the oral cavity and refer to the concerned specialty for their management.
- Have an adequate knowledge about common laboratory investigations and interpretation of their results.
- Have adequate knowledge about medical complications that can arise while treating systemically compromised patients and take prior precautions/ consent from the concerned medical specialist.
- To formulate a clinical diagnosis, order investigations, seek expert consultations to come to a final diagnosis and chart out a proper treatment plan for patient with oral lesions.

B- Oral & Maxillofacial Surgery

At the completion of the undergraduate training program the graduate should:

- Be able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients with surgical problems.
- Be able to diagnose, manage and treat patients with basic oral surgical problem.
- Have a broad knowledge of maxillofacial surgery and oral Implant ology.
- Be familiar with legal, ethical and moral issues pertaining to the patient care and communication skills.
- Have acquired the skill to examine any patient with an oral surgical problem in an orderly manner.
- Understand and practice the basic principles of asepsis and sterilization.
- Be competent in the extraction of the teeth under both local and general anesthesia.
- Be competent to carry out certain minor oral surgical procedures under Local Anesthesia like Trans-alveolar extraction, Frenotomy, Dento-alveolar procedures, simple impaction, biopsy, etc.
- Be competent to assess, prevent and manage common complications that arise during and after minor oral surgery.
- Able to provide primary care and manage medical emergencies in the Dental office.
- Be familiar with the management of major oral surgical problems and principals involved in the in-patient management.

C- Periodontics

At the completion the undergraduate training program the graduate should:

- Be able to diagnose the patient's periodontal problem, plan and perform appropriate periodontal treatment.
- Be Competent to educate and motivate the patient.
- Be Competent to perform thorough oral prophylaxis, subgingival scaling, root planning and minor periodontal surgical procedures.
- Give proper post treatment instructions and do periodic recall and evaluation.
- Be Familiar with concepts of Osteo-integration and basic surgical aspects of implant ology.

D- Operative Dentistry & Endodontic

At the completion of the undergraduate training program the graduate should be able to:

- Diagnose all carious lesions.
- Perform Class I and Class II cavities and their restoration with amalgam.
- Restore Class V and Class III cavities with glass ionomercement.
- Diagnose and appropriately treat pulpally involved teeth (pulp capping procedure).
- Perform RCT for anterior teeth.
- Carry out small composite restorations.
- Understand the principles of esthetic Dental procedures.

E- Orthodontics

At the completion of the undergraduate training program the graduate should be able to:

- Understood about normal growth and development of facial skeleton and dentition.
- Pinpoint aberrations in growth process both Dental and skeletal and plan necessary treatment.
- Diagnose the various malocclusion categories.
- Motivate and explain to the patient and parent/guardian about the necessity of treatment.
- Plan and execute preventive orthodontics.
- Plan and execute interceptive orthodontics.
- Manage treatment of simple malocclusion such as anterior spacing using removable appliances.
- Handle delivery and activation of removable orthodontic/myofascial appliances.
- Diagnose and appropriately refer patients with complex malocclusion to the specialist.

F- Prosthodontics

At the completion of the undergraduate training program the graduate should be able to:

- Be able to understand and use various Dental materials.
- Be competent to carry out treatment of conventional complete and partial removable Dentures and full veneer crowns.
- Be able to carry out treatment of routine prosthodontics procedures.

- Be familiar with the concepts of Osteo integration and the value of implant-supported prosthodontics procedures.
- Be able to diagnose and appropriately refer patients requiring complex treatment procedures to the specialist.

G- Community & Preventive Dentistry

At the completion of the undergraduate training program the graduate should be able to:

- Apply the principles of health promotion and disease prevention.
- Have knowledge of the organization and provision of health care in community and in the hospital service.
- Have knowledge of the prevalence of common Dental condition in Afghanistan.
- Have knowledge of community based preventive measures.
- Have knowledge of the social, cultural and environmental factors, which contribute to health or illness.
- Be able to administer hygiene instructions.
- Be able to educate patients concerning the etiology and prevention of oral disease and encourage them to assure responsibility for their oral health.

H- Pediatric & Preventive Dentistry

At the completion of the undergraduate training program the graduate should be able to:

- Instill a positive attitude and behavior in children towards oral health and understand the principles of prevention and preventive Dentistry right from birth to adolescence.
- Guide and counsel the parents/guardian in regards to various treatment modalities including different facets of preventive Dentistry (fluoride therapy, sealant therapy in children).
- Treat Dental diseases occurring in child patient.
- Manage the physically and mentally challenged / disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

COURSE TITLE AND SEMESTER

A- First year

- Islamic Studies
- Molecular Cell Biology
- Information Communication Technology (ICT)
- Medical Genetics
- English Language
- Biophysics
- Medical Chemistry
- Gross Anatomy
- Microscopic Anatomy (Histology)
- General Embryology

B- Second year

- Islamic Studies
- Head & Neck Anatomy
- Oral Histology
- Oral Embryology
- Medical Physiology
- Medical Biochemistry & Nutrition
- General & Systemic Pathology
- Dental Material
- General Microbiology
- Medical Ethics
- Public Health
- Immunology

C- Third year

- Islamic Studies
- Oral Physiology
- Oral Pathology
- Microbiology (Virology & Parasitology)
- Prosthodontics
- Clinical Pharmacology & Pharmacology for Dentistry
- Internal Medicine
- General Surgery
- Public Health (Basic of Public Health & Environmental & Occupational Health)

- Operative Dentistry
- Neurology & Psychiatry
- Oral & Maxillofacial Surgery
- Anesthesiology

D- Fourth Year

- Islamic Studies
- Operative Dentistry
- Internal Medicine
- General Surgery
- Prosthodontics
- Oral & Maxillofacial Surgery
- Public Health (Behavior Science)
- ENT
- Pediatrics & Preventive Dentistry
- Forensic Dentistry
- Endodontic
- General Radiology
- Orthodontics
- Infectious Diseases & TB

E- Fifth Year

- Endodontic
- Oral & Maxillofacial Surgery
- Prosthodontics
- Periodontics
- Orthodontics
- Pediatric & Preventive Dentistry
- Oral Medicine
- Oral Radiology
- Ophthalmology
- Neurosurgery
- Plastic & Reconstructive Surgery
- Public Health (Epidemiology & Biostatistics)

C- Final Year (Twelve month program)

- Orthodontic
- Oral Medicine
- Periodontics
- Prosthodontics
- Operative Dentistry & Endodontic

- Oral & Maxillofacial Surgery
- Pediatric & Preventive Dentistry
- Pharmacology
- Reconstructive & Plastic Surgery

F- Teaching and Learning Strategies

- Lecture
- Laboratory practice
- Small Group Tutorial (Problem Based Learning-PBL; Case Based Learning-CBL etc.)
- Bedside Learning (Clerkship and Rotations)
- Audio-Visual Aids
- Role play (Simulated or Standard Patient)
- Practice on Mode and Modulate in Skill-lab
- Self – Learning (Learning to Learn)
- Conferences

G- Credit Hours Guidelines

Introduction

Credit hour is the unit by which an institution measures its course work. The number of credits hours assigned to a course quantitatively reflects the outcomes expected, the mode of instruction, the amount of time spent in class, and the amount of outside preparatory work expected for the class.

A semester credit hour is the most commonly used system of measuring course work and is usually based on at least a 14-17 weeks calendar (16 weeks in GU). Further, a class hour varies from 45 to 60 minutes (50 minutes in GU) in various institutions. Many of the definitions refer to weekly Student Class Hours (WSCH).

Credit Guidelines

One semester credit hour is assigned in the following ratio of component hours per week devoted to the course of study:

a- Lecture

Normally, one credit hour is associated with a class meeting for 50 minutes per week for an entire semester (16 weeks) or the equivalent 80 semester-minutes, excluding final exams.

b- Laboratory Skills

One credit hour for laboratory works requires 10 minutes per week and 160 minutes for entire semester.

c- Clerkship (Bedside Practice)

One credit hour for clerkship minimally requires 150 minutes per week and 240 minutes over the semester.

Evaluation of the Curriculum

Ongoing evaluation of all elements of the curriculum is essential to maintain continuous improvement of the curriculum. Evaluation of the curriculum is performed by students, faculty and staff.

The process is coordinated by the staff of the Office of Medical Education and is performed by the Evaluation Committee. The Evaluation Committee is responsible for the assessment of all required courses and clerkships. The Evaluation Committee reports to the Educational Policy Committee, which has overall responsibility for management of the curriculum. The Evaluation Committee conducts continuous assessment of preclinical courses, Clinical courses and clerkships.

For each course and clerkship students complete and evaluation of the course/clerkship in addition to faculty evaluations for lecturers, small group facilitators, and site preceptors for clinical experiences. These data are provided to course faculty, course/clerkship directors, and department chairs.

The Evaluation Committee meets monthly. The committee determines which courses or clerkships to evaluate and what data are needed, including but not limited to:

- Course or clerkship syllabus
- Student evaluations of a course or clerkship
- Evaluation and grading methods
- Student performance in a course or clerkship
- Interviews with faculty and staff involved with the course/clerkship
- Annual course/clerkship report (The course/clerkship director must submit a response
- To a series of course assessment questions within 2 months of the end of the course).

The final report is distributed to the course director and to the Educational Policy Committee-EPC at its regular monthly meeting. The Committee accepts the findings and recommendations of the Evaluation Committee or asks for a response from the course/clerkship director. After resolution of all outstanding issues, the amended report is approved by the EPC and sent to the course director for implementation of the recommendations.

The Educational Policy Committee monitors the curriculum by examining course, clerkship and component assessments provided by the Evaluation Committee. Clinical Skills are measured throughout the yearly components. Clinical skill measurement culminates in a comprehensive assessment at the end of clinical courses.

Examination Regulations

1. Attendance
   75% of attendance in a subject for appearing in the examination in compulsory provided he/she has 80% attendance in non-lecture teaching. I.e. seminars, group discussions, tutorials,

demonstrations, skills Health facilities (Primary, Secondary and Tertiary) postings and bed side clinics, etc.

2. Internal Assessment

- It shall be based on day-to-day assessment, evaluation of student assignment, preparation for seminar, clinical case presentation etc.
- Regular periodical examinations shall be conducted throughout the course.
- Day-to-Day records should be given importance during internal assessment.

Some examples of internal assessment are as follows:

- Preparation of subject for student's seminar.
- Preparation of a clinical case for discussion.
- Clinical case study/problem solving exercise.
- Proficiency in carrying out a skills or a skill in small research project.
- Multiple choice questions (MCQ) test after completion of a system course.
- Each item tested shall be objectively assessed and recorded.
- Some of the items can be assigned as Home Work/Vacation Work.

3. University Examinations

A- Knowledge Papers; will be prepared by the examiners as prescribed. Nature of questions will be short answer type/objective type and marks for each part indicated separately.
B- Skills / Clinical; will be conducted in the laboratories or hospital wards.
Objectives will be to assess proficiency in skills, conduct of experiment, interpretation of data and logical conclusion. Clinical cases should preferably include common diseases not exoteric syndromes or rare disorders. Emphasis should be on candidate's capability in eliciting physical signs and their interpretation.
C- Viva/Oral; includes evaluation of management approach and handling of emergencies. Students skills in interpretation of common investigative data, x-rays etc.

The examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary for knowledge, minimum skills along with clear concepts of the fundamentals which are competently. Evaluation will be carried out on an objective basis.

Question papers should preferably be of short structure/objective type.

D-Clinical Cases/Skills; will take into account common diseases which the students are likely to come in contact in practice.

E-Rare Cases/Obscure Syndromes; long cases shall not be put for final examination. There should be one main examination in each semester.

Techniques of Assessment and Evaluation:

- Multiple choice questions (MCQs)

- Extended Matching Questions (EMQ)
- Short Answer Questions (SAQ)
- Mini-Cases (MC)
- PBL tutorial Performance Assessment (PBL-TPA)
- Objectives Structured Clinical Examinations (OSCE)
- Traditional Clinical Examinations
- Clinical Skills Learning Assessment (CSLA)
- Bedside Session Assessment (Logbook)
- Visits/Case Report Assessment

Examination & Marks Distribution:

Semester Examinations time table:

- 1st End-Semester: held on 6th July (15th Saratan)
- Second End-Semester: 20th December (1st of Jaddi)

Distribution of Marks:

A-Subjects with Skills
1-Midterm Exam: Viva & Skills; 10 Marks includes:
-Skills 40 Marks
2-Semester Final Exam (Written Paper): 60 Marks

Total: 10 Marks (10 % of Semester Total Marks)

B-Subjects without Skills

Semester Final Exams (written paper): 10 Marks.

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Dentistry Faculty Curriculum - Syllabus

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SUBJECT CODES & CREDITS

No.	Subjects	Semester	Credits			Kind of Subjects	Course code
			Knowledge	Skills	Total		
1	Islamic Studies	1	1		8	University Inclusive	DE1 001
		2	1				DE2 001
		3	1				DE3 001
		4	1				DE4 001
		5	1				DE5 001
		6	1				DE6 001
		7	1				DE7 001
		8	1				DE8 001
2	Molecular Cell Biology	1	2	1	6	Basic Biomedical Science	DE1 002
		2	2	1			DE2 002
3	Information Communication technology	1		2	4	University Inclusive	DE1 003
		2		2			DE2 003
4	Medical Genetics	1	1	1	2	Basic Biomedical Science	DE1 004
5	English Language	1	4		8	University Inclusive	DE1 005
		2	4				DE2 005
6	Biophysics	1	1	1	2	Basic Biomedical Science	DE1 006
7	Medical Chemistry	1	1			Basic Biomedical	DE1 007

			2	1	1	3	Science	DE2 007
8	Gross Anatomy		1	1	1	8	Basic Biomedical Science	DE1 008
	Head and Neck Anatomy		2	1	1			DE2 008
			3	3	1			DE3 008
9	Microscopic Anatomy (General histology) &Oral Histology		1	1	1	6	Basic Biomedical Science	DE1 009
			2	1	1			DE2 009
			3	1	1			DE3 009
10	General Embryology Systemic & Oral Embryology		2	1		2	Basic Biomedical Science	DE2 010
			3	1				DE3 010
11	Medical Physiology Oral Physiology		3	2	1	8	Basic Biomedical Science	DE3 011
			4	2	1			DE4 011
			5	1	1			DE5 011
12	Medical Biochemistry		3	2	1	6	Basic Biomedical Science	DE3 012
			4	2	1			DE4 012
13	Pathology	General	3	2	1	7	Basic Biomedical Science	DE3 013
		Systemic	4	1	1			DE4 013
		Oral	5	1	1			DE5 013
14	Micro Biology Parasitology & Virology		3	2	1	6	Clinical Science And Skills	DE3 014
			4	2	1			DE4 014
15	Dental Materials		4	1	1	2	Basic Biomedical Science	DEB4 015
16	Medical Ethics		4	1		1	Behavioral And Social Science And Medical Ethics	DE4 016
17	Medical Immunology		4	1		1	Basic Biomedical	DE4 017

							Science	
18	Prosthodontics		5	1	1	12	Clinical Science And Skills	DE5 018
			6	1	1			DE6 018
			7	1	1			DE7 018
			8	1	1			DE8 018
			9	1	1			DE9 018
			10	1	1			DE10 018
19	Clinical Pharmacology		5	1	1	4	Basic Biomedical Science	DE5 019
	Dental Pharmacology		6	1	1			DE6 019
20	Internal Medicine		5	1	1	6	Clinical Science And Skills	DE5 020
			6	1	1			DE6 020
			7	1	1			DE7 020
21	Surgery		5	1	1	6	Clinical Science And Skills	DE5 021
			6	1	1			DE6 021
			7	1	1			DE7 021
22	Public Health	Basic of Public Health	4	1		5	Behavioral And Social Science And Medical Ethics	DE4 022
		Environmental & Occupational Health	6	1				DE6 022
		Behavioral Science & Health Education	7	1				DE7 022
		Epidemiology	8	1				DE8 022
		Biostatics	10	1				DE 10 022
	Operative Dentistry & Endodontic	Operative Dentistry	5	1	1		Clinical Science And Skills	DE5 023
			6	1	1			DE6 023

23			7	1	1	12		DE7 023
		Endodontic	8	1	1			DE8 023
			9	1	1			DE9 023
			10	1	1			DE10 023
24	Neurology & Psychiatry		6	1	1	2	Clinical Science And Skills	DE6 024
25	Oral & Maxillofacial Surgery	Oral	5	1	1	12	Clinical Science And Skills	DE5 025
			6	1	1			DE6 025
		Maxillofacial	7	1	1			DE7 025
			8	1	1			DE8 025
			9	1	1			DE9 025
			10	1	1			DE10 025
26	Anesthesiology	Local anesthesia	5	1	1	4	Clinical Science And Skills	DE5 026
		General anesthesia	6	1	1			DE6 026
27	ENT		7	1	1	2	Clinical Science And Skills	DE7 027
28	Pediatric & Preventive Dentistry		7	1	1	6	Clinical Science And Skills	DE7 028
			8	1	1			DE8 028
			9	1	1			DE9 028
29	Forensic Dentistry & Toxicology		7	1	1	2	Behavioral And Social Science And Medical Ethics	DE7 029
30	Oral medicine		9	1	1	4	Clinical Science And Skills	DE9 030
			10	1	1			DE10 030

31	General Radiology Oral Radiology	8	1	1	4	Clinical Science And Skills	DE8 031
		9	1	1			DE9 031
32	Periodontics	8	1	1	6	Clinical Science And Skills	DE8 032
		9	1	1			DE9 032
		10	1	1			DE10 032
33	Orthodontics	8	1	1	6	Clinical Science And Skills	DE8 033
		9	1	1			DE9 033
		10	1	1			DE10 033
34	Infectious Diseases & TB	8	1	1	2	Clinical Science And Skills	DE8 034
35	Ophthalmology	9	1	1	2	Clinical Science And Skills	DE9 035
36	Neurosurgery	10	1	1	2	Clinical Science And Skills	DE10 036
37	Facial Plastic Surgery	10	1	1	2	Clinical Science And Skills	DE10 037
38	Community & Preventive Dentistry	10	1	1	2	Clinical Science and skills	DE10 038

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SUBJECTS & SEMESTERS

ACADEMIC YEAR I				FIRST SEMESTER				
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies1	DE1 001	1	16				16
2	Molecular Cell Biology1	DE1 002	3	32		16		48
3	Information Communication Technology1 (ICT)	DE1 003	2			32		32
4	Medical Genetics	DE1 004	2	16		16		32
5	English Language1	DE1 005	4			64		64
6	Biophysics1	DE1 006	2	16		16		32
7	Medical Chemistry1	DE1 007	1	16				16
8	Gross Anatomy1	DE1 008	2	16		16		32
9	Microscopic anatomy1 (Histology)	DE1 009	2	16		16		32
TOTAL SEMSTER CREDITS AND HOURS			19	128		176		304

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ACADEMIC YEAR I				SECCOND SEMESTER				
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies2	DE2 001	1	16				16
2	Molecular Cell Biology2	DE2 002	3	32		16		48
3	Information Communication Technology2	DE2 003	2			32		16
4	English Language2	DE2 004	4			64		64
5	Gross Anatomy2	DE2 008	2	16		16		32
6	Microscopic Anatomy2 (Histology)	DE2 009	2	16		16		32
7	General Embryology1	DE2 010	1	16				16
8	Medical Chemistry2	DE2 007	2	16		16		32
TOTAL SEMSTER CREDITS AND HOURS			17	112		160		272

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ACADEMIC YEAR II								3rd SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies3	DE3 001	1	16				13
2	Head and Neck Anatomy3	DE3 008	4	32		32		64
3	Oral Histology3	DE3 009	2	16		16		32
4	Oral Embryology2	DE3 010	1	16				16
5	Medical Physiology1	DE3 011	3	32		16		48
6	Medical Biochemistry1	DE3 012	3	32		16		48
7	General Pathology1	DE3 013	3	32		16		48
8	General Microbiology1	DE3 014	3	32		16		48
TOTAL SEMSTER CREDITS AND HOURS			20	208		112		320

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ACADEMIC YEAR II								4th SEMSTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies4	DE4 001	1	16				16
2	Physiology2	DE4 011	3	32		16		48
3	Medical Biochemistry 2	DE4 012	3	32		16		48
4	Systemic Pathology2	DE4 013	2	16		16		32
5	Microbiology2 (Oral, Virology & Parasitology)	DE4 014	3	32		16		48
6	Dental Materials	DE4 015	2	16		16		32
7	Medical Ethics	DE4 016	1	16				16
8	Immunology	DE4 017	1	16				16
9	Public Health1 (Basic Of Public Health)	DE4 022	1	16				16
TOTAL SEMSTER CREDITS AND HOURS			17	192		80		272

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ACADEMIC YEAR III								5th SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies5	DE5 001	1	16				16
2	Oral Physiology3	DE5 011	2	16		16		32
3	Oral Pathology3	DE5 013	2	16		16		32
4	Prosthodontics1	DE5 018	2	16	16			32
5	General Pharmacology1	DE5 019	2	16		16		32
6	Internal Medicine1	DE5 020	2	16	16			32
7	General Surgery1	DE5 021	2	16	16			32
8	Operative Dentistry1	DE5 023	2	16	16			32
9	Oral Surgery1	DE5 025	2	16	16			32
١0	Local anesthesia	DE5 026	2	16	16			32
TOTAL SEMSTER CREDITS AND HOURS			19	160	96	48		304

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ACADEMIC YEAR III								6th SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies6	DE6 01	1	16				16
2	Prosthodontics2	DE6 018	2	16	16			32
3	Dental Pharmacology2	DE6 019	2	16		16		32
4	Internal Medicine2	DE6 020	2	16	16			32
5	General Surgery2	DE6 021	2	16	16			32
6	Public Health2 (Environmental & Occupational Health)	DE6 022	1	16				16
7	Operative Dentistry2	DE6 023	2	16	16			32
8	Neurology and Psychiatry	DE6 024	2	16	16			32
9	Oral Surgery2	DE6 025	2	16	16			32
10	General Anesthesia	DE6 026	2	16	16			32
TOTAL SEMSTER CREDITS AND HOURS			18	160	112	16		288

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ACADEMIC YEAR IV								7th SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies7	DE7 001	1	16				16
2	Prosthodontics3	DE7 018	2	16	16			32
3	Internal Medicine3	DE7 020	2	16	16			32
4	General Surgery3	DE7 021	2	16	16			32
5	Public Health3 (Behavioral Science)	DE7 022	1	16				16
6	Operative Dentistry3	DE7 023	2	16	16			32
7	Maxillofacial Surgery1	DE7 025	2	16	16			32
8	ENT	DE7 027	2	16	16			32
9	Pediatrics and Preventive Dentistry1	DE7 028	2	16	16			32
10	Forensic Dentistry	DE7 029	2	16		16		32
TOTAL SEMSTER CREDITS AND HOURS			18	160	12	16		288

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ACADEMIC YEAR (IV				8th SEMESTER				
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Islamic Studies8	DE8 001	1	16				16
2	Prosthodontics 4	DE8 018	2	16	16			32
3	Endodontics1	DE8 023	2	16	16			32
4	Maxillofacial Surgery2	DE8 025	2	16	16			32
5	Pediatrics and Preventive Dentistry2	DE8 028	2	16	16			32
6	General Radiology1	DE8 031	2	16		16		32
7	Periodontics1	DE8 032	2	16	16			32
8	Orthodontics1	DE8 033	2	16	16			32
9	Infectious Disease & TB	DE8 034	2	16	16			32
10	Public Health4 (Epidemiology)	DE8 022	1	16				16
TOTAL SEMSTER CREDITS AND HOURS			18	160	112	16		288

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ACADEMIC YEAR V								9th SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Prosthodontics 5	DE9 018	2	16	16			32
2	Endodontics2	DE9 023	2	16	16			32
3	Maxillofacial Surgery3	DE9 025	2	16	16			32
4	Pediatrics and Preventive Dentistry3	DE9 028	2	16	16			32
5	Oral Medicine1	DE9 030	2	16	16			32
6	Oral Radiology2	DE9 031	2	16		16		32
7	Periodontics2	DE9 032	2	16	16			32
8	Orthodontics2	DE9 033	2	16	16			32
9	Ophthalmology	DE9 035	2	16	16			32
TOTAL SEMSTER CREDITS AND HOURS			18	144	128	16		288

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ACADEMIC YEAR V								10th SEMESTER
No	COURSE TITLE	CODE NO.	CREDIT(s)	SEMESTER HOURS				
				Knowledge	Clerkship	Lab	Small Group Tutorial	Total
1	Prosthodontics6	DE10 018	2	16	16			32
2	Endodontics3	DE10 023	2	16	16			32
3	Oral Medicine2	DE10 030	2	16	16			32
4	Periodontics3	DE10 032	2	16	16			32
5	Orthodonthics3	DE10 033	2	16	16			32
6	Public Health5 (Biostatistics)	DE10 022	1	16				16
7	Neurosurgery	DE10 036	2	16	16			32
8	Facial Plastic Surgery	DE10 037	2	16	16			32
9	Community & Preventive Dentistry	DE10 038	2	16	16			32
10	Maxillofacial Surgery4	DE10 025	2	16	16			32
TOTAL SEMSTER CREDITS AND HOURS			19	160	144			304

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Dentistry Faculty Curriculum - Syllabus

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ISLAMIC STUDIES

Learning Objectives:

This course is aimed at:

- To provide basic information about Islamic Studies
- To enhance understanding of the students regarding Islamic Civilization
- To improve students skill to perform prayers and other worships
- To enhance the skill of the students for understanding of issues related to faith and religious life

Course Contents

ISLAMIC STUDIES (Syllabus 1)			
Discipline		Religious	
Department		Islamic Studies	
Course Title		Basic Concept of Islamic knowledge	
Course Code		DE1 001	
Academic Year		I	
Semester	1	Spring	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Basic Concept of Islamic knowledge: General Information, Information about Islamic Culture.
2	1		Basic Concept of Islamic knowledge: Importance of knowledge in Islam, Quranic Verses and Hadith regarding Education.
3	1		Basic Concept of Islamic knowledge: Characteristic of Islamic Law, Quranic Verses and Hadith regarding Invention and changes in Human Life.

4	1		Memorization and translation of Surah 95-114.
5	1		Daily Duaa (prayers) according to Hadith and Sunnah.
6	1		Daily Duaa (prayers) according to Hadith and Sunnah.
7	1		Daily Duaa (prayers) according to Hadith and Sunnah.
8	1		Basic Concept of Islamic knowledge: Characteristics of Islamic Law, Aim and Objectives of Islamic Law.
9	1		Basic Concept of Islamic knowledge: Aim and Objectives of Islamic Law.
10	1		Basic Concept of Islamic knowledge: Social main deviations.
11	1		Definition, importance and ruling of Hijab in Islam: General Information.
12	1		Definition, importance and ruling of Hijab in Islam: Value and Importance.
13	1		Definition, importance and ruling of Hijab in Islam: Concept of Virtue.
14	1		Definition, importance and ruling of Hijab in Islam: Quranic Verses and Hadith regarding Hijab.
15	1		Definition, importance and ruling of Hijab in Islam: Islamic rules regarding Makeup and women outgoing.
16	1		Definition, importance and ruling of Hijab in Islam: Conditions for Hijab.

ISLAMIC STUDIES (Syllabus 2)				
Discipline			Religious	
Department			Islamic Studies	
Course Title			Faith	
Course Code			DE 2 001	
Academic Year			I	
Semester		2	Fall	
Number of Credits		1	Knowledge	1
			Skills	
	Hours			

	Knowledge	Skills	Topics and Description
1	1		Faith: General Information regarding Tawheed.
2	1		Faith: Types of Tawheed, Pillars of Tawheed.
3	1		Faith: Conditions of Tawheed, Advantages of Tawheed.
4	1		Faith: General information about Shirk.
5	1		Faith: Types of Shirk.
6	1		Faith: Islamic Rules for Shirk and Mushrik.
7	1		Faith: Tawasul (To Solicit)
8	1		Faith: Belief in Qaza and Qadar, Allah's Prophets, Books, Angel and day of judgment.
9	1		Tajweed
10	1		Tajweed
11	1		Tajweed
12	1		Memorization and translation of Surah 85-94
13	1		Memorization and translation of Surah 85-94
14	1		Memorization and translation of Surah 85-94
15	1		Special Duaa (prayers) according to Hadith and Sunnah
16	1		Special Duaa (prayers) according to Hadith and Sunnah

ISLAMIC STUDIES (Syllabus 3)	
Discipline	Religious
Department	Islamic Studies
Course Title	Basic Concept of Islamic Knowledge
Course Code	DE 3 001

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Academic Year		II	
Semester	3	Spring	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Worships: General Information regarding worships (Ebadat)
2	1		Worships: Types of worships (Ebadat)
3	1		Worships: Pillars of worships (Ebadat)
4	1		Worships: worships conditions of worships (Ebadat)
5	1		Worships: Difference between Obedience & Worship
6	1		Worships: Target of Worship
7	1		Worships: Worthy of Worship
8	1		Worships: Outcome of Worship
9	1		Worships: The factors and Liturgy of worship
10	1		Worships: Ebadat (Innovation) in worship
11	1		Worships: General Information about Philosophy of Worships and Philosophy of Salah
12	1		Worships: The prayer in summation (Jamat), Eid and Jenaza prayer
13	1		Memorization and translation of: Surah 78 – 84
14	1		Memorization and translation of: Surah 78 - 84
15	1		Special Duaa (prayers): according to Hadith and Sunnah
16	1		Special Duaa (prayers): according to Hadith and Sunnah

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ISLAMIC STUDIES (Syllabus 4)				
Discipline			Religious	
Department			Islamic Studies	
Course Title			Political System in Islam	
Course Code			DE 4 001	
Academic Year			II	
Semester		4	Fall	
Number of Credits		1	knowledge	1
			Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Political System in Islam
2	1		Politics & Religion
3	1		Definition of Sharia
4	1		General Information Related Politics
5	1		Individual Political rights, Council in Islam
6	1		Characteristics of Political Leaders, Needs for Selection of the Leader.
7	1		General Information related Dectatorate
8	1		Responsibilities of Islamic State
9	1		Responsibilities of Islamic Governments
10	1		Islam and Democracy
11	1		Basics of Internal Diplomacy in Islam
12	1		Basics of Foreign Diplomacy in Islam
13	1		Memorization and translation of Surah 61-84

14	1		Memorization and translation of Surah 78-84
15	1		Special Duaa (prayers) according to Hadith and Sunnah
16	1		Special Duaa (prayers) according to Hadith and Sunnah
16	1		Special Duaa (prayers) according to Hadith and Sunnah

ISLAMIC STUDIES (Syllabus 5)			
Discipline		Religious	
Department		Islamic Studies	
Course Title		Islam and Medical Practice	
Course Code		DE 5 001	
Academic Year		III	
Semester	5	Spring	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Islam & Medical Practice
2	1		General information about Medicines
3	1		Concept of Health and Medicines in Islamic Studies
4	1		Definition of Health and Sickness
5	1		Importance of Medicines in Islam
6	1		Verses and hadith related Health
7	1		Medicines in Previous Religions
8	1		Hygiene in Islam

9	1		Rules of Prohibited things in Islam
10	1		Verses and hadiths related protective procedures
11	1		Individual and social hygiene
12	1		Harms and prohibition of narcotics and Alcoholic beverages
13	1		Verses and Hadith related to alcoholic beverage prohibition
14	1		Narcotic protection
15	1		Orders of scholars related use of narcotics
16	1		Health benefits of Fasting

ISLAMIC STUDIES (Syllabus 6)			
Discipline		Religious	
Department		Islamic Studies	
Course Title		Uloom-ul-Quran	
Course Code		DE 6 001	
Academic Year		III	
Semester	6	Fall	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Uloom-ul-Quran: Concept of Quran
2	1		Uloom-ul-Quran: History of Quran
3	1		Difference between Quran and Qudsi Hadith
4	1		Revelation: General Information

5	1		Quran is Allah's Word
6	1		Quran is Allah's Word
7	1		Quran and science
8	1		Quran and science
9	1		Quran and science
10	1		Gradually Revelation of Quran
11	1		Disciplines or Manners of the Quran
12	1		Women Right in Islam
13	1		Allah's Right and Human Rights in Islam
14	1		Concept of God in other Religion
15	1		Islam and Comparative Religion
16	1		Paradise rewards and Hell's punishments

ISLAMIC STUDIES (Syllabus 7)				
Discipline			Religious	
Department			Islamic Studies	
Course Title			Versus and Seeratun Nabi (PBUH)	
Course Code			DE 7 001	
Academic Year			IV	
Semester		7	Spring	
Number of Credits		1	Knowledge	1
			Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	

1	1		Verses of Sural Al-Baqara Related to Faith (Verse No-284-286)
2	1		Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
3	1		Verses Of Surah Al-Mumenoon Related to Characteristics of Faithful (Verse No1-11)
4	1		Verses of Surah Al-Furqan Related to Social Ethics (Verse No. 63-77)
5	1		Verses of Surah Al-Inam Related to Ahkam (Verse No.152-154)
6	1		Life of Muhammad Bin Abdullah SAW (Before Prophet hood)
7	1		Life of Holy Prophet (S.A.W) in Makkah
8	1		Important lessons derived from the life of Holy Prophet in Makkah
9	1		Life of Holy Prophet (S.A.W) in Madina
10	1		Important events of life of Holy Prophet in Madina
11	1		Important lessons Derived from the life of Holy Prophet in Madina
12	1		Basic Concepts of Hadith
13	1		History of Hadith
14	1		Kinds of Hadith
15	1		Uloom – ul – Hadith
16	1		Ethical Values of Islam

ISLAMIC STUDIES (Syllabus 8)	
Discipline	Religious
Department	Islamic Studies
Course Title	Islamic Economic System
Course Code	DE 8 001
Academic Year	IV

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Semester	8	Fall	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours		Topics and Description
	Knowledge	Skills	
1	1		Basic concepts of Islamic economic system
2	1		Means of distribution of wealth in Islamic economics
3	1		Islamic Concept of Riba
4	1		Islamic ways of trade & commerce
5	1		Zakat in Islam: Zakat in Money, Gold and Silver
6	1		Zakat in Islamic: Who is in need or Zakat and How to pay zakat
7	1		Zakat in Islam
8	1		Zakat in Islam
9	1		Zakat in Islam
10	1		Basic concepts of social system of Islam
11	1		Elements of family
12	1		Memorization and translation of Surah Noor
13	1		Memorization and translation of Surah Ahzab
14	1		Memorization and translation of Surah Yasin
15	1		Memorization and translation of Surah Hujerat
16	1		Special Duaa (prayers) according to Hadith and Sunnah

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Molecular Cell Biology

Goals

The cell biology course provides a basic understanding of the structure and function of cellular organelles and components, and the functional interaction of the cell with its microenvironment. The course stresses a novel approach to the study of the cell within its social context and imparts onto students the concept that the cell is no longer perceived as "the smallest unit of function" but it is rather the cell and its microenvironment, including neighboring cells, the extracellular matrix (ECM) and the soluble mediators. The concept of "dynamic reciprocity" is stressed throughout the course, in brief, imparting on students that the cell regulates the composition of its microenvironment which in turn dictates cell function. Classes are centered on discussion oriented lectures to encourage critical thinking and emphasize the significance of research as a tool to achieve knowledge .

Learning objectives

Upon successful completion of this course, participants will be able to:

- Describe the general principles of gene organization and expression in both prokaryotic and eukaryotic organisms.
- Interpret the outcome of experiments that involve the use of recombinant DNA technology and other common gene analysis techniques.
- Discuss the various macromolecular components of cells and their functions.
- Describe the structure and function of biological membranes including the roles of gradients in energy transduction.
- Explain the basic pathways and mechanisms in biological energy transduction from oxidation of metabolites to synthesis of ATP.
- Explain various levels of gene regulation and protein function including signal transduction and cell cycle control.
- Relate properties of cancerous cells to mutational changes in gene function.
- Students will apply their knowledge of cell biology to selected examples of changes or losses in cell function. These can include responses to environmental or physiological changes, or alterations of cell function brought about by mutation.

MOLICULLAR CELL BIOLOGY (Syllabus 1)	
Discipline	Basic Biomedical science
Department	Molecular Biology and Medical Genetic
Course Title	Molecular cell biology
Course Code	DE 1 002
Academic Year	1

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Semester	1	Spring	
Number of Credits	3	Knowledge	2
		Skills	1

Week	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	Background	History and Background, Evolutionary Classification of the cell.
	1		Organization of Cell	The Prokaryotic, Morphological Organization of the Prokaryotic cell, Prokaryotic cells are structurally simpler than Eukaryotic Structure of the plasma-membrane, Chemical composition of the plasma-membrane Multiplication of the cell, The genetic Material of the Prokaryotic cell.
2	2	1	Eukaryotic Cell Structure	Why the cell is considered the basic unit of life, Implication of the cell theory, Eukaryotic cell Structure, Membranes divide the cell into Compartment.
3	2	1	The nucleus	Structure of the Nucleus, The Nuclear Envelope structure and Function, the Chromatin and Chromosome.
4	1	1	Endoplasmic Reticulum	Distinguish between Smooth and Rough Endoplasmic Reticulum Relationship between Endoplasmic Reticulum and other Internal membranes, The structure of RER, The function of the RER, The Glycosylation in RER, The structure and function of SER.
	1		Ribosome	Function of Ribosome (protein synthesis), Structure and subunits of Ribosome, Disorders and Ribosome! Diseases, Switchman-Diamond Syndrome, Dyskeratosis Congenital, Diamond-Blackfan Anemia, Cartilage Hair Hypoplasia.

5	2	1	Endoplasmic Reticulum	Distinguish between Smooth and Rough Endoplasmic Reticulum, Relationship between Endoplasmic Reticulum and other Internal membranes, The structure of RER, The function of the RER, The Glycosylation in RER, The structure and function of SER.
6	1	1	Lysosome	Structure and Function of lysosome, Enzyme, Primary lysosome, Digestive Vacuole, Residual Body , Autophagy, Membrane and P^H, Lysosomal Storage disorder, Glycogen type II, Tay-sachs diseases.
	1		Peroxisome	Morphology, Function, Shape and Size, Disorders with Peroxisome, Adrenoleukodystrophy.
7	2	1	Mitochondria	Morphology and Function of Mitochondria, Shape, Size, Distribution ,Number of Mitochondria, Chemical Composition of Mitochondria, Outer membrane structure, Inner membrane structure, Mitochondria and Apoptosis, Genome of the mitochondria, Mutation occurs in Mitochondria DNA, Diseases and disorder, Neuropathy, Ataxia and Retinitis Pigmentosa, The Chloroplast.
8	1	1	Cytoskeleton	Eukaryotic Cells Contain Cytoskeleton, Microtubule, Structure, Function, Size & Chemical composition, Microtubule Associated Protein (Kinesin, Dynein &Dynactin).
	1			Cilia & Flagellum (Function, Size, Chemical Composition) Microfilaments, Intermediate Filament.
9	2	1	Glycocalyx	Chemical Composition, Membrane Receptors for Extra Cellular Matrix (Integrin Protein).
10	2	1	Biological Membrane	Lipid Bilayer with Associated Proteins, Fluid Mosaic Model of Membrane Structure, The Biological Membranes are Two-Dimensional Fluids, Biological Membranes Fuse and form Closed Vesicles, The Membrane Proteins, Membrane Proteins include Integral and Peripheral Proteins, Proteins Oriented Asymmetrically Across the Bilayer, Protein function in Transport, Information Transfer, and as Enzyme.

1 1	2	1	Cell Membrane & Selective Permeability	Transport through the cell Membrane, Random Motion of Particles Leads to diffusion, Osmosis (Diffusion of Water), Dialysis, Turgor pressure (Internal Hydrostatic Pressure).
12	1	1	Carrier Mediated Transport	Active and Passive transports, Facilitated Diffusion, Carrier Mediated Transport, Cotransport Systems.
	1		Exocytosis Endocytosis	Large Particles transport through the Cell membrane, Exocytosis, Endocytosis, Phagocytosis and Pinocytosis
				Receptor Mediated Endocytosis.
13	2	1	Contacts Between Cells	Cellular Junctions, Anchoring Junction (Epithelial Sheet) Desmosomes, Adhering junction, Tight Junction, Gap Junction, Plasmodesmata.
14	2	1	Chemistry of Life	Organic Component of the cell, Carbon atoms for and Enormous Variety of structures, The Isomers (Structural, Geometric & Enantiomers),Carbohydrates, Monosaccharaides, Disaccharides, Polysaccharides
15	2	1	Chemistry of Life	Proteins the most Versatile Cellular Components, Protein synthesis, Chain Initiation, Chain Elongation, Chain Termination, Amino Acids , Structure, Classification, Kinds .Biological Buffers, Peptide bonds ,Important Classes of proteins and Function, Four Levels of Organization (Proteins), Primary, Secondary, Tertiary and Quaternary Structure of Protein.
16	2	1	Chemistry of life	Lipids, Triacylglycerol, Phospholipid, Carotenoids, Steroids.

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MOLECULAR CELL BIOLOGY (Syllabus 2)

Discipline		Basic Biomedical Science	
Department		Molecular Biology and Medical Genetic	
Course title		Molecular cell Biology	
Course code		DE 2 002	
Class		I	
Semester	2	Fall	
Number of Credits	3	Knowledge	2
		Skills	1

weeks	Hours	Skills	Topics	Descriptions
1	1	1	Chemistry of life	Non- Organic Component of the cell, The Water, The P^H scales, Other Non -Organic component of the cell.
	1		Nucleic Acids	Structure, Function, Kind, DNA, RNA (mRNA , tRNA , rRNA).
2	2	1	Nucleotides	Structure, Nitrogen base (Adenin , Thymin, Cytosin, Guanin& Uracil), Energy transferring , Cellular function, Cyclic AMP.
3	2	1	Enzyme	Enzyme and Cell metabolism, Method of study Localization of Enzymes, Function of enzymes inhibition of enzyme activity, Reversible Inhibition" Irreversible Inhibition.
4	1	1	Energy	The Bioenergetics, Free energy, Open systems, Steady State, Thermodynamic Laws.
	1		Non-organic Component of the cell	The Water, The Constant of Equilibrium, The P^H scales.
5	2	1	The genetic Material in Eukaryotic and Prokaryotic cells	The DNA Structure (Crick and Watson Model) Replication of DNA, Replication is Semiconservative.
6	2	1		Replication in Prokaryotic Cells, Error in replication, How Gene Works, The function of genes, The genetic code.
		1	The Gene	Gene expression,Transcription,Translation, The role of Ribosomal RNA.

7	2			
8	2	1		Prokaryotic Regulation, Structural genes, The trp operon The lac operon.
9	2	1	Eukaryotic Regulation	Transcriptional control, Posttranscriptional control Translational control, Posttranslational control.
10	2	1	Genetic Engineering	Historical Background, The Recombinant DNA (rDNA) The rDNA Methods Grew out of Research in Microbial Genetics, The Restriction Enzyme (Molecular Scissors) The method of forming rDNA.
1 1	2	1	Biotechnology	Classic Biotechnology, Product of Classic Biotech, Molecular Biotechnology, Red Biotech, Green Biotech, Blue Biotech.
12	2	1	The product of Biotech.	The E-coli Bactria in Biotech, DNA Cloning, Transgenic Bacteria, The Growth Hormone, and Protein dissolves blood clots in heart therapy, Organs for Transplant, Xenotransplantation.
13	2	1	The Stem Cells	Embryonic Stem Cell, Adult Stem cell, Transcription Factors, Antigens.
14	2	1	Differentiation of Stem Cells	Differentiation of Hematopoietic Stem Cell, Red Blood Cells, B Lymphocytes, T Lymphocytes, Natural Killer Cells, Neutrophils, Eosinophils, Monocytes, Macrophages.
15	2	1	Gene Gene Therapy	Gene, Structure & Function, Gene is the basic structural unit of Heredity, Genome, The Genetic Code, Genes specify enzymes, Genes specify polypeptides, The Sickle Cell Anemia.
16	2	1	Gene Therapy	The Goal of Gene Therapy, Gene Therapy & Genetic Diseases, Identifying defected Gene and Replacing with normal Gene, Switching on/off genes, How Gene Therapy work, Types of gene therapy, Germ line Gene therapy Somatic Gene therapy, Vectors in gene therapy, Virus Naked DNA, Risk with Gene Therapy, Other problems.

Textbooks and reference Books recommended (Last Editions)

- Medical Cell Biology, Steven R, Goodman.
- Molecular Cell Biology, Harvey Laddish, Arnold Bark
- The Cell ,A Molecular approach, Geffrey Cooper
- Essential Cell Biology, Bruce Albert, Dennis Bray.

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Medical genetics

Goals

Medical genetics is a rapidly advancing field of medicine. It is now recognized that genetic mechanisms play a fundamental role in the pathogenesis and treatment of diseases and in the maintenance of health. This course is designed to provide an overview of human genetic concepts and clinical disorders that have a genetic component. The course seeks to teach the students to apply their knowledge of the principles of human genetics to a variety of clinical problems. It surveys many clinical areas including cytogenetic, molecular genetics, biochemical genetics, population genetics and clinical genetics. The course is organized roughly according to genetic etiology and pathophysiology.

Learning objectives

The educational Learning objectives are largely derived from the American College of medical Genetics recommendations about undergraduate education in medical genetics and the Core Curriculum in Genetics recommended by the Association of Professors of Human and Medical Genetics
. At the end of course Students should be able to:

- Describe the organization of the genome and regulation of gene expression as it relates to medical genetic disorders and diagnosis.
- Describe the types and extent of genetic variation seen in the human genome and explain how these variations affect disease states and diversity of normal variation.
- Obtain a family history and draw and interpret a pedigree.
- Perform pedigree analysis and apply principles of inheritance in calculating genetic risk for a variety of genetic disorders and patterns of inheritance; and incorporate knowledge of population genetics to calculate genetic risk based on carrier frequency within a population.
- Explain and identify non-Mendelian mechanisms such as: reduced penetrance, variable expressivity, uniparental disomy, epigenetics, mosaicism, genomic imprinting and unstable repeat expansion.
- Identify the clinical PRESENTATION AND ETIOLOGY OF GENETIC DISORDERS INCLUDING: SINGLE GENE DISORDERS, DISORDERS OF CHROMOSOME ABNORMALITIES, INBORN ERRORS OF METABOLISM, AND MULTIFACTORIAL GENETIC DISORDERS AND CANCER GENETICS.
- IDENTIFY THE EFFECTS OF TERATOGENS AND IN UTERO INFECTIONS AND IDENTIFY PATTERNS OF DYSMORPHOLOGY.
- INTERPRET RESULTS OF CYTOGENETIC, MOLECULAR AND BIOCHEMICAL GENETIC TESTS TO AID IN DIAGNOSIS OF GENETIC DISEASES.
- ASSESS AND APPRAISE THE IMPORTANCE, USEFULNESS AND LIMITATIONS OF GENETIC TESTS INCLUDING: CYTOGENETIC TESTING, MOLECULAR TESTING, PRE-NATAL TESTING, GENOME SCANNING, NEWBORN SCREEN AND BIOCHEMICAL GENETICS TESTING. DETERMINE WHICH TEST(S) IS MOST APPROPRIATE FOR A GIVEN CLINICAL SCENARIO.
- USE KNOWLEDGE OF GENETICS AND GENETIC EVALUATION OF PATIENTS TO DETERMINE TREATMENT OPTIONS FOR GENETIC DISORDERS.
- EXPLAIN THE CLINICAL, ETHICAL AND SOCIAL IMPLICATIONS OF GENETIC DIAGNOSIS, FAMILY HEALTH, PREDICTION, AND PERSONALIZED MEDICINE.

- DISCRIMINATE BETWEEN APPROPRIATE AND INAPPROPRIATE WAYS OF COMMUNICATING GENETIC INFORMATION. IDENTIFY THOSE APPROACHES THAT RECOGNIZE THE IMPORTANCE OF PATIENT AUTONOMY AND PRIVACY ISSUES.
- DEMONSTRATE RESPECT FOR PATIENTS' RELIGIOUS, ETHNIC AND CULTURAL BELIEVES IN COUNSELING SITUATIONS.

Course content

Medical Genetics

Discipline		Basic Biomedical Science	
Department		Molecular Biology and Medical Genetic	
Course title		Medical Genetics	
Prerequisite		Molecular Cell biology	
Course code		DE 1 004	
Class		I	
Semester	1	Spring	
Number of Credits	2	Knowledge	1
		Skills	1

weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1	1	1	Background	Historical Background and role of Genetics in Medicine
2	1	1	Definition of the relative terms	homozygous parents, heterozygous parents, sex determination, The genotypes of parents, gametes and offspring should be shown, fertilization, allele, homozygous and heterozygous, genotype, phenotype, dominance recessive, incomplete dominance.
3	1	1	Origin of the Science of Genetics	Work of Gregory Mendel leading to the, expression of his findings in two laws, Law of Segregation, Law of Independent Assortment.
4	1	1	Monohybrid Di-hybrid and poly hybride"Cross	Study of the inheritance to the second filial generation (F2) of two unlinked traits using the Punnett square technique., Definition of linkage heterozygote crossed with a di-hybrid recessive organism.
5	1	1	Drosophila Melanogaster	Attractive and marvelous traits of Drosophila in Genetic Researches.
6	2	2	The Origin of Medical	Single Gene disorders, Chromosomal Disorders, Multiple

			Genetics	Gene disorders.
7	1	1	Cellular and Molecular Base of Genetics	The cell, DNA (the genetic material), Structure, Replication Structure of Chromosome.
8	1	1	The Gene	The Structure of Nucleus genes, Pseudo genes.Exteragenic DNA, Junk DNA, Satellite DNA, Minisatellite DNA Hypervariable minisatellite DNA, Microsatellite DNA.
9	1	1	Mutation	Types of Mutation, Substitution, Insertion, Deletion.
10	1	1	Chromosome	Morphology, Types of Chromosome (View point of Location of Centromere/ Length), Sex Chromosomes, Somatic Chromosome.
11	1	1	Cell division	The Cell cycle, Check points and P53 role, Cdc and cyclin proteins , Mitosis (Prophase, Metaphase , Anaphase and Telophase).
12	1	1	Meiosis	Meiosis 1 and Meiosis 2, Prophase 1 , 2, Metaphase 1, 2, Anaphase 1 1,2, Telophase 1,2.
13	1	1	Twins	Types of twins, Fraternal, Identical, IVF (In Vitro Fertilization).
14	1	1	Twins	Conjoined Twins, The result of Multifactorial Traits with twins.
15	1	1	Gene reciprocity	Epistatic Gene, Complementary genes, Polymeric gene.
16	1	1		Multiple Gene Inheritance, The Blood groups, Rh factor Lethal gene, Modifier gene.

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COMPUTER SKILLS

Learning objective

At the end of course the student should be able to:

- Improve and encourage computer literacy for all.
- Introduce the main concept of:
  - Information Communication Technology
  - Hardware
  - Software
  - Data storage and memory
  - Computer performance.
- Encourage the students to demonstrate knowledge and competence in using the common functions of a personal computer and its operating system.
- Basic operations, Formatting, Installation, Editing documents, Proofing and printing.
- Web Navigation, Web Searching, Downloading, Messaging, Security issues.

Course content

COMPUTER SKILLS (syllabus 1)

Discipline		Information Communication Technology	
Department		Computer Science	
Course title		ICDL Syllabus 1 & 2 (Concepts of Information and Communication Technology, Using the Computer and Managing Files)	
Course code		DE I 003	
Academic year		I	
Semester	1	Spring	
Credits	2	Knowledge	
		Skills	2

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions

1		2	Concepts and Hardware	Concepts Personal Computer (Laptop & Palmtop Computers, Futures of Handheld Portable digital devices, PDA, Mobile Phones, Media Players, Smart Phones), Parts of Computer (The CPU, Memory, ROM – BIOS, Disks)
2		2	Input/output ports And Computer Performance	Input/output ports: USB Port, Serial Port, Parallel Port, Network Port, Fire Wire Port. Computer Performance, Factors affecting performance (CPU Clock
				Speed, RAM size, Hard disk, Free hard disk space, Fragmentation, De-fragmenting files, Multitasking Considerations, CPU Speeds).
3		2	Memory And Storage	Memory: RAM, ROM, ROM-BIOS, Video (Graphics) Memory, Measurement of storage capacity, Measurement of storage capacity, Types of Storage Media: Internal Hard Disk, CDs, DVDs, Recordable CDs and DVDs, USB flash drives, Memory Cards, Network Drives & Online File Storage, Floppy Disks.
4		2	Input devices	Input Devices, Keyboard, Mouse, Scanners, Tracker balls Touch Pads, Joysticks, Webcams, Digital Cameras, Microphones.
5		2	Output Devices	Output devices, Traditional Computer Monitors, Flat Screen Computer Screens, Projection Devices, Speakers, and Headphones, Printers, Type of Printers, Laser Printers, Inkjet Printers, Dot Matrix Printers input and Output devices.
6		2	Software	Operating System, Example Of Software Application is :Word Processing Application, Spreadsheets Application, Databases Application, Presentations Application, E-mailing Application Web browsers Application, Photo editing Application, Computer Games.
7		2	Software	Difference between operating systems and application software , Accessibility options, Voice recognition Software, Screen Reader Software, Screen magnifier Software, On-Screen Keyboard.
8		2	Networks And DATA Transfer	Network: Types (LAN, WAN, WAN, Client/server network, Internet, WWW, Intranet, And Extranet),DATA Transfer: Downloading from and uploading to a network, Broadband versus Dial-up Internet connection services , Internet connection Options, Features of Internet connection.
9		2	ICT in Everyday Life	ICT in Electronic World, CT in Communication, ICT in Virtual Communities, ICT in Health, ICT in Environment.
10		2	Security	Security: Identity and Authentication, Password policies, Off-site backups, Firewalls, Data theft Issues, Viruses, computer Virus (Computer Virus infection Issue, Protecting Against Computer Virus infection, What to do if you discover a virus on your Computer, The limitation of antivirus Software).
			Legal Issue And	Legal Issue :Copyright, Copyright Issue when Copying files.

11		2	Site Licenses	Site Licenses, End-user license agreement, Types of software license agreements, Shareware, Freeware, Open source software, Open source software, Data protection, Data protection and Privacy, Data protection Legislation
12		2	Starting to Use the Computer and Setting Up The Computer	Starting to Use the Computer: Shutting down the Computer, Restarting the Computer, Shutting down the a non-responding application, Help within Start Menu, Searching for Help Setting Up The Computer Viewing Basic Computer information at Start up, Viewing System Properties, Changing the Date and time, Configuring the Volume setting, Customizing the Desktop
				Theme, Adding a keyboard language. Installing a software application
13		2	Using Icons And Using Windows	Using Icons: Desktop Icons, The Recycle bin, Customizing your Desktop Icons (Deleting ,Opening, Creating, Copying, Moving, and Selecting Desktop Icons),Using Windows, Title Bar , and Menu Bar, The Toolbar, The Status bar, The Scrollbar, The Maximize, Minimize, Restore and Close buttons, Switching between Programs.
14		2	Managing Files and Data Storage Devices	Managing Files, Driver, Folders and Files, The windows Explorer View , Viewing the Contents of a folder, Opening all folders on a desk, Switching between drives, Data Storage Devices, Hard Disk, CD/DVD, USB Flash, Network Drives, Disk Storage Capacity), Off-Site Storage for your backups, Benefits of Online File Storage.
15		2	File .& Folder and Working with Files	File and Folder Recognizing Common file types, Common File Type, Creating a new folder, Renaming folder Within the windows Explorer, Viewing file or Folder details , Viewing file Properties. Working with Files, Determining File Type, Starting with WordPad(Entering text in WordPad, Saving WordPad file, Creating New Document, Opening an existing file), Selecting , Copying , & Moving Files, Deleting and Restoring deleted Files and Folder, Emptying the Recycling, Searching for files and Folder)
16		2	Utilities And Printing your Document	Utilities: Print Screen Facilities for Capturing the Screen, File Compression, Antivirus Issue(Computer Virus, How Virus infect Computer, Need for Virus checking, Running A virus checker Updating your virus checking software),Printing your Document, Printing Options(checking the default Printer, Installing a new printer driver, Printing to a file, Controlling print jobs using the print manager).

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Dentistry Faculty Curriculum - Syllabus

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COMPUTER SKILLS (Syllabus 2)			
Discipline		Information Communication Technology	
Department		Computer Science	
Course title		ICDL Syllabus 3 & 4 (Word Processing, Web browsing and Communication)	
Course code		DE 2 003	
Academic year		I	
Semester	2	Fall	
Number of Credits	2	Knowledge	
		Skills	2

Weeks	Hours		Topics	Descriptions
1		2	The Microsoft Word 2007 Screen	Working with Documents, Starting Microsoft Word 2007, and The Microsoft word 2007 Screen, The level of Command Organization The Office Button, Ribbon Tabs, Minimizing the Ribbon Switching between tabs using the mouse wheel, Groups Dial box launcher.
2		2	Starting To Use Microsoft Word 2007	Using the default Microsoft Word 2007 document, Saving Microsoft Word Document, Opening and Closing documents Saving your file using a different file name, Creating a new document, Using Help within Microsoft Word ,Alt key help Saving document using different formats , Creating documents using different templates, Switching between Word Views.
3		2	Manipulating Text And The Clipboard	Manipulating Text, Select, then format, Inserting text, Inserting, deleting, undo and redo, Insert and overtype mode, Copying text within a document, Moving text within a document. The Clipboard, Using the clipboard, The Office Clipboard, Removing items from Clipboard.
4		2	Formatting	Text Formatting: Changing the font size or font type, Formatting text as bold, italic or underline, Applying subscript or superscript formatting, Applying Colors to selected text ,Applying different background colors to selected text changing the text case .Setting hyphenation options.

5		2	Paragraph Formatting	Paragraph Formatting, Paragraph marks, Creating a paragraph, Deleting a paragraph, Merging paragraphs, Aligning text within a document, Modifying paragraph spacing, Applying a different bullet or numbering style to a list, Adding border and Shading Finding and Replacing text.
6		2	Page Formatting	Page Formatting, What is Page Formatting, Page Orientation and Paper size, Changing the Page size, Page margins, Inserting Page Break, Deleting Page Break, Header and Footer, Page Numbering, Header and Footer fields ,Cover pages.
7		2	Styles And Objects	Styles, Applying character styles, Applying paragraph styles Copying formatting using the Format Painter, Table Creation: Creating table using the insert Table button, Entering data into a table ,Selecting elements within a table, Using the table drop down menu.
8		2	Table Formatting	Table Formatting, Specifying row height, Specifying Column height Specifying column width Modifying a cell border line style, Specifying a border Style (Width, Color), Applying shading to cells within a table
9		2	Graphical Objects And Multiple Documents	Graphical Objects, Inserting Clip Art inserting a picture from a Picture file, Inserting a chart in to a document, inserting AutoShape Resizing a graphic within a document and Deleting a graphic. Using Multiple Documents within Microsoft Word, Switching between open documents, Tiling or cascading Document on your screen ,Comparing Document side by side, Copying or moving Selected items between documents.
10		2	Mail Merging Documents	Mail Merging, What you need to learn about mail merging What is Mail Merging, Creating and Printing mail merged letters, Creating and Printing mail merged address labels, Creating a mil list to be used within a mail merge, Merging a mailing list to produce Labels.
1 1		2	Customization And Proofing	Setting and customizing Microsoft Word Options, Setting the User name, Setting the default Opening, Proofing, The Important of proofing, Spelling Checking a document, Add words to the built in custom dictionary, Removing word a word from the spell checking dictionary.
12		2	Preparing to Print Documents	Setting Up Documents, Document formatting options, Setting the paper size, Setting the Page Orientation, Setting margins using the page Set-up command Inserting and Deleting a hard page break Creating a header or footer, Using the Header and Footer toolbar What are Word Fields, Using the Header and Footer, Numbering Pages within a document.
13		2	Checking And Printing Documents	Spell Checking your documents, Adding a word to the custom dictionary, Manually checking your work, Specifying what to print, Specifying what to print, Specifying the number of copies required and Printing a document, Printing using the default printer.
14		2	Using Internet Explorer	Opening the Microsoft Internet Explorer Program, Navigation through web site, Switching between tabs,

				Refreshing web page, Copying a picture from a web site, Saving a web page , Downloading file from a web page.
15			Using the Web	Searching the web, Search Engine Web sites ,Using keyword and Phrases, Searching by Date, Searching By File Format ,Online encyclopedia, Online Dictionary.
16		2	Email Management	Manage your Emails: Organizing your emails, Sending Messages Receiving An email, Setting Message Sensitivity, Attaching File to a Message, Deleting an attached File from outgoing message, Restoring a message from the deleted items Folder.

Textbooks & Reference books Recommended (last edition)

- Computer Science Illuminated, Nell Dale & John Levis.
- □ Invitation to Computer Science, G Michael Schneider, Judith LGersting.
- □ Computer Organization and Architect Willia Stalling
- □ Textbook of Computer Science, Seema Bhatnagar.
- □ Fundamental of Computation, Carol Critchlow & David Eck.
- □ Introduction to Computer Science, Angela B.Shiflet & George W.Shiflet.

Ghalib University

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ENGLISH LANGUAGE

Learning objectives

First semester

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

- Enhance their language skills of speaking , reading .listening and writings;
- They will learn how to pronounce the English vocabularies and medical expressions correctly , and will be familiarized with phonetic transcription of standard dictionaries such as(Longman and Oxford ,etc.);
- And as part of grammar, they will learn the parts of speech in English in order to be able to use the words correctly in a sentence;
- In addition, they will learn how to read a text of reading with comprehension and to be able to introduce himself, describe a friend ,a place or solve his /her problems by himself;
- Our focus in the first semester is to stress on General English more than Medical English.

Second semester

- Meet their real life communicative needs;
- Talk fluently ,and read the texts with comprehension;
- Standing by himself .solving his / her problems by using dictionaries internet and other available sources;
- Enhancing their language skills of speaking , reading .listening and writings perfectly;
- Knowing medical terms derived from Greek or Latin and a number of most common abbreviations .such as AIDS etc.;
- In addition they will be able to catch their lectures in English properly;
- And finally they will be able to write, case note, medical report, surgery report, paragraph, and letter writings. In this semester we focus more and more on Medical English than General English.

ENGLISH LANGUAGE(syllabus 1)

Discipline		English language	
Department		English department	
Subject		General English /interchange two	
Course code		DE 1005	
Class		I	
Semester	1	Spring	
Credits	4	Knowledge	
		Skills	5

Week	Hours: Knowledge	Hours: Skills	Topics	Descriptions

1		4	Unit one People; childhood; memories	Speaking: Talking about yourself, asking about someone's childhood Reading: Reading about a career Writing: Writing a short paragraph about your childhood Listening: Listening to the people talking about their past Grammar: Past tense; Used too habitual activities in the past.
2		4	Unit two Transportation; transportation problems; city cervices	Speaking: Talking about transportation and transportation problems Reading: Reading about new transportation inventions Writing: Writing a letter to the editor Listening: ask for personal information Grammar: Adverbs of quantity with count and noncount nouns.
3		4	Unit three Houses and apartments; lifestyle change; wishes	Speaking: Describing positive and negative features; making comparisons Reading: Reading about ways to end bad habits Writing: Writing an e-mail describing an apartment Listening: Listening to people ask and answer questions about apartments for rent Grammar: Evaluations and comparisons with adjectives.
4		4	Unit four Food; recipes; instructions; cooking methods	Speaking: Talking about food Reading: Reading about how food affects the way we feel Writing: Writing a recipe Listening: Listening to descriptions of food Grammar: simple past vs. present perfect.
5		4	Unit five Travel; vacations; plans	Speaking: describing vacation plans Reading: Reading tips about an expert backpacker Writing: Writing travel suggestions Listening: listening two people discuss vacation plan Grammar: future with be going to and will.
6		4	Unit six Complaints; households chores; requests; excuses; apologies	Speaking: Making request; complaining; apologizing; giving excuses Reading: Reading about ways to deal with neighbors Writing: Writing a set of guidelines Listening: listening to people making requests Grammar: two-part verbs.
5		4	Unit seven Technology; instructions	Speaking: describing technology; giving instructions; giving suggestions Reading; Reading about the life in the future Writing: Writing a note giving instructions Listening: Listening to people discuss computers Grammar; Infinitives and gerunds for uses and purposes.
8		4	Unit eight Holidays; festivals; customs; celebrations	Speaking: Describing holidays, festivals, customs, and special events Reading: Reading about read about holidays and unusual customs Writing: Writing a travel guide Listening: Listen someone talk about Halloween Grammar: Relative clauses of time.
			Unit nine Life in the	Speaking: Talking about change; comparing time periods;

9		4	past, present and future; changes and contrasts; consequences	describing possibilities Reading: Reading about the signs of being in love Writing: Writing a description of a person Listening: Listening to people talk about changes Grammar: Time contrasts; conditional sentences with //"clauses.
10		4	Unit ten Abilities and skills; job preferences; personality traits; careers	Speaking: Describing abilities and skills; talking about job preferences Reading: Read about how to find a job Writing: Writing a cover letter for a job application Listening: Listening to people talk about their job preferences Grammar: Gerunds; short responses; clauses with because.
11		4	Unit eleven Landmarks and monuments; world knowledge	Speaking: Talking about landmarks and monuments; describing countries Reading: Reading about interesting museums Writing: Writing a guidebook introduction Listening: Listening for information about a country Grammar: Passive with by (simple past); passive without by (simple present).
12		4	Unit twelve Information about someone's past; recent past events	Speaking: Asking about someone's past; describing recent experiences Reading: Reading about gifted children Writing: Writing a short story Listening: Listening to people talk about recent experiences
				Grammar: Past continuous vs. simple past; present perfect. Continuous.
13		4	Unit thirteen Entertainment; movies and books; reactions and opinions	Speaking: Describing movies and books Reading: Reading about author's career Writing: Writing a movie review. Listening: Listening to opinions Grammar: Participles as adjectives; relative clauses
14		4	Unit fourteen Nonverbal communication Gestures and meanings; signs; drawing conclusions	Speaking: Interpreting body language; explaining gestures and meanings Reading: Reading about the proverbs Writing: Writing a list of rules Listening: Listening to people talk about the meanings of signs Grammar: Modals and adverbs
15		4	Unit fifteen Money; hopes; predicaments; speculations	Speaking: Speculating about past and future events; giving advice and suggestions Reading: Reading an advice column Writing: Writing a letter to an advice columnist Listening: Listening to a radio talk show Grammar: Unreal conditional sentences with //"clauses; past Modals
16		4	Unite sixteen Requests; excuses; invitations	Speaking: Reporting what people say; making requests; making invitations Reading: Reading about "white lies" Writing: Writing a voice mail message Listening: Listening for excuses; listening to voice mail message Grammar: Reported speech General Review: solve the problems of the students/quizzes and Test

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ENGLISH LANGUAGE(syllabus 2)

Discipline			| English language	
Department			English department	
Subject			ESP/Professional English in use	
Course code			DE2 005	
Class			I	
Semester		2	Fall	
Credits		4	Knowledge	
			Skills	4
Hours		Topics	Descriptions	
Weeks	knowledge / Skills			
1	4	Health and illness Parts of the body	Speaking: Talk about health, sickness and, recovery and name parts of the body Reading: Read the passage Listening: Listen to someone who is talking about the radiation of pain in his body. Writing: Homework assignment -Write an advice for keeping fit.	
2	4	Function of the body Medical practitioner	Speaking: Talk about the functions of your organ/job of GPs Reading: Read the passage Listening: Listen to the pronunciation of the new words Writing: Write five questions about a patient who has diabetes.	
3	4	Nurses Allied health professionals	Speaking: Talk about the job of nurses and their grades Reading: Read the passages silently Listening: Listen to a nurse talks about her routine Writing: Write an article about the nurses responsibility in a Hospital	
4	4	Hospitals Primary care	Speaking: Talk about the hospital and the different ward of a hospital Reading: Read the relevant passages about hospital Listening: Listen to a doctor introducing a hospital	
5	4	Medical Education The overseas doctor	Speaking: Talk about medical education in your country Reading: Read the passages Listening; Listen to the pronunciation of the new words Writing: Write about the systems of education in your country	
6	4	Signs and symptoms Blood	Speaking: Describe anemia Reading: Read the passages Listening: Listen to the pronunciation of the new words Writing: Write a short case report	
7	4	Bones Childhood	Speaking: Look at the human skeleton and name them Reading: Read the passages Listening: Listen how the anatomical name of the bones are	

				pronounced Writing: write a short article about a stress fracture
8		4	The endocrine system The eye	Speaking: Talk about the glands and their functions in the body Reading: Read the passages Listening: Listen to the pronunciation of the new words Writing: Write a referral letter
9		4	The gastrointestinal System	Speaking: Talk about digestive system Reading: Read the passage about the abdomen Listen to People making invitation. Writing: Write a short article about human digestive system
10		4	Gynecology	Speaking: Talk about reproductive system of women Reading: Read the passages. Listening: Listen to pronunciation of the new words in the cassette Writing: Write a passage about women menstruation.
11		4	The heart and circulation	Speaking: Talk about heart and its function in the body Reading: Read the passages on p 52 Listening: Listen for a medical conversation about the heart Writing: Write about hear failure
12		4	Infections Mental illnesses	Speaking: Talk about microorganism /about mental illnesses Reading: Read the passages Listening: Listen to the new words Writing: Write about the cases of HIV in your country
13		4	The nervous system	Speaking: Talk about sensory loss and motor loss Reading: Read the passages about epileptic fit and syncope attack Listening; Listen to the pronunciation of new words Writing: Write about tendon reflex
14		4	Oncology	Speaking; Talk about neoplasm Reading: Read the passages silently and then aloud Listening: Listen to medical conversation Writing: Write about the treatment of tumors
15		4	Pregnancy and child birth	Speaking: What is labour? Describe it. Reading: Read the passages about labour and lie presentation Listening: Listen to the new words Writing: Write a short article about the oldest and youngest age in your country
16		4	The respiratory system	Speaking: Talk about respiratory system Reading: Read the passages Listening: Listen to doctor talking about cough Writing: Write a case report about a man who is complaining of chest pain

Textbooks & reference books recommended (last edition)

1. Professional English in use Medicine , Erich H Glendenning .Cambridge University ,2007
2. Grammar in Context ,by Sandra NElbum , 1986 USA
3. New interchange book two, by Jack C. Richards Cambridge University press in 1999.
4. English grammar and composition by Wren and Martin ,2001
5. Professional English in use Medicine , Erich H Glendenning ,Cambridge University ,2007
6. English grammar by Betty Schampfer , 3rd edition
7. Essential grammar in use by Roymound Murphy ,3rd edition ,2007

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Biophysics

Learning objectives

- Develop basic understanding of medical biophysics concepts
- To learn the effect of stability and static forces applied in different states of the body and calculation of forces using lever rules
- To understand the friction principles and its effect in the joints
- To learn the fundamentals of the heat and thermoregulation in the body
- To understand of the nature of the sound, mechanism of hearing and clinical uses of sound
- To learn about electromagnetic spectrum and waves and their interaction with body
- To explain the mechanism of vision and cause of vision defects
- To understand the mechanism of Laser production and its application in medicine
- To learn the mechanism of x-ray production, production of radiology images, the x-ray interaction with the body and to know different modalities of radiology
- To get acquainted with basic concepts of nuclear medicine and its spectrum of application
- To learn about radiotherapy and its mechanism of the work in medicine
- To learn about radiobiology, effect of radiation on the body and how to protect patients and other individuals from unnecessary exposure
- To understand the basic fundamentals of magnetism and application of magnetism in the medicine, MRI and its safety
- Basic physical concepts of Medical Endoscopes
- Basic concepts in Electrocoagulation

Skills

- **Introduction** to practical course of medical physics, Units of measurement, metric system, British system
- **Blood pressure:** Sphygmomanometer, Physical aspects of measurement of blood pressure, demonstration and practical measurement of blood pressure
- **Thermometers and units used in heath:** Centigrade, Fahrenheit, Kelvin, Conversion of heath units
- **Defibrillator:** Electrical current of the heart, physical aspects of defibrillator, demonstration of defibrillator
- **Chest tube and water seal:** physics of respiration, What is chest tube and water seal?, Pathologies require chest tube, mechanism of chest tube work
- **Ultrasound machine:** Probes, different parts of the machine, demonstration of the work of ultrasound machine
- **Optometry:** Defects of vision, Concave and convex lenses and glasses f „
  - **Introduction to Laser machine:** demonstration of the machine, mechanism of its work, wavelength and filters
  - X-**ray machine:** X-ray tube, Table, Cassette, Film, Analogue and digital x-ray
  - **CT-Scan machine:** Table, Gantry, Control unit, Density, Contrast, Hounsfield unit, CT protocols

- **Radiotherapy:** Introduction to Linear accelerator, Treatment planning, Dose distribution, Dose fractionation, PTV, CTV
- Introduction to radionuclides: Calculation of half-life of radionuclides and decay, Calculation of half-Life, Biological and physical half-life
- **MRI machine:** Table, Gantry, Intensity, Tl contrast, T2 Contrast images, Proton Density, MRI Protocols

BIOPHYSICS			
Discipline		Basic Biomedical Science	
Department		Physics	
Subject		Biophysics	
Course code		DE1 006	
Class		I	
Semester	1	Spring	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	Introduction to Biophysics	Units, structure of the atom, models, photon, ionization and Excitation…
2	1	1	Measurement errors(Statistics)	Measurement quality, Measurement error analysis, Random and systematic errors, Measurement accuracy, Uncertainty in a measurement value, Error models and measurement uncertainty Estimating measurement uncertainty.
3	1	1	Descriptive statistics	Measures of central tendency, Mean, Median, Mode...
4	1	1	Ultrasound	Production and properties of ultrasound, biological and chemical Properties of ultrasound. How safe is ultrasound imaging?
5	1	1	Medical and Dental applications of Ultrasound	Image quality and artifacts, Obstetrical ultrasound imaging, Echocardiography, Ultrasound images of the heart, rheology.

6	1	1	Bioelectricity	Knowledge of electricity, Production and properties of high frequency current, Physiological Effects of Electricity,)
7	1	1	Medical and Dental Applications of high frequency currents	Electrical surgery, production and properties of high Frequency current, physiological effects of electricity,)
8	1	1	Electromagnetic Waves	Definition, Electromagnetic Spectrum, radio waves, micro waves, Infra-Red, visible light, ultraviolet, X- rays, Gamma rays, Interaction of electromagnetic Radiations with human body.
9	1	1	Application of non-Ionizing radiation in dentistry and dosimetry	Non Ionizing Radiations, Ionizing Radiations, Application of UV in dentistry, absorbed dose, effective dose, equivalent dose, safety reports (NCRP, ICNIRP
10	1	1	Laser	Production, properties of Laser, types of lasers, Clinical application of Lasers in Dentistry, Advantages and drawbacks of Lasers for medicine, other medical application of lasers
11	1	1	Physics of MRI	Introduction, the science of magnetism, nuclear magnetism, NMR, Contrast mechanisms for MRI, Listening to spin echoes, How MRI Maps the body, How safe is MRI?
12	1	1	Basics of Radiology	Nature and properties of X-rays, X-ray machines, Basic issues in x-ray image formation, Contrast, absorption and measurement of X-ray dose, X-ray detectors, Different modalities in Radiology, Interaction of Radiation with matter.
13	1	1	CT- Scan (Radiology application in dentistry)	Computed tomography (CT), Hounsfield units, How images are created in CT-Scan, CT in dentistry, Advantages and drawbacks of CT
14	1	1	Basics of Nuclear physics	Introduction: Radioactivity and medicine, Nuclear physics basics, Decay, half-lives (Physical, Biological), Alpha, Beta and Gamma rays.
15	1	1	Application of Nuclear physics in medicine	Gamma camera imaging, Emission tomography with radionuclides: SPECT and PET, Radiation in medical treatment, application labeled molecule in dentistry and medicine
16	1	1	Introduction to radiotherapy	Introduction, eternal beam radiotherapy, cobalt 60 machine, linear accelerators, Brachytherapy (LDR, HDR)

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Medical Chemistry

Course Objective

Upon completion of Inorgarfic & Organic chemistry course, the student should understand:

- The basic structures of atoms, ions, and molecules, and ways to quantitatively describe the properties of atoms and molecules in the various phases of pure matter and in mixtures.
- The reactivity of atoms, ions, and molecules, and the various qualitative and quantitative methods for describing or depicting chemical reactions.
- Concept of chemical equilibrium, and the energies that drive chemical reactions: introduction To the field of thermodynamics.
- The concept of chemical kinetics and the energy required to initiate a chemical reaction.
- The relationship between the electronic configurations of atoms and molecules and their chemical properties: an introduction to the field of quantum mechanics.
- To make the students' knowledge able about the fundamentals of carbon chemistry,
- To understand the consequences (reactivity, properties) of the three-dimensionality of molecules,
- To be able to interpret patterns of reactivity on the basis of mechanistic reasoning,
- To be able to design syntheses of organic molecules of moderate complexity

Course Content

MEDICAL CHEMISTRY (Syllabus 1)			
Discipline		Basic Biomedical Science	
Department		Chemistry	
Course title		Non Organic Chemistry	
Co-requisites		DE 1 007	
Course code		I	
Academic year		Spring	
Semester	1	Knowledge	1
Number of Credits	1	Skills	

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	Introduction to Medical Chemistry	International (English) nomenclature Properties and biological importance of water.

2	1	1	Introduction to Medical Chemistry	Solutions, their properties (dissuasion and osmosis).
3	1	1	Introduction to Medical Chemistry	Electrolytes in body liquids Solubility product.
4	1	1	Acid base Reactions, Ph., Buffers	Acid base reactions.
5	1	1	Acid base reactions, Ph., Buffers	PH of weak acids and bases, hydrolysis of salts.
6	1	1	Acid base Reactions, Ph. Buffers	Buffering system and colloid solutions.
7	1	1	Acid base reactions, Ph. Buffers	Thermodynamics of living systems.
8	1	1	Acid Base Reactions, Ph., Buffers	Energy and kinetics of chemical reactions.
9	1	1	Acid Base Reactions, Ph., Buffers	Oxidation-reduction reactions in living organisms.
10	1	1	Non-Metal Elements and their compounds in Dental Medicine	Nonmetallic elements and inorganic compounds of calcium and phosphorus.
11	1	1	Non-Metal Elements and their Compounds in Dental Medicine,.	Chemical structure of bones and teeth Dental ceramics and its properties (fragility, strength, hardness, density, thermal conductivity, optical properties).
12	1	1	Non-Metal Elements and their compounds in Dental Medicine	Dental porcelain and cements.
13	1	1	Metal and their Alloys	Structure and properties of metals, hardening and recrystallization, Cooling curves of metals and their alloys.

14	1	1	Metal and their Alloys	Crystallographic systems Noble metals and their alloys.
15	1	1	Metal and their Alloys	Crystallographic systems Noble metals and their alloys.
16	1	1	Metal and their Alloys	Crystalline structure of pure metals.

MEDICAL CHEMISTRY (Syllabus 2)			
Discipline		Basic Biomedical science	
Department		Chemistry	
Course title		Organic Chemistry	
Course code		DE 2 007	
Academic year		I	
Semester	2	Fall	
Number of Credits	2	Knowledge	1
		Skills	1

Hours			Topics	Descriptions
1	1	1	Derivate of Hydrocarbons	General characteristic of organic compounds, types of isomeric Medical and toxicological significance of halogenderivates, hydroxyderivates, aldehydes, ketones and chinones....
2	1	1	Derivate of Hydrocarbons	Carboxylic acids and their derivates Significant organic nitrogen (S, P...) compounds, derivates of carbonic acid (urea and its derivates).
3	1	1	Heterocycles	Five or six-membered ring heterocycles with 1 or more heteroatoms (including condensed rings).
4	1	1	Heterocycles	Biochemically and medically important derivates of heterocyclic compounds (co-enzymes, vitamins, amino acids, purines, pyrimidines, carbohydrates, hormones, medicaments, dyes), Heterocyclic compounds as drugs.
5	1	1	Polymerization and Polycondenzation	Polymerization, polycondensation and polyadition.
6	1	1	Polymerization and	Some macromolecules resulting from the polycondensation, their importance and use in the synthesis of synthetic

			Polycondenzation	materials used in dentistry, Dental plastics, their composition and chemical importance.
7	1	1	Impressions Materials	Modelling materials (wax), molding materials (thermal expansion, thermal inversion, refractoriness, porosity, volume changes).
8	1	1	Impressions Materials	Modelling materials (wax), molding materials (thermal expansion, thermal inversion, refractoriness, porosity, volume changes).
9	1	1	Saccharides	Saccharides , Relationship of structure and biological properties of saccharides, Monosaccharides and their derivates (ironic acids, glycosides, amino saccharides, oligosaccharides)
10	1	1	Saccharides	Disaccharides and polysaccharides (peptidoglycans, Glycoproteins), configuration, biological properties, Complex saccharides and their importance. .
11	1	1	Lipids and Steroids	Structure and classification of lipids, Fatty acids, eicosanoids and their biomedicine importance, derivates of fatty acids.
12	1	1	Lipids and Steroids	Complex lipids - phospholipids, glycolipids, lipoproteins Basic structure of steroids, classification of steroids (cholesterol, steroid hormones, bile acids).
13	1	1	Amino acids and peptides	Composition, classification and properties of amino acids Derivate of amino acids and their biochemical importance.
14	1	1	Amino acids and Peptides	Physico-chemical characteristic of peptides and their usage in biochemistry, Biochemically important peptides (glutathione) Method of isolation, purification and detection of peptides.
15	1	1	Nucleic acids	Nucleosides and nucleotides, Biochemically important nucleotides with high energy of hydrolysis, DNA, structure, conformation, properties.
16	1	1	Nucleic acids	RNA, structure, function, classification, Method of analysis of nucleic acids, usage in medicinal practice (restriction enzymes, PCR.

Textbooks & Refcrncc Books recommended (Last Editions)

- Chemistry,Raymond Chang.
- Organic Chemistry Fundamentals.

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ANATOMY

Goals

The broad goals of teaching of undergraduate students in anatomy are to providing comprehensive knowledge of the gross structure of human body to provide a basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations

Learning objectives

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

- Comprehend the normal gross structure and position of all body organs
- Comprehend the connections and relationship between all parts of the body

ANATOMY (Syllabus 1)			
Discipline		Basic Biomedical Science	
Department		Human Anatomy	
Subject		Anatomy (Osteology, muscles and joints)	
Course code		DE1 008	
Class		1	
Semester	1	Spring	
Number of Credits	2	Knowledge	1
		Skills	1

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	General Information	1,Descriptive anatomical terms 2.Basic structures (skin, Fascia, and Muscles) (Joints, Ligaments, Bursa, Synovial Sheets)Blood Vessels, Lymphatic System, Nervous System, Mucous Membranes, Serous Membranes, Bones & Cartilages.
2	1	1	Bones of the upper & lower limbs	PART ONE- THE HUMAN OSTEOLOGY Bones of the upper limb: Clavicle, Scapula, Humerus, The Radius, The ulna, The skeleton of the hand, Bones of the lower limb: hip bone, The Pelvis as a whole.

3	1	1	The Vertebral column	The Femur, Patella, Tibia, and Fibula, The skeleton of the Foot, The vertebral column: structure of a typical vertebrae, atypical cervical vertebrae (atlas & axis), The Sacrum & Coccyx.
4	1	1	The Skull	The Sternum & Ribs, The Skull: General Review of the skull, The skull as seen from the front, The skull as seen from above The skull as seen from behind, The skull as seen from the lateral side
5	1	1	The Skull	The skull as seen from below, The cranial fossae, Foramina of the skull, The nasal cavity and paranasal sinuses, The mandible and hyoid bones.
6	1	1	The Back	PART TWO- THE BACK Cutaneous nerves of the back, Joints between vertebrae in the back, Ligaments, Back musculature, Superficial group of back muscles, Intermediate group of back muscles, Deep group of back muscles, Sub occipital muscles, Nerves of the back.
7	1	1	The Upper Limb	PART THREE- THE UPPER LIMB Regions of the upper limb: The Pectoral region, The Axilla (axillary artery, vein, and lymph nodes), Lymph nodes of the upper limb, The Brachial plexus and its Branches, The Mammary glands.
8	1	1	The Scapular region & f he Arm	The Scapular region: muscles & intermuscular spaces, Nerves of the scapular region, Arteries of the scapular region, The Free Upper limb, cutaneous nerves and veins, The Arm, Compartments of the Arm, Contents of the Anterior Compartment of the Arm.
- 9	1	1	The Arm	Contents of the Posterior Compartment of the Arm, The Cubital Fossa The Forearm & Hand, General review of structures in front of the forearm & hand, Contents of the anterior compartment of the forearm, Muscles and Fascia of the Wrist & Hand.
10	1	1	The Wrist &Hand	Small Muscles of the hand, Nerves of the forearm & hand, Arteries of the forearm & hand, Back of the forearm & hand: General review of structures, Contents of the lateral compartment, Contents of the posterior compartment, Blood vessels of the posterior compartment.
11	1	1	Nerves & Joints of the Upper Limb	Nerves of the Free Upper Limb: median, ulnar and radial nerves, Joints of the Upper Limb, Sternoclavicular joint, Acromioclavicular joint, the Shoulder joint ,The Elbow joint, Distal radio-ulnar joint, Wrist joint, Carpal joints, Carpo-metacarpal joints, Metacarpophalangeal joints, and Interphalangeal joints.

12	1	1	The lower limbs	PART FOUR- THE LOWER EXTREMITY Introduction to the Lower Limb, Nerves, Main Arteries, veins and Lymph nodes of the lower limb, Regions of the lower limb: The Gluteal Region Muscles of the Gluteal region, Arteries of the Gluteal region, The Front & Medial side of the Thigh: General review, Muscles, Femoral triangle, Adductor Canal, Femoral Sheath.
13	1	1	The Thigh	Contents of the anterior compartment of the Thigh: muscles, Femoral artery, Femoral vein, Lymph nodes of the anterior compartment, Contents of the medial compartment of the Thigh: muscles, Prefund femora's artery & vein, Obturator artery & vein, The Back of Thigh, General review Contents of the posterior compartment of thigh.
14	1	1	Popliteal Fossa & Back of the Leg	Popliteal Fossa, The front and lateral side of the leg: General review Contents of the anterior compartment the leg:, Muscles & Blood vessels Back of the Leg: General review , Contents of the posterior compartment of the leg, muscles, Retinacula, Synovial Sheaths and Arteries
15	1	1	The Sole of the Foot	The Sole of the Foot: General review, Muscle Layers of the sole of the foot, Muscles of the sole of the foot, Arteries of the sole, Nerves of the lower limb, lumbar nerves and lumbar plexus.
16	1	1	Lumber & sacral plexus and Joints	Sacral ventral rami & sacral plexus. The superior & inferior Gluteal nerves, nerve to quadratus femora's, nerve to piriformis, posterior cutaneous nerve
			Of the lower limb	of thigh, perforating cutaneous nerve, The sciatic nerve and pudendal nerves, Joints of the lower limb, Joints and ligaments of the pelvis, hip joint, Knee joint, ankle joint, inter tarsal joints, tarso-metatarsal joints, metatarso-phalangeal joints, interphalangeal joints.

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Dentistry Faculty Curriculum - Syllabus

(2017)

Discipline		Basic Biomedical Science	
Department		Human Anatomy	
Subject		Anatomy (Thorax, Abdomen and Pelvis)	
Course code		DE 2 008	
Class		1	
Semester	2	Fall	
credits	2	Knowledge	1
_		Practice	1

Weeks	Hours		Topic	Descriptions
	Knowledge	Skills		
1	1	1	The thoracic cavity Joints of the thorax	PART FIVE- THE THORAX Some elementary facts about walls of the thorax, Thoracic cage, thoracic apertures, and intercostal spaces, The thoracic cavity , Introduction to the trachea, bronchi, lungs and pleura, Introduction to the heart & pericardium, Other structures in the mediastinum, Joints of the thorax , intervertebral joints, joints of the sternum, joints of ribs with vertebral column, joints between ribs, costal cartilages and sternum.
2	1	1	Walls of the thorax and blood supply	Walls of the thorax, Muscles of the thorax, The diaphragm, Arteries of the thoracic wall, Venous drainage of the thorax, Azygos system of veins, Lymphatic drainage of the thoracic walls, Innervation of the thoracic walls.
3	1	1	The mediastinum and lungs	The thoracic cavity: The mediastinum, The pleurae, Trachea & principle bronchi, The lungs. The bronchial tree, Broncho-pulmonary segments, Pulmonary arteries & veins, BronchiaI arteries & veins. Innervation & lymphatic drainage of the lungs.
4	1	1	The middle mediastinum and heart	The middle mediastinum, Pericardium, The heart: Exterior of the heart, Interior of the heart, Cardiac chambers, Valves of the heart, Cardiac skeleton.
5	1	1	Coronary vasculature Cardiac innervation	Coronary vasculature, Veins of the heart, Coronary lymphatics, Cardiac conduction system, Cardiac innervations, Pulmonary trunk & ascending aorta, Superior mediastinum, Contents.
6	1	1	Superior mediastinum	Nerves of the superior mediastinum, Thoracic duct, Posterior mediastinum:, Esophagus, Thoracic aorta, Azygos system of veins, Thoracic duct in the posterior mediastinum, Sympathetic trunks, Anterior mediastinum, Surface anatomy.
7	1	1	The abdomen	PART SIX- THE ABDOMEN General description, Relationship to the other regions, Key

				features, Development of the gut, Skin & muscles of the abdominal walls, Vertebral level LI, Major arteries & venous shunt in the abdomen, Porto-caval anastomoses, Prevertebral plexus & viscera supplied by it.
8	1	1	Abdominal wall and groin	Regional anatomy, Surface topography, Abdominal wall: fascia & muscles, Flat muscles, Transversalis fascia, Vertical muscles, Extra peritoneal fascia & peritoneum, Innervation, Arterial supply & venous drainage, Lymphatic drainage, Groin, Inguinal canal, Inguinal hernias.
9	1	1	Abdominal viscera	Abdominal viscera, Peritoneum & the peritoneal cavity, Organs: abdominal part of esophagus, stomach, Small intestine, Large intestine, Liver , Gall bladder, Pancreas, Duct system for bile, spleen, arterial supply, anterior branches of abdominal aorta: celiac trunk.
10	1	1	Blood supply-of the abdomen	Superior mesenteric artery, Inferior mesenteric artery, Venous drainage, Lymphatics, Innervation .Sympathetic trunks, Parasympathetic innervations, Enteric system, and Posterior abdominal region: posterior abdominal wall Bones.
11	1	1	Posterior abdominal region and kidneys	Muscles, Viscera, kidneys, Ureters, Suprarenal glands, Vasculature, Abdominal aorta, Inferior vena cava, Lymphatic system.
12	1	1	The pelvis & perineum	Nervous system in the posterior abdominal region, Surface anatomy PART SEVEN: THE PELVIS & PERINEUM General description, Functions, Component parts, Relationship to the other regions, Key features.
13	1	1	Pelvic cavity and joints	regional anatomy, pelvis, bones, Joints, Orientation, True pelvis, pelvic inlet, pelvic wall, Pelvic outlet, Pelvic floor, Perineal body.
14	1	1	Pelvic viscera	Viscera, Gastrointestinal system: rectum, anal canal, Urinary system, ureters, bladder, urethra, Reproductive system: In men Testes, epididymis, ductus deferens, seminal vesicle, prostate, bulbo-urethral glands, In women: Ovaries, broad ligament, uterus, uterine tubes, cervix, vagina, Fascia, Peritoneum.
15	1	1	Sacral & coccygeal plexuses	Nerves: somatic plexuses, Sacral & coccygeal plexuses: sacral plexus: Sciatic nerve, pudendal nerve, Other branches of the sacral plexus, Coccygeal plexus, Visceral plexuses, Blood vessels: Arteries, Veins, Lymphatics.
16	1	1	Perineum	Perineum: Borders & ceiling, Ischio-anal fossae and their anterior recesses, Anal triangle, Urogenital triangle: Structures in the superficial perineal pouch: Erectile tissue: penis, clitoris, Greater vestibular glands, Muscles, Superficial features of the external genitalia: In men, in women , Superficial fascia of the Urogenital triangle: Somatic nerves, Visceral nerves, Blood vessels, Veins , Lymphatics.

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Dentistry Faculty Curriculum - Syllabus

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Discipline		Basic Biomedical Science	
Department		Human Anatomy	
Subject		Anatomy (Head and Neck)	
Course code		DE3 008	
Class		II	
Semester	3	Spring	
Credits	4	Knowledge	3
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	2	1	The head and neck	PART EIGHT- THE HEAD AND NECK General description, Regional anatomy: skull, Cranial cavity Meninges, Brain & its blood supply: brain.
2	2	1	Cranial nerves	Blood supply of the brain, Venous drainage, Dural venous sinuses, Cranial nerves, Types of fibers in peripheral nerves Cranial nerve nuclei, Olfactory nerve, Optic nerve Oculomotor nerve, Trochlear nerve, Trigeminal nerve Abducent nerve, Facial nerve, Vestibulo-cochlear nerve.
3	2	1	Face	Glossopharyngeal nerve, Vagus nerve, Accessory nerve Hypoglossal nerve, face: Muscles of the face: orbital, nasal & oral groups, Other facial muscles, Parotid gland, Innervation of the face, Arteries of the face, Veins of the face, Lymphatic drainage of the face.
4	2	1	Scalp The orbits	Scalp: Arteries, veins & lymphatic drainage of the scalp The orbits: The eyelids, Lacrimal apparatus, Fissures and foramina in the orbit, Fascial specializations, Muscles of the orbit, Vessels of the orbit.
5	2	1	The eyeball The ear	Nerves of the orbit, The eyeball :Walls of the eyeball, Anterior & posterior chambers, Lens & vitreous humor, The External ear & tympanic membrane, Middle ear, Internal ear Transmission of sound.
6	2	1	Temporal fossa Infratemporal fossa pterygopalatine fossa	Introduction to the temporal & infratemporal fossae, Temporomandibular joint, Masseter muscle, Temporal fossa Infratemporal fossa: Sphenomandibular ligament, Medial & lateral pterygoid muscles, Mandibular nerve, Chorda tympani & lesser petrosal nerve, Maxillary artery, Pterygoid plexus of veins, pterygopalatine fossa: Gateways.
7	2	1	The neck	Contents of the pterygopalatine fossa, The neck: Cervical fascia Fascial compartments, Superficial venous drainage, Anterior triangle of the neck: Muscles.
8	2	1	The neck	Vessels, Nerves, Posterior triangle of the neck: Muscles,

				vessels Nerves, Root Of the neck: Blood vessels, Nerves.
9	2	1	Pharynx	Lymphatics, Lymphatics in the neck, Pharynx: Skeletal framework, Pharyngeal walls, Nasopharynx, Oropharynx Laryngopharynx.
10	2	1	Larynx The nasal cavities	Larynx: Laryngeal cartilages, Extrinsic ligaments, Intrinsic ligament, Laryngeal joints, Laryngeal cavity, Intrinsic muscles Functions of the larynx, Vessels & nerves, The nasal cavities: introduction.
11	2	1	The nasal cavities	Skeletal framework, External nose, Paranasal sinuses Walls, roof, & floor of the nasal cavity, Anterior & posterior nares, Gateways, Blood vessels of the nasal cavities Innervation & lymphatic drainage.
12	2	1	The oral cavity	The oral cavity: introduction, Skeletal framework, Walls of the oral cavity: the floor, the tongue, Salivary glands.
13	2	1	The oral cavity	Parotid, Submandibular, & sublingual glands, Vessels & nerves Roof palate: soft palate: muscles, Vessels & nerves of the palate The oral fissure & lips, Oropharyngeal isthmus, Teeth & gingivae, Blood supply of the teeth.
14	2	1	Endocrine glands of the head & neck	Blood supply of the gingiva, Innervation of the teeth & gingiva PART NINE- ENDOCRINE GLANDS OF THE HEAD & NECK carotid sinus & carotid body, Hipophysis cerebri, The pineal gland, Thyroid & parathyroid glands, Carotid body & carotid sinus.
15	2	1	The central nervous system	Part ten- the central nervous system, Introduction, Grey & white matters, The spinal cord, Spinal nerves & spinal segments Gross anatomy of the brainstem.
16	2	1	Gross anatomy of the Medulla, pons & midbrain	Gross anatomy of the medulla, pons & midbrain, Gross anatomy of the cerebellum, Gross anatomy of the cerebral hemispheres: External view of the cerebral hemispheres Basic points about some internal structures of a cerebral hemisphere, Tracts of the spinal cord & brainstem, White matter of the cerebral hemispheres, Ventricles of the brain The cerebrospinal fluid (CSF), & blood-brain barrier.

Skills

- □ Upper limb: Dissection: Pectoral and scapular, axillary and shoulder region, arm, forearm.
- □ Prosected parts: Joints, Palm and dorsum of hand.
- □ Thorax dissection: Chest wall, mediastinum, pleura, lungs, heart.
- □ Abdomen dissection: Anterior abdominal wall and inguinal region, external genitalia. Viscera and Posterior Abdominal wall and nerve plexus.
- □ Pelvis dissection : Pelvic viscera, blood vessels and nerves.
- □ ' Prosected parts: Perineum including ischio-rectal fossa.
- □ Lower Limb dissection: Gluteal region, front and back of thigh popliteal fossa, front back and lateral side of leg and dorsum of foot.

D Prosected parts: Sole of the foot and joints

- Head &Neck dissection: Superficial and deep dissection of face and neck, orbit and eye ball. Submandibular region temporal and infratemporal fossa, cranial cavity, naso and oropharyngeal regions, Ear, Larynx and pharynx.

a- Neuroanatomy

- Gross specimen of full brain, meninges, spinal cord, prosected specimens to demonstrate visual
- System, auditory and vesibular pathways and major functional areas.
- Stained sections of brain and spinal cord at various levels to demonstrate cranial nerve nuclei,.
- Ascending and descending tracts, thalamic nuclei and important functional areas.

b-Demonstrations

- Bones of skull and vertebral column
- Brain and spinal cord
- Cross-sectional anatomy
- Radiological anatomy

c-Topographic skills

- Demonstrate surface markings of important organs.
- Localize important pulsation and the structures against which pressure can be applied in case of bleeding from a particular artery.
- Demonstrate muscle testing and movements at joints.
- Locate sites for : Lumbar puncture, sternal puncture, pericardial tapping, liver biopsy.
- Locate veins for vein puncture.
- Locate the site for emergency tracheostomy.
- Locate the subcutaneous positions of large veins.

Teaching and Learning Methodology

The general pattern of teaching methodology followed by all the faculty members and teaching staff in the department is :

1.Didactic Lectures

discussing the topic in detail in one hour lecture time.

2-Skills

Dissection: is done By students on the cadavers and is being assisted/supervised by a team of teachers. Some prosected specimen/dissection is shown on ultra scope which is telecasted on TV monitors fitted in dissection Hall.

- Videos of some dissections are also shown on TV after the completion of dissection of the part/region to recapitulate the details of the part/region dissected.
- Self-assessment MCQs are given at the end of dissection of each region and discussed with teacher's in-charge.
- Handouts are given at the end of completion of part/region to the students to recapitulate and remember the Gross anatomy and Neuroanatomy .

In Neuroanatomy, the stained sections at various levels of brain and spinal cord are shown on slides and computers to localize the cranial nerve nuclei and trace the origin, course and termination of ascending and descending tracts in order to understand the effects produced as a result of lesions.

- Demonstrations: Mainly the bones of the entire body, few dissected specimen are taught in small groups.
- By a combination of the above teaching-Learning tools and modalities the student is able to understand the development, gross structure of the organ systems and gain an insight into the structure-function correlation. This combined with the knowledge of applied/clinical anatomy provides an understanding of the anatomical basis of health and disease.

Textbooks & reference books recommended (last edition)

- Gray's Anatomy for Students
- Cunningham's Manual of Skills Anatomy vols.I, II & III Oxford University Press.
- Clinical Anatomy for Medical Student, 6th Ed .R.S. Snell(2000) Little, Brown & Co.
- Harper & Row Neuroanatomy: An Illustrated Color Text, AR Crossman and
- 2nd Edition, 2000 D Neary Churchill Livingstone

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MICROANATOMY (HISTOLOGY)

Four primary tissues

Epithelium Microscopic characteristics, types, functions, distribution, basal lamina, cell junctions, Specialization of the cell surface and their structural details and functions, metaplasia.
Connective tissue fibers and their structural features and functions. Intercellular substances,
Amorphous ground substance, types of connective tissue (loose areolar tissue, dense connective tissue) and their distribution. Specialized connective tissue: different types of cartilages and their functions and Distribution. Bone: Cells, bone matrix, structural features of compact and cancellous bone, their Distribution and functions, ossification, blood supply of along bone.
Muscle General features, detailed structure of: skeletal muscle, and molecular mechanisms of contraction, Innervations of skeletal muscle, neuromuscular junction, morphological and histochemical basis of Classification into type I and type II muscle fibers and their significance, structural and functional Characteristics of cardiac and smooth muscle, innervations of cardiac and smooth muscle.
Nervous tissue: structural characteristics of a neuron, axon and dendrites. Different types of neurons and Their specific structural and functional features and distribution. Axonal transport, synapse, morphological and functional characteristics of different types of synapses. Neuroglia: types, structure and functions, Blood brain barrier. Brief cytoarchitecture of the central nervous system, regeneration in CNS with Particular emphasis on stem cells. Sensory and autonomic ganglia, peripheral nerves, myelin and Myelination, degeneration and regeneration in peripheral nerves.

Histology of various organs/organ systems

Exocrine glands

Characteristics, simple and compound glands; types of secretions, modes of secretion, detailed structural features of a serous secreting cell and mucous secreting cell, serous and mucous acini, duct system, features of salivary glands, exocrine pancreas, sweat and sebaceous glands, mammary gland, bulbourethral gland etc.

Circulatory system

Structural features of heart; conducting and distributing arteries and arterioles; types of capillaries, their structural features and distribution and microcirculation, detailed structure of endothelium; structural characteristics of large and small veins and venules arterio-venous shunts, lymphatics.

Respiratory system

Structural features of nose, nasopharynx, larynx, trachea, principal bronchi, lung including intrapulmonary bronchi, bronchioles, alveolar ducts, atria, alveoli, blood-air-barrier. Functions of different parts of respiratory system.

Skin and nerve-end-organs

Thick, thin and hairy skin, cell renewal and pigmentation of skin, skin appendages, healing of skin wounds, sensory receptors of skin. Functions of skin.

Immune system and lymphoid organs

Lymphocytes, their subtypes and functions. Humoral and cell mediated immunity. Thymus, lymph nodes, spleen, tonsils and other mucous associated lymphoid follicles.

Digestive system (GIT)

General organization, oral cavity, lip, cheek, tongue, taste buds, associated salivary glands. Layers of tubular digestive tract, esophagus, stomach, small intestine, gastroesophageal junction, gastroduodenal junction, large intestine, anal canal and recto anal junction. Liver, internal organization of liver, liver lobule, liver acinus, significance of zonation in liver acinus, liver sinusoids, detailed structure of hepatocyte, bile canaliculi, bile ducts, gall bladder, bile duct and pancreas.

Endocrine glands

Thyroid, parathyroid, Islets of Langerhans's gland, adrenal cortex and medulla, their structural details, functional mechanisms, hypophysis, cell types secretion and their functions, hypophysis portal circulation, common endocrine disorders.

Urinary system

Detailed microscopic structure of kidney, cortex, medulla, pyramids, medullary rays, cortical columns, glomerulus, nephron, glomerular filtration juxtaglomerular apparatus, its structural features and functions, renal interstitial, collecting ducts, renal sinus, minor and major calyces, microcirculation of kidney, histophysiology of the kidney, renal pelvis and ureters, urinary bladder and urethra.

Female reproductive system

Ovary, ovarian stroma, primary and secondary Graafian follicles, functions of various constituents and structural details of Graafian follicles, atretic follicles, corpus luteum and its functions, corpus albicans. Oviducts, uterus, arterial supply of uterus, cyclic changes in uterine endometrium, fertilization, vagina, female external genitalia and mammary glands.

Male reproductive system

Testes, spermatogenesis, spermatozoa, cycle of seminiferous epithelium, Sertoli cells, interstitial tissue Leydig cells, histophysiology of testes, epididymis, vas deferens, prostrate, seminal vesicles, penis.

Course content

HISTOLOGY (Syllabus 1)			
Discipline		Basic Biomedical Science	
Department		Histology	
Subject		General histology	
Course code		DE1 009	
Class		I	
Semester	1	Spring	
Number of Credits	2	Knowledge	1
		skills	1

Hours	Topics			Descriptions
	Knowledge	Skills		
1	1 ~	1	Definition and methods	Cytology, General histology, Systemic histology, Tissue preparation, Sectioning methods, Smear methods, Special methods, Microscopy.
2	1	1	Components of the body	Cells, Intercellular substances, Tissue Fluid.
3	1	1	Cells structure	Cytoplasm, Nucleus, Cell cycle, Cell adhesions.
4	1	1	Epithelium and Glands	Epithelial membranes, Modification of the epithelium, Classification, Functions, Exocrine glands, Endocrine glands, Clinical considerations.
5	1	1	Connective Tissue	Classification, Extracellular Matrix, Connective tissue fibers, Amorphous ground substances, Connective tissue cells.
6	1	1	Connective tissue	Proper connective tissue, Special connective tissue, Clinical considerations.
7	1	1	Cartilage	Perichondrium, Growth of cartilage, Nutrition, Degeneration, Kinds of cartilage.
8	1	1	Bone	Bone cells, Intercellular substances, Periosteum, Endosteum
9	1	1	Bone	Osteogenesis, Bone growth, Nutrition, Clinical considerations.
10	1	1	Blood and hemopoiesis	Formed elements of the blood, Erythrocytes, Leukocytes, Platelets, Plasma.
11	1	1	Blood and hemopoiesis	Hemopoietin, Erythrocyte series, Granulocytic series, Monocyte series, Lymphocytic series, Thrombolytic series, Clinical considerations.

12	1	1	Muscles	Skeletal muscles, Microscopic structure, Types of muscle, Fibers, Innervations, Muscle contraction.
13	1	1	Muscles	Cardiac muscle, Smooth muscle, Clinical considerations.
14	1	1	Nervous Tissue	Nerves and supporting cells, Cells body, Cell processes, Types of neuron.
15	1	1	Nervous tissue	Neuroglia, Blood Brain Barrier, Nerve endings, Synapse, Sensory nerve endings, Motor nerve endings, Histophysiology of the nerve cells.
16	1	1	Nervous system	Structure, Spinal cord, Cerebellum, Cerebrum, Choroid plexus, Dorsal root ganglion, Peripheral nerve, Clinical considerations.

HISTOLOGY (SYLLABUS 2)			
Discipline		Basic Biomedical Science	
Department		Histology	
Subject		Systemic Histology	
Course code		DE2 009	
Class		1	
Semester	2	Fall	
Number of Credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	Introduction	Definition, General information about structure of the organs, Parenchyma, Stroma, Hollow and solid organ, Moist membranes
	1	1	Circulatory system	PART ONE- THE HUMAN OSTEOLOGY Bones of the upper limb: Clavicle, Scapula, Humerus, The Radius, The ulna, The skeleton of the hand, Bones of the lower limb: hip bone, The Pelvis as a whole.
3	1	1	Lymphoid Tissue	Diffused lymphatic tissue, lymphoid organs, lymph nodes, tonsils, spleen, thymus, bursa, clinical considerations
4	1	1	Endocrine system	Pituitary gland, Thyroid glands, Parathyroid glands, Suprarenal glands, Pineal body, Clinical considerations

5	1	1	Integumentary system	Skin, Epidermis, Dermis, Derivatives of skin, Hair, Nail, Sebaceous glands, Sweat glands, Arrector pili muscle, Clinical considerations
6	1	1	Respiratory system	Conducting portion, Nasal Cavity, Nasopharynx, Larynx, Trachea, Extra pulmonary bronchi, Intrapulmonary bronchi, Respiratory portion, Clinical considerations
7	1	1	Digestive system	Brief description of the oral cavity and associated structures, Salivary glands, Mucosal membrane, Lips, Tongue and Teeth.
8	1	1	Digestive system	Gastrointestinal tract, Esophagus and Stomach, detailed microscopic study and clinical considerations.
9	1	1	Digestive system	Small intestine, Large intestine, anatomical parts and detailed microscopic study, clinical considerations.
10	1	1	Digestive system (appendages)	Liver, Gallbladder, Pancreas, Liver structure, Classical lobules, Central vein, Hepatocytes, Sinusoids, Portal area, Portal lobules, Liver acinus, Biliary passage.
11	1	1	Digestive system (appendages)	Gallbladder, Pancreas, Exocrine pancreas, Endocrine pancreas, detailed histological study and clinical considerations.
12	1	1	Urinary System	Kidneys, Uriniferous tubules, Extra renal excretion passage, Clinical considerations.
13	1	1	Female Reproductive system	Ovary, Genital ducts, Oviduct, Uterus, Vagina, External genitalia, Mammary glands, Clinical considerations.
14	1	1	Male Reproductive system	Testis, The male genital ducts, Accessory glands, penis, Clinical considerations.
15	1	1	Organs of special senses (The eye)	Visual organ, Wall of the eye, Refractive media, Optic nerve, Accessory structure of the eye, Clinical considerations.
16	1	1	The Vestibulocochlear apparatus	External ear, Internal ear, Par vestibularis, Pars cochlearis Clinical considerations.

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HISTOLOGY (Syllabus 3)			
Discipline		Basic Biomedical Science	
Department		Histology	
Subject		Oral Histology	
Course code		DE3 009	
Class		II	
Semester	3	Spring	
Credits	2	Knowledge	1
		skills	1

Hours	Knowledge	Skills	Topics	Descriptions
1	1 ~	1	The oral cavity	Detailed introduction and histogenesis of the oral cavity, associated structures and supporting tissues.
2	1	1	Oral Mucosal membrane	General introduction and definition, types of epithelium, Histology of keratinized and non-keratinized epithelium.
3	1	1	Oral Mucosal membrane	Histological aspects of buccal mucosa, gingiva, palate, floor of the mouth, tongue, lingual papillae, taste buds, and clinical considerations.
4	1	1	Maxilla and Mandible	General introduction, anatomy of maxilla AND mandible, alveolar process, detailed microscopic study AND clinical considerations.
5	1	1	Teeth	General introduction, embryological origin, anatomy, classification of deciduous and permanent teeth, physical and chemical composition.
6	1	1	Development of teeth	Development and histophysiological stages of teeth, development of root.
7	1	1	Dentin	Introduction, structures, dentinogenesis, types of dentin, function and clinical considerations.
8	1	1	Enamel	Introduction, physical and chemical properties, structures (enamel rods, lamellae, tufts, spindles, dentin enamel junction, amelogenesis and life cycle of ameloblast.
9	1	1	Pulp	Development, anatomy and structure, detailed histological study, functions and clinical considerations.
10	1	1	Cementum	Introduction, physical and chemical properties,

				cementogenesis, structures, detailed microscopic study, types of cement, cementoenamel junctions and functions.
11	1	1	Periodontal ligament	Introduction, detailed microscopic study of the cells and fibers, functions, Clinical considerations.
12	1	1	Salivary Glands	Classification, anatomy of major and minor salivary glands, detailed microscopic study of the major and minor salivary glands, Saliva (Composition, formation and functions), clinical considerations
13	1	1	Temporomandibular Joint	Anatomy, bones and cartilages, Detailed histological study, clinical considerations.
14	1	1	Maxillary sinus	Definition, anatomy and detailed histological study, functions and clinical considerations.
15	1	1	Eruption and shedding	Theories of eruption, pre-eruptive, eruptive and post eruptive tooth movement, Histology of shedding, mechanism of resorption and shedding, clinical consideration.
16	1	1	Muscles of Mastication	General introduction, anatomy, embryological origin, detailed histological study and clinical considerations.

Skills

- Routine and special stained slides of all the tissues and organs of body.
- Slide show to demonstrate filtration barrier of kidney, alveolar septum, tight junctions of capillaries and such relevant areas.

Histology reference books

Ten cate's oral histology development structure and function.

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MEDICAL EMBERYOLOGY

Goals

The Medical embryology course covers embryologic development from ovulation through birth and is organized by organ systems. An introductory overview lecture followed by complete syllabus, lecture notes, CDs with animations of embryologic development, and supplementary textbooks on library reserve.

Learning objectives

□ To understand the basic principles of embryology including genetic inheritance and stages involved in development of the organs and systems from the time of conception till birth.

□ The student should recognize the critical stages of normal development and the effects of common teratogens, genetic mutations and environmental hazards on it.

□ He/She should be able to explain the developmental basis of the occurrence of major variations, abnormalities and congenital anomalies.

□ A-General Embryolo

Definition of embryology: gestation period: definition of gamete sperm, Ovum; gametogenesis .Migration of primordial germ cells into gonadal ridge; spermatogenesis; structure of sperm, oogenesis; structure of ovum; growth of ovarian follicles, ovarian and uterine cycles. Sperm: in the male genital tract; sperm in the female genital tract, activation and capacitation of sperm in the female genital tract.

First Week of Development: Definition and normal site and process of fertilization, formation of zygote, cleavage division; formation of morula and blastocyst.

Division; formation of morula and blastocyst.

Second Week of Development: Differentiation of embryoblast and trophoblast; changes in the embryoblast formation of bilinear germ disc; changes in the trophoblast; formation of cytotrophoblast, syncytiotrophoblast, amniotic membrane, yolk sac, extra embryonic mesoderm and extra embryonic celom and connecting stalk; formation of chorion, amniotic cavity, primary yolk sac cavity appearance of precordial plate.

Implantation, formation of decidua's, types of implantation and abnormal sites of implantation.

Third Week of Development:

Appearance of primitive streak and primitive node, formation of Intraembryonic mesoderm resulting in trilaminar germ disc, gastrulation formation of notochord, buccopharyngeal and cloacal membranes, paraxial, intermediate and lateral plate mesoderm, secondary yolk sac, intraembryonic celom and allantois derivatives of ectoderm, mesoderm and endoderm.

Fourth To Eighth week of Development (Embryonic period) Formation of somites, neural tube,

Cephalocaudal folding, lateral folding, body form, stomodeum, proctodeum, gut and vitelline duct, Subdivisions of gut into foregut, midgut and hindgut.

Maturation of tissues and organs and rapid organs and rapid growth of body.

Estimation of age.

Placenta

Formation of placenta and chorionic villi, decidua basalis; features and functions of placenta; placental circulation; abnormalities; placental barrier; placentome, types of placenta.

Umbilical Cord

Formation of umbilical cord; features of umbilical cord.

Amniotic Cavity

- Amniotic cavity and membrane; amniotic fluid - functions, expansions of amniotic cavity and fusion with chorion; decidua capsularis with parietalis, obliteration of chorionic and uterine cavities; function of fused fetal membranes to dilate cervical canal.
- Abnormalities; obliteration of chorionic and uterine cavities; abnormalities of chorion.
- Formation of twins and types of twins.
- Arrangement of fetal membranes. Conjoined twins.

Teratology

- Genetical and environmental factors as causative factors for congenital malformations.
  Mode of actions of teratogens and critical periods

B – Systemic Embryology

- Development of the individual organs of digestive system, genital system, urinary system, system, respiratory system, cardiovascular system. Nervous system, special sensory organs, endocrine glands and mammary gland.
- Developmental abnormalities of individual organs/systems, pathogenesis of the anomalies.
- Histogenesis of various organs.
- Development of skeletal system, muscular system
- Development of face and the pharyngeal arches and the associated congenital anomalies

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EMBRYOLOGY (SYLLABUS 1)			
Discipline		Basic Biomedical Science	
Department		Histology (embryology	
Course title		General embryology	
Course code		DE2 010	
Academic year		1St	
Semester	2	Fall	
Number of Credits	1	Knowledge	1
		Skills	

Weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1	1	1	Introduction	Definition, History, Parts of Embryology, Location of Embryology,
2	1	1	Reproductive system	The female Genital system, The male Genital system. Embryology.
3	1	1	Pyogenesis	Gametes, Gametogenesis, Ovarian cycle, Clinical correlates.
4	1	1	Development	Prenatal live, Postnatal live.
5	1	1	First week of development	Cleavage, Development in days 3rd &, 4th, Development in days 6th, Development in days 7th, Clinical correlates.
6	1	1	Second week of development	Development in days 8th, Development in days 9th, Development in days 11th, Development in days 13th, Clinical correlates.
7	1	1	Third week of development	Gastrulation, The primitive cardiovascular system, Notochord formation, Allantoises, Development of germ disc, Clinical Correlates. Neurulations, Development of somites, Development of intraembryonic coelom, Development of trophoblasts.
		1	Third week of	Gastrulation, The primitive cardiovascular system,

8	1		development	Notochord formation, Allantoises, Development of germ disc, Clinical correlates. Neurulation Development of somites. Development of intraembryonic coelom, Development of trophoblasts.
9	1	1	Embryonic period	Organogenesis(Third to Eight weeks),Differentiation of Ectoderm, Differentiation of Mesoderm, Differentiation of Endoderm, Differentiation of Somites, Clinical correlates, Brief organogenesis, Clinical correlates.
10	1	1	Fetal Period	Differentiation of fetus, Clinical correlates, Monthly, change, Time of birth.
11	1	1	Fetal period	fourth weekly development of fetal period),Clinical correlates, Premature &jx>st mature babies.
12	1	1	Extra Embryonic membrane formation	Extra Embryonic membrane: Placenta , Amnion, Chorion, Clinical correlates.
13	1	1	Extra Embryonic membrane formation	Fetal membrane in twins, Clinical correlates.
14	1	1	Parturition	Postnatal period,(Fetal neonatal circulation).
15	1	1	Extra normal change in prenatal period	Teratology, Definition, Essential of Teratology, Kinds of Teratogens, Revolution in prenatal, period, Clinical correlates.
16	1	1	Effect on Embryogenesis	Genetics and human Development, Molecular biology of human Development, In vitro fertilization, Prenatal diagnosis.

EMBRYOLOG (SYLLABUS 2)				
Discipline			Basic Biomedical Science	
Department			Histology (Embryology)	
Course title			Medical Embryology (Systemic Embryology)	
Co – requisites			Biology, Histology & General Embryology.	
Course code			DE3 010	
Academic year			II	
Semester	3		Spring	
Number of Credits	1		Knowledge	1
			Skills	
Weeks	Hours Knowledge	Skills	Topics	Descriptions
1	1	1	Development	Development of prenatal life
2	1	1	Head & Neck	pharyngeal arches , pharyngeal pouches, development of mouth and teeth, development of salivary glands, development of face, development of
3	1	1		

				inter maxillary segment, development of lip, development of palate, development of nasal cavity development of nose, development of nose.
4	1	1	digestive system	Introduction, Fore gut, Mid gut, Hind gut, Development of the Esophagus, Development of the Stomach, Development of duodenum , Development of the Liver, Development of Gall bladder, Development of Pancreas, Clinical correlates.
5	1	1	genital system	Development of the genital system.
6	1	1	urinary system	Development of the urinary system.
7	1	1	respiratory system	Development of the respiratory system.
8	1	1	cardiovascular system	Development of the cardiovascular system.
9	1	1	Nervous system	Development Nervous system.
10	1	1	special sensory organs	Development of the special sensory organs.
11	1	1	endocrine glands	Development of the endocrine glands.
12	1	1	mammary gland	.Development of the mammary gland.
13	1	1	Abnormalities	Development of the abnormalities of individual Organs / systems.
14	1	1	Organs	Histogenesis of various organs
15	1	1		
16	1	1	Pathogenesis	Pathogenesis of the anomalies

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MEDICAL PHYSIOLOGY

Goals

The broad goal of the teaching of undergraduate students in physiology is providing a comprehensive knowledge of the normal functions of the organ systems of the body and their interactions to facilitate understanding of the physiological basis of health and changes in disease.

Learning objectives

A. Knowledge

At the end, a medical student in physiology should be able to:

- Explain the normal functioning of all the organ systems of the body and their interactions.
- Narrate the contribution of each organ system to the maintenance of homeostasis.
- Elucidate the physiological aspects of normal growth and development.
- Describe the physiological response and adaptations to environmental stresses.
- List the physiological principles underlying pathogenesis and treatment of disease.

B. Skills

At the end of the course the student should be able to:

- Conduct experiments designed for study of physiological phenomena
- Interpret experimental / investigative data
- Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

COURSE CONTENT

PHYSIOLOGY (Syllabus 1)			
Discipline		Basic Biomedical Science	
Department		Physiology	
Subject		Cell, Blood & Immunity, Respiration, GI Tract & Endocrine	
Course code		DE 3	
Class		II	
Semester	3	Spring	
Number of Credits	3	Knowledge	2
		Skills	1
Hours Topics		Descriptions	

	Knowledge	Skills		
1	2 ~	1	Neurons & Membrane Potentials, Synapse &Neurotransmitters	Structure of a neuron, Classification, membrane potential and action potential, Synapse and synaptic transmission, neurotransmitters.
2	2	1	Muscle cells and Muscle Contraction	Brief anatomy and physiology, composition, steps of contraction, energetic event of muscle contraction. Smooth muscles.
3	2	1	Introduction of Blood Physiology, Plasma Protein, RBC & Hemoglobin	Blood Function, composition, Plasma protein types, and functions . RBC: Morphology, composition and functions, properties. Hemoglobin, Iron metabolism, Anemia, Effect of anemia on blood circulation.
4	2	1	White Blood Cells	Classification, morphology, lifespan, Properties and functions-Neutrophil, Eosinophil, Basophil, Monocyte, Lymphocyte.
5	2	1	T & B lymphocytes Antibodies, Immunization and Allergy	Process of T & B Lymphocytes, Antibodies, Active and Passive Immunization, Allergy.
6	2	1	Type of T-cells, Active and Passive Immunity.	Types of T-cells, Lymphokines, AIDS immunologic tolerance, Active and passive immunity.
7	2	1	Hemostasis, Coagulation and Anticoagulants.	Mechanism of hemostasis, properties of platelets, Blood Coagulation,Anticoagulants,effect of plasmin.
8	2	1	Agglutinations, Rh factors & Blood Transfusion.	Agglutinogen,Agglutinins,Agglutination,Blood typing, Rh factor, Transfusion and transfusion reaction.
9	2	1	Review of Anatomophysiology of Respiratory Tract Organ	Respiratory System organs, Functions
10	2	1	Pulmonary Function Test	Pulmonary Function Test, Intra pleural pressure, Intra alveolar pressure. Pulmonary Volume and Capacities, 02 and C02 exchanges.
11	2	1	Volume and Capacities. Respiratory Centers	Pulmonary Circulation, Neural Mechanism, respiratory center in the brain stem, Unity of respiratory center action, central and peripheral chemoreceptors, Periodic breathing, voluntary hyperventilation.
12	2	1	Anatomophysiology of Gastrointestinal Tract.	GI organs and their functions, Control of GI activities, Autonomic control of GI, GI reflexes, GI hormones, Functional Movement of the GI. Blood circulation of the GI.
13	2	1	Secretion, Digestion and Absorption	Gastric, pancreatic, Small and Large, intestine secretions, Digestion of various food by hydrolysis, Absorption of

				nutrients material in the GIT and their mechanism.
14	2	1	The pituitary gland hormones	Synthesis, Secretion and transport of the hormones, pituitary gland secretions, Growth hormones
15	2	1	Thyroid and Adrenocortical Hormones	Thyroid hormones and their effects, Adrenocortical Hormones and their Effects, Glucocorticoids.
16	2	1	Insulin and Glucagon	Insulin and its metabolic effect, insulin and the brain. Control of insulin secretion, Glucagon and its effect.

PHYSIOLOGY (SYLLABUS 2)			
Discipline		Basic Biomedical Science	
Department		Physiology	
Subject		Cardiovascular, Kidney & Reproductive systems, Sense organs & CNS	
Course code		DE4 011	
Class		II	
Semester	4	Fall	
Number of Credits	3	Knowledge	2
		Skills	1

Hours			Topics	Descriptions
Weeks	Knowledge	Skills		
1	2	1	Functional anatomy of heart and blood vessels Properties of cardiac muscle	Heart chambers, valves, great vessels, Systemic and pulmonary circulations, Function of different parts of the heart, physiology of the cardiac cells, cardiac cycle, Cardiac automatism.
2	2	1	Homodynamic of the heart. Heart Sounds. Cardiac Automatism, ECG	Homodynamic events of the heart during the cardiac cycle, pressure in the atrium, ventricular pressure during the cardiac cycle, ventricular volume, and regulation of the heart pump. Heart Sounds. Cardiac Automatism, General Information related ECG.
3	2	1	Overview of the Circulation Blood pressure, Local Circulations Lymphatic system	Overview of the circulation , Blood volume in different part of circulation, Arterial pressure, Blood pressure and vessels motilities, Capillary Circulation, Vein circulation, Pulmonary and coronary circulations. Lymphatic system, Cardio-vascular adjustments, Effects of exercise, effect of gravity (+ve and -ve), weightlessness on the heart.
4	2	1	Reabsorption in the tubules, Function of the Glomerule	Anatomophysiology of the urinary system, function of the Kidney , GFR. Reabsorption in the tubules, Tobular Load, Tubular Transport maximum (Tm) and Threshold for Tm. Plasma Clearance.

5	2	1	Body fluid and osmolality, Role of the kidneys in control of Body FIuids.Excretion by the kidney Control of Hydrogen Level.	Body fluids ,Role of the kidneys in control of Body Fluids and osmolarity.Excretion by the kidney, excretion of potassium, control of phosphate level, control of magnesium level. Control of Hydrogen Level.
6	2	1	Control of acid-base by the Kidney.PhysioIogy of the other part of the urinary tract Micturition	Excretion of Hydrogen, Buffer system of the tubular fluid, Control of acid-base by the Kidney.PhysioIogy of the other part of the urinary tract, Micturition
7	2	1	Male & Female sexual organs and their hormones	Review of Anatomophysiology, spermatogenesis, seminal vesicle prostate, function of the testosterone, Female hormonal system, and Monthly ovarian cycle.
8	2	1	Physiology of the pregnancy. Parturition ,Lactation, Contraception	Physiology of the pregnancy, Function of the placenta, Hormonal Factors in Pregnancy. Parturition , Mechanism of parturition, Labor pains, Lactation, Development of the breast, Milk Composition.
9	2	1	Functional Anatomy of the eye, Basic Optics. Receptor and neural function of the retina	Brief anatomic/Histological structure of the eye, and brief function of different structure of the eye. Optic Physics, Eye fluids and their function. Layers of the retina, Rods and Cone, Mechanism of stimulation of the Rods and Cones, Color vision
10	2	1	Visual pathways and visual cortex. Perimetery,Eye movement and their control.	Visual pathways , Optic nerve, chiasma optic, Optic tract, Optic Radiation, and visual cortex. Perimetery, Visual field, Normal blind spot, Eye movement and their control, persuit movements, strabismus, nystagmus.
11	2	1	Anatomophysiology of the Ear. External, Middle and Internal Ear.	Anatomophysiology of the Ear, Tympanic membrane, Auricle and Auditory canal, Middle Ear, Middle ear ossicular system, Autachian tube and its function. Internal Ear, Cochlea, Auditory pathway and Auditory Cortex.
12	2	1	Vestibular System Physiology	Utricle, Saccule, semicircular canals, Receptor of the vestibular system, vestibular pathway and centers in CNS.
13	2	1	Physiology of the Taste and smell sense Skin and Temperature regulation	Review of Anatomophysiology of the Taste and smell organs. Receptors, pathways and cortex. Structure and function of skin; Methods of heat

				conservation and loss in human body Regulation of body temperature - role of skin, hypothalamus hyperthermia, fever, heat stroke, hypothermia, cold injuries (frost bite).
14	2	1	Organization of nervous system, Cerebrum & corpus callusum Hippocampus, Amygdala, & Basal Ganglia, Thalamus & Hypothalamus, Reticular Formation Midbrain, Pons & Medulla	General organization, functional anatomy of brain and spinal cord, coverings, white and grey matter . Cells of the nervous system, Glial Cells, the Synapse, neurotransmitters, Myelin, Function of the Diencephalon (Thalamus & Hypothalamus), Function of the Reticular Formation of the Brain Stem , Function of the Midbrain, Function of the Pons & Medulla.
15	2	1	Cranial Nerves, Cerebellum& Spinal Cord, Cerebrospinal Fluid, Ventricles of the brain & Brain metabolism	Function of the Cranial Nerves, Cerebellum, Spinal Cord, CSF: Quantity: Pressure: Formation of CSF, Flow & Absorption of CSF, Ventricles of the Brain .
16	2	1	the autonomic nervous system somatic senses Motor Nervous system, Cerebellum and Basal Ganglia, Memory & Sleep	Sympathetic , Parasympathetic &Enteric nervous system, Adrenergic & Cholinergic Receptors, Enteric Nervous System (ENS), Types of somatic sensations Receptors, Somatosensory pathways& cortex, Types of pain, Adaptation of Pain Receptors:Pain Suppression ("Analgesia") System, Thermal Sensation Motor function of the spinal Cord, Cortical and Brain Stem control of Motor Function, Motor cortex. Motor function of the Cerebellum and Basal Ganglia Intellectual Function of the brain, Learning and Memory. States of Brain Activities, Sleep.

PHYSIOLOGY (Syllabus 3)			
Discipline:		Basic Biomedical Science	
Department		Physiology	
Subject		Oral cavity physiology	
Course code		DE 5 011	
Class		III	
Semester	5	Spring	
Number of Credits	2	Knowledge	1
		Skills	1

Hours			Topics	Descriptions
ks	Kno wle	Skil		

1	1 ~	1	Introduction	Physiology of oral cavity organs.
2	1	1	Salivary Glands Functions of Saliva	Compositions of the saliva, Mechanism of secretion, control of secretion and function of the different materials in the saliva.
3	1	1		Histological aspects of buccal mucosa, gingiva, palate, floor of the mouth, tongue, lingual papillae, taste buds, and clinical considerations.
4	1	1	Mucus secretion in the mouth and mucus function	Mechanism of mucus secretion, control and function of the mucus in the oral cavity.
5	1	1	Swallowing	First and second step of swallowing in the mouth, mechanism of the swallowing.
6	1	1	Taste Sensation	Function of the taste, taste receptors and taste buds, papilla of the tongue, Mechanism of stimulation of the taste receptors, taste pathways and cortical centers.
7	1	1	Smell Sensations and its functional relation with taste	Role of the sense in taste, olfactory pathways and centers.
8	1	1	Functions of the Sinuses Mandibo-temporal articulations and its function.	Functions of the sinuses.
9	1	1	Teeth function	Function of each part of the teeth.
10	1	1	Function of the different parts of the teeth	Enamel, Dentin, Cementum, pulp, Formation of the teeth.
11	1	1	Development of the permanent teeth	Development of the permanent teeth, Mineral exchange in teeth, Role of fluorine, Dental abnormalities.
12	1	1	Masticators muscles And facial expression	Types of the masticator muscles, innervations and functions of the masticator muscles, facial expression, its pathways and centers.
13	1	1	Role of the Oral cavity in the phonetic, speech pathways and Cortical centers	Larynx, phonetic and speech, role of the teeth in the phonetics, pathways and cortical centers.

14	1	1	Role of Vitamin D in the Teeth, PTH and calcitonin effect of Calcium and phosphate balance	PTH, calcitonin and their roles in calcium and phosphate balance, Role of Vitamin D in the teeth and other bones.
15	1	1	Cranial Nerves function (V, VII, IX, X)	Function of the Trigeminal nerves, facial and hypoglossal nerve, the vague.
16	1	1	Motor and sensory functions of the oral cavity	Sensation of the lips and oral cavity, motor and sensory pathways of the oral cavity and cortical centers.

Details of skills

a- Human Physiology

- Use and care of microscope and microscopic examination of blood
  PCV, ESR, osmotic fragility
- Hemoglobin estimation and blood indices
- RBC count
- WBC count
- Examination of peripheral blood smear
- Differential WBC count - normal, abnormal, anemias
- ABO grouping, Rh typing
- Bleeding time, clotting time
- Recording of BP - effects of posture and exercise
- Recording of arterial pulse only
- Respiratory movements demonstration
- General examination
- Examination of Respiratory system
- Examination of CVS
- Examination of higher functions and sensory system
- Examination of Motor system
- Examination of reflexes
- Examination of cranial nerves

b-Experimental physiology

- Muscle nerve preparation, mounting, effects of different types of stimuli
- Simple muscle twitch
- Two successive stimuli, repetitive stimuli and fatigue
- Genesis of tetanus and Starling's law of muscle (demonstration)
- Effect of load and afterload on muscle contraction
- Effects of variations of temperature on muscle contraction
- Velocity of nerve impulse (demonstration)
- Normal cardiogram of frog's heart and effects of heat and cold.
- Effect of temperature on frog's heart

- Refractory period of frog's heart
- Properties of cardiac muscle – all or none law, summation of ????????
- Sub minimal stimuli (demonstration)
- Effect of vagal stimulation on frog's heart
- Perfusion of frog's heart – action of ions, action of drugs

c- Demonstrate simple muscle twitch and normal cardiogram

- Heart perfusion (Videos)
- Intestinal movements (Videos)
- Electrocardiogram (ECG)
- Audiometry
- Spirometry

Textbooks& reference books recommended (last edition

- Text book of medical physiology - Arthur C. Guyton: W.B Saunders
- Review of medical Physiology – W.F. Ganong – Lange Medical Book ed. 22nd.
- Understanding Medical Physiology. R.I Jhalani jaypee Publishers
- Best and Taylor's physiologic basis of medical practice J B West (edn) William and
- Walkins
- Text book of Human physiology. Guyton
- Wintrobe' s Hematology
- Williams text book of Endocrinology
- Snell's neuroanatomy

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MEDICAL BIOCHEMISTRY

Goals

The medical biochemistry course introduces the fundamentals of biochemistry as applied to medicine, We explore the basic amino acid building blocks and how differences in structures are manifested into a variety of functional states, explores nucleic acids, macromolecular machines and their regulation on a molecular level, intrinsic nature of metabolism, fundamentals of carbohydrate and amino acid metabolism including a variety of disease states arising from genetic and environmental factors, lipid metabolism.

Learning objectives

Learning objectives

At the end of the course, the student should be able to demonstrate his knowledge and Understanding on the:

- Basic and clinical aspects of enzymology and regulation of enzymatic activity.
- Digestion and assimilation of nutrients and consequences of malnutrition.
  - Integration of the various aspects of metabolism, and their regulatory pathways.
  - Biochemical basis on inherited disorders and their associated sequel.
  - Mechanisms involved in maintenance of body fluid and PH homeostasis.
  - Biochemical basis of environmental health hazards and biochemical basis of cancer and carcinogenesis, principles of metabolism. And detoxification.
  - Principle of various conventional and specialized laboratory investigation and instrumentation analysis and interpretation of a given data, the ability to suggest experiments to support knowledge concepts and clinical diagnosis.

b- Skills

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

- Make use of conventional techniques/ instruments to perform biochemical analysis relevant to clinical screening and diagnosis.
- Demonstrate the skill of solving clinical problems and decision-making.

a) AIMS AND SCOPE

The major aim is to provide a sound but crisp knowledge on the biochemical basis of the life process relevant to the human system and to Dental /medical practice. The contents should be organized to build on the already existing information available to the student in the pre-university stage and reorienting. A mere rehash should be avoided. The chemistry portion should strive towards providing information on the functional groups. Hydrophobic and hydrophilic moieties and weak valence forces that organize macromolecules. Details on structure need not emphasized, discussion on metabolic processes should put emphasized on the overall change, interdependence and molecular turn over, while details of the steps may be given, the student should not be expected to memories them. An interdiction to biochemical genetics and macular biology is a must but details should be avoided. The exposure to antivitamins. Anti-metabolism and enzyme inhibitors at this stage, will provide basis for the future study of medical

subjects. And overview of metabolic regulation is to be taught by covering hormonal action, second messengers and regulation of enzyme activities. Medical aspects of biochemistry should avoid describing innumerable functional tests, most of which we not in vogue, cataloguing genetic disorder under each head of metabolism is unnecessary. A few examples, which correlate genotype change to functional change, should be adequate. At the end of course the student would be able acquire a useful core of information, which can be retained for a long time.

COURSE CONTENT

MEDICAL BIOCHEMISTERY (Syllabus 1)				
Discipline			Basic Biomedical science	
Department			Biochemistry	
Subject			Medical Biochemistry	
Course code			DE 3 012	
Class			II	
Semester			Spring	
First RevisCredits			Knowledge	2
			Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1&2	2	1	Food & Nutrition	– Definition Of Food & Nutrition – Food Factor – Composition Of Human Body
	2	1	Carbohydrates Cyclic structure of Carbohydrates monosaccharaides	Introduction, Definition, Classification, Sugar Exhibit Various Forms Of Isomerism, (D And L Isomerism, Asymmetric Carbon, Optional Activity, Alpha And Beta Anomers, Pyanose And Furanose Ring Structures, Autorotation, Anormers And Anomoeric Carbon Introduction And Description Of The Most Important Monosaccharaides.

3	2	1	Disaccharides Poly Saccharides Lipids	Introduction And Descriptions Of Disaccharides (Maltose, Lactose, Sucrose..), Interdiction And Descriptions Of Homoploid. Saccharides (Starch, Glycogen, Inline, Cellulose, Dextrin) Heteropoly Saccharide (Hyaluronic Acid, Chondroitin Sulfate Heparin) And (Glycoproteins), Introduction Classification, Derived Lipids: Fatty Acid (Definition, Type, Essential Fatty Acid, Melting Point, Eicosanoid) Glycerol.
4	2	1	Steroids and sterols: simple lipids compound lipids amino acid and protein	Introduction, Cholesterol, Other Sterols: 7-Dehydrocholesterol Introduction, Neutral Fats Or Triglycerides, Waxes, Introduction 1-Phospholipids (Diphosphatedylglycerol, Lecithin, Cephalins Phosphotidyl Serine , , Phosphotidyl Inositol, Lyso Phosphatides, Plasminogen, Sphingomyline) 2-Glycolipids (Cerebrosides, Gangliosides) Introduction, Classification And Structure Of Amino Acids. Essential Amino Acid.
5&6	2	1	Peptide Bond Proteins Nucleoprotein,	Classification, Structure, Reaction Of Proteins(Reaction With Water, Denaturation, Reaction With Ions) Base Purine, Pyrimidine, Sugar, Nucleotide, Nucleoside Nucleic Acid (DNA, RNA)
	2	1	Vitamins: fat soluble vitamins water soluble vitamins	(Interdiction, Classification), Fat Soluble Vitamins: (Structure, Forms, Dietary Source, Daily Requirement, Absorption, Storage And Transport, Function Of Vit.C , Vit.B, Vit. B2, Vit.B5, Vit.B6. PP , Vit.B12, Vit. Bc (Structure, Metabolism, Sources, Metabolism Role, Deficiency Of Some Vitamins, Daily Requirement

7	2	1	Enzymes	Introduction, Properties, Factors Affecting Enzymes Activity. Mechanism Of Enzymes Action, Enzymes Inhibition, Regulation Od Enzymes Activity, Classification, Role Of Metals In Enzymes Activity, Co Enzymes, Diagnostic Value Of Enzymes Levels.

8	2	1	The Biochemistry Of The Gastrointestinal Tract	Introduction, Digestion And Absorption In Mouth, Digestion And Absorption In Stomach, Bile And Role Of It In Digestion, Digestion And Absorption Of Carbohydrates, Digestion And Absorption Of Fats And Cholesterol, Digestion And Absorption Of Protein.
9	2	1	Metabolism Of Carbohydrates: Glycolysis Gluconeogenesis	Introduction, Reaction, Regulation , Enzymes And Co Enzymes Od Glycolysis Reversion Of Glycolysis, Formation And Fate Of Pyruvic Acid, Reactions, Regulation
10	2	1	Citric Acid Cycle Electron Trans Port System And Oxidative Phosphorylation	Introduction, Reaction, Regulation. Enzymes Coenzymes Bioenergetics (Calculation Of Atp Moles With Produced In Glycolysis And Citric Acid Cycle From Glucose), Efficiency. Mechanisms Of The Control Of Glucose Combustion.
11	2	1	Pentose Phosphate Pathway Metabolism Od Glycogen (Glycogenesis' Glycogen Lysis)	Introduction, Regulation, Metabolic Significance. Introduction, Reactions, Regulation
12	2	1	Metabolism Of Galactose Metabolism Of Fructose	Regulation Of Glycogen Metabolism, Inherited Disorders (Glycogen Storage Diseases Or Gsds), Introduction, Metabolic Pathway, Biosynthesis Of Lactose, Introduction, Metabolic Pathway
13	2	1	Minerals	Definition, Classification On The Base Of Absorption And Excretion General Causes Of Mineral Deficiency, Macro Elements, Sodium Potassium, Chlorine, Calcium, Phosphorus, Magnesium & Sulfur, Iron, Cupper
14	2	1	Minerals Water	Iodine, Fluorine , Zinc, Brief Description Of Manganese, Cobalt, Chromium, Water (Introduction, Definition And Description)
15	2	1	Nutrition	Method For Preparing Balance Diet, Role Of Nutrition In Oral Cavity Requirement Of Nutrients In Pregnancy, Infancy And Adolescent.
16	2	1	Malnutrition Toxic Compounds That Affect Oral Cavity	Over Nutrition And Under Nutrition, Introduction And Descriptions ,

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BIOCHEMISTERY (Syllabus 2)		
Discipline	Basic Biomedical science	
Department	Biochemistry	
Subject	Medical Biochemistry	
Course code	DE 4 012	
Class	II	
Semester	fall	
Number of credits	Theory	2
	Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1&2	2	1	Metabolism Of Lipids Oxidation Of Fatty Acids, Formation And Utilization Of Ketone Bodies	Introduction, Activation Of Fatty Acid, Carnitine And Its Role In F.A, Beta Oxidation (Beta Oxidation Of Saturated F.As, Beta Oxidation Of Odd Carbon F.As, Beta Oxidation Of Unsaturated F.As.) Ketosis Of Ketoacidosis
	2	1	Calculation Of Energy Of Fatty Acids Biosynthesis Of Fatty: Biosynthesis Of Triglycerides Biosynthesis Of Phospholipids:	Calculation Of Energy Of Fatty Acids Combustion In The Body, Introduction, Biosynthesis Of Saturated F.As. Biosynthesis Of Unsaturated F.As. (Biosynthesis Of Triacylglycerol). Biosynthesis Of Glycerophospholipids (Lecithin, Phosphatidyl Serine, Phosphatidyl Ethanolamine, Cardiolipin, Plasmalogens).

3	2	1	Biosynthesis And Catabolism Of Sphingolipids Prostaglandins Prostaglandins And Thromboxane. Leukotriene (Lts)	Biosynthesis Of Sphingosine, Biosynthesis And Catabolism Of (Creamed And Sphingomyeline Glucocerebroside, Galactocerebroside, Sulfatide, Ceramide Lacto Side, Ceramide Tri Hexoside And Ganglioside), (Introduction, Structure, Metabolism And Function). Chemistry And Function
4	2	1	Control Of Fat Metabolism Lipoproteins Metabolism Of Free Fatty Acids.	Control Of Fat Metabolism, Role Of Liver In Lipid Metabolism Plasma Lipoproteins And Their Metabolism, Lipotropic Factors, Role Of Adipose Tissue In Fat Metabolism Introduction, Reaction Of Free Fatty Acids Metabolism
5&6	2		Metabolism Of Cholesterol	Introduction, Biosynthesis, Regulation, Function Of Cholesterol, Transport Of Cholesterol, Factors Affecting Plasma Cholesterol Level And Fate Of Cholesterol
	2		Metabolism Of Proteins And Amino Acid	Introduction, Nitrogen Balance. Dissimilation Of Amino Acids, Transamination, Deamination (Oxidative And Non-Oxidative).
7	2		Urea Formation In Kreb's Henseleit (Urea) Cycle	Biosynthesis, Regulation Of Urea Synthesis, Clinical Significance Or Urea, Inherited Disorder Associated With Urea Cycle
8	2	1	Metabolism Of Amino Acids.	Glycine, Creation And Creatinine, Alanine, Valine, Lucien, Isoleucine, Serine, Methionine, Cysteine, Glutamic Acid, Glutamic, Aspartic Acid, Asparagine, Arginine, Lysine,
9	2	1	Metabolism Of Pieces Which Have One Carbon	Ornithine, Citrulline, Histidine, Tryptophan, Proline, Hydoxy Proline, Phenylalanine, Tyrosine
10	2	1	Metabolism Of Pyrimidines Metabolism Of Purines	Biosynthesis And Catabolism Of Pyrimidine, Biosynthesis And Catabolism Of Purines, Uric Acid Metabolism And Clinical Disorder Of Purines And Pyrimidine Metabolism.
11	2	1	Dna Rna	Biosynthesis Of Dna Biosynthesis Of Rna (MiRNA, T Rna, R Rna)

12	2	1	Proteins	Synthesis Of Proteins, Mutation
13	2	1	The Biochemistry Of Endocrine Glands Pituitary Hormone Pituitary Tropic Hormones	General Mechanism Of Action Of Hormones Introduction, Classification, Factor Regulation Hormone Action, General Properties Of Hormones
14	2		Hormone Of Middle Lobe Of Pituitary (Melanocyte Stimulating Hormone): Hormones Of Posterior Pituitary Lobe (Vasopressin Oxytocin) Thyroid Gland Hormones Thyroxin, Tri-Iodo Thyronine): Parathyroid Galand And Their Hormones: Parathormone, Calcitonin.	Introduction, Hormones Of The Anterior Pituitary [Growth H. (Chemistry , Function, Regulation Of Growth H. Secretion Clinical Importance), (Regulation Of Secretion And Functions) Such As Prolactin, Gonadotropin, FSH And LH, Thyrotropic Hormones (TSH) And Adrenocorticotropic Hormones (ACTH) Function, Clinical Importance, Abnormalities Of Pituitary Function, Introduction, Metabolism, Mechanism Of Action, Actions, Regulation, Abnormalities, Introduction (Chemistry, Biosynthesis , Metabolism, Mechanism Of Action, Actions, Regulation Abnormalities Of Parathyroid Function).
15	2	1	Pancreas And Its Hormones: Insulin, Glucagon Adrenal Glands And Their Hormones: Adrenal Cortex And Steroid Hormones, Glucorticoids Mineral-Corticoids And Cortical Sex Hormones (Androgens And Estrogens):	Introduction, (Chemistry, Biosynthesis, Secretion, Regulation, Transport And Metabolism, Mechanism Of Action, Metabolic Role And Function Of Insulin), (Description Like Insulin), Somatostain (Chemistry And Function), Introduction [Classification (Glucocorticoids, Mineral 0- Corticoids, Cortical Sex Hormones)] (Biosynthesis, Secretion And Transport, Mechanism Of Action, Actions, Regulation, Abnormalities). Description Like Glucocorticoids.
16	2	1	Adrenal Medullary Hormones (Epinephrine And Nor Epinephrine): Gonadal Hormones [Androgens, Female Sex Hormones (Presentational H.) Presentational Hormones Gastrointestinal Hormones	Introduction, Metabolism, Mechanism Of Action, Metabolic Effects. Abnormalities Or Clinical Aspects, Introduction, Androgens (Male H.), Female Sex H. (Description Like Above Hormones), Descriptions Like Above Hormones), (Chemistry And Action), (Description Like Above Hormones), Introduction, Secretin Family And Gastrin Family

Teaching-Learning Methodology

- Didactic lectures: Interactive classroom lectures to facilitate learning of terminology, principle and concepts, book and resource material are suggested to encourage self-directed learning.
- Tutorials: problem based small group discussion, question-answer sessions, revision and reinforcement of difficult concept in tutorial hours; the purpose is to inculcate skills of reasoning meaningful approaches to learning and facilities understanding of the subject.
- Laboratory exercise:
  - To substantiate and clarify knowledge concept with experimental evidence
  - To develop skills of performing basic biochemical tests important in clinical investigation
  - To develop familiarity with biochemical laboratory instrumentation techniques

Skills

- Laboratory instrumentation.
- Protein fractionation, denaturation, separation of proteins and amino acids,
- Color reactions of amino acids and proteins.
- Estimation of serum, glucose, total cholesterol, uric acid, electrolytes and urea
- Cerebrospinal fluid analysis
- Gastric juice analysis.
- Urine analysis
- Amniotic fluid analysis
- Enzymes :amylase, lactate dehydrogenase and alkaline phosphatase
- Liver function tests.
- Renal function tests.
- Gel electrophoresis of DNA
- Immunodiffusion techniques, RIA and ELISA
- Case-oriented discussions (enzymes, metabolites, function tests).

Textbooks & reference books recommended (last edition)

Biochemistry Ed. Lubert stryer. W.H freeman and company , new York

- Principle of biochemistry. Lehinger, nelson and cox. CBS publishers and distributors

□ Harper"s Biochemistry, R.K. Murray, D.K. Granner, P.A. Mayes and V.W. Rodweil. Appleton and Lange, Stamford, Connecticut.

Textbook of Biochemistry with Clinical Correlations. Ed. Thomas M. Devlin, Wiley-Liss Publishers.

□ Tietz Textbook of Clinical Chemistry. Ed. Burtis and Ashwood. W.B. Saunders Company.

□ Biochemistry. Donald Voet and Judith G. Voet. John Wiley & Sons, Inc.

□ Immunology Richard A. Goldsby, Thomas J Kindt, Barbara A Osborne, Janis Kuby.

□ Immunology Ivan Roitt, Jonathan Brostoff, David Male.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

PATHOLOGY

Goals

The broad goals of teaching undergraduates pathology are to impart the knowledge skills and attitudes in the student to understand the etiopathogenesis, morphology and pathological concepts related to various common diseases.

Learning objectives

At the end of coursethe studentwould be able to:

- □ Understand the concepts of cell injury and changes produced thereby in different tissues and organs and the body's capacity for healing.
- □ Understand the normal homeostatic mechanisms, the derangements of these mechanisms and the effects on human systems.
- □ Understand the etiopathogenesis, the pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases.
- □ Understand the concept of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body.
- □ Correlate normal and altered morphology (gross and microscopic) of different organ systems in different diseases to the extent needed for understanding of disease processes andtheir clinical significance.
- □ Have knowledge of common immunological disorders and their resultant effects on the human body.
- □ Have an understanding of the common hematological disorders and the investigations necessary to diagnose them and determine their prognosis.
- □ Perform and interpret in a proper manner the basic clinico-pathological procedures.
- □ Know the principles of collection, handling and dispatch of clinical samples from patients in a proper manner.

Course contents

PATHOLOGY (SYLLABUS 1)

Discipline			Basic Biomedical Science	
Department			Pathology	
Subject			General pathology	
Course code			DE3 013	
Class			II	
Semester	3		Spring	
Number of Credits	3		Knowledge	2
			Skills	1

Weeks	honors			
	Knowledge	Skills	Topics	Descriptions

1	2	1	Cell injury, cell death, And adaptation Overview of cell injury And cell death	Overview of Cellular Responses to Stress and Noxious Stimuli Cellular Adaptation to Stress: Hypertrophy, Hyperplasia, trophy, and Metaplasia, Causes of Cell Injury and Morphology of Cell and Tissue Injury
			Mechanisms of Cell Injury	Depletion of ATP, Mitochondria damage, Influx of Calcium, Accumulation of Oxygen-Derived Free Radicals , Defects in Membrane Permeability, Damage to DNA and Proteins, Ischemia-Reperfusion Injury, and Chemical (Toxic) injury.
2	2	1	Apoptosis, Autophagy and Intracellular accumulation	Causes of apoptosis, Mechanisms of apoptosis, Example of apoptosis, Fatty change (Steatosis), Cholesterol, protein, Glycogen, Pigments.
			Pathologic calcification and Cellular aging	rophic and metastatic calcification, Cellular aging.
3	3	1	inflammation and repair Acute Inflammation	Overview of Inflammation and Tissue repair, Stimuli for acute inflammation, Recognition of microbes, necrotic cells and foreign substances, and ,Vascular change.
			Acute Inflammation	Cellular events: Leukocytes recruitment and activation, Leukocyte-Induced tissue injury, Defect in leukocyte function Outcomes of acute inflammation, Serous inflammation, Fibrinous inflammation, supportive (purulent) inflammation and abscess formation, and, Ulcerative inflammation.
			Morphologic Patterns of Acute Inflammation	
4	3	1	Chemical Mediators of Inflammation	Cell-Derived mediators, Plasma Protein-Derived mediators Anti-Inflammatory mechanisms.
			Chronic inflammation Systemic Effects of Inflammation	Systemic Effects of Inflammation Chronic inflammatory cells and mediators, Granulomatous inflammation, Fever, Elevated of Plasma Level of Acute-Phase Proteins, Leukocytosis, Other manifestation of the acute phase response and sepsis

	2	1	overview of tissue repair	l and tissue regeneration, Scar formation, Factors that influence tissue repair..
5			selected clinical example of tissue repair and fibrosis	Healing of skin wound, Healing by first intention, Healing by second intention, Wound strength.
	2	1	hemodynamic disorders	Hyperemia and Congestion, Edema, Hemorrhage.
6			Hemostasis and Thrombosis	Normal Hemostasis, Thrombosis, Disseminated Intravascular Coagulation (DIC).
	2	1	Embolism and Infarction	General introduction, embryological origin, anatomy, classification of deciduous and permanent teeth, physical and chemical composition.
7			Shock	Pathogenesis of septic shock, Stage of shock.
8	2	1	Diseases of the immune system	Innate and adaptive immunity, Cells and tissues of the immune system, Overview of normal immune responses
			Hypersensitivity reactions m	Causes of hypersensitivity reactions, Types of hypersensitivity reactions, Immediate (Type 1) hypersensitivity and Antibody mediated diseases (Type II hypersensitivity), Immune complex diseases (Type III hypersensitivity), T cell-mediated (Type IV) hypersensitivity.
9	2	1	Autoimmune diseases Systemic immune diseases and Rejection of transplants	Immune tolerance, Mechanism of autoimmunity, Systemic lupus erythematosus, Rheumatoid arthritis, Sjogren syndrome, Systemic sclerosis, and Inflammatory Myopathies
			Immune deficiency diseases	Primary (Congenital) immune deficiencies, Secondary Acquired) immune deficiencies, Acquired Immunodeficiency Syndrome (AIDS).
10	2	1	Neoplasia	Nomenclature, Characteristics of benign and malignant neoplasms, Epidemiology.
			Carcinogenesis: The molecular basis of cancer	Genetic lesions in cancer, Carcinogenesis: A multistep process Hallmarks of cancer.

11	2	1	Etiology of cancer: Carcinogenic agents	Chemical carcinogens, Radiation carcinogenesis, Viral, and Microbial Oncogenesis
			Host defense against tumors: Tumor immunity Clinical aspects of neoplasia	Tumor antigens, Antitumor effector mechanisms, Tumor surveillance and immune evasion by tumors, Effects of tumor on host, Grading and Staging of cancer, Laboratory diagnosis of cancer.
			Genetic diseases Mendelian disorders: Diseases caused by single gene defects	Nature of genetic abnormalities contributing to human disease Transmission patterns of single-gene disorders, Diseases caused by mutations in genes encoding structural, Receptor, and Enzyme proteins, and that regulate growth.
12	2	1	Complex multigenic disorders Cytogenetic disorders	Numerical abnormalities, Structural abnormalities, Cytogenetic disorders involving autosomes.
			Cytogenetic disorders	Cytogenetic disorders involving sex chromosomes.
13	2	1	Single-gene disorders with atypical patterns of inheritance	Diseases caused by triplet repeat mutations, Diseases caused by mutations in mitochondrial genes, Diseases associated with alteration of imprinted regions of the genome.
		1	Environmental and nutritional diseases	Health effects of climate change, Toxicity of chemical and physical agents, Environmental pollution, Effects of tobacco, Effects of alcohol.
14	2		Injury by therapeutic drugs and drugs of abuse	Injury by therapeutic drugs: Adverse drug reactions, Injury by nontherapeutic toxic agents (Drug abuse).
			Injury by physical agents	Mechanical trauma, Thermal injury, Electrical injury, Injury produced by ionizing radiation.
15	2	1	Nutritional diseases Obesity. Diet and systemic diseases Diet and Cancer	Malnutrition, Protein-Energy malnutrition, Anorexia Nervosa and Bulimia, Leptin, Adipose tissue, Clinical consequences of obesity.
16	2	1	General pathology of infectious diseases General pathology of infectious diseases	General principle of microbial pathogenesis, Categories of infectious agents, Special techniques for identifying infectious agents, New and emerging infectious diseases, Agents of bioterrorism.
			Transmission and dissemination of microbes How microorganisms cause disease Spectrum of inflammatory responses to infection	Routes of entry of microbes, Spread and dissemination of microbes within the body, Release from the body and transmission of microbes, Mechanisms of viral injury . Mechanisms of bacterial injury, Immune evasion by microbes Supportive, Mononuclear/granulomatous, Cytopathic-cytoproliferative, Necrosis, and Chronic inflammation/scarring.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

PATHOLOGY (Syllabus 2)					
Discipline			Basic Biomedical Science		
Department			Pathology		
Subject			Systemic pathology		
Course code			DE4 013		
Class			II		
Semester		4	Fall		
Credits		2	Knowledge	1	
			Practice	1	
Hours					

Weeks	Knowledge	Skills	Topics	Descriptions
1	2	1	Blood vessels, congenital anomalies, and hypertensive vascular disease	Epidemiology of hypertension, Pathogenesis, Morphology.
2	2	1	Vascular wall response to injury Arteriosclerosis	Atherosclerosis, Monckeberg medial sclerosis, Arteriolosclerosis.
3	2	1	Tumors of blood vessel	Benign and Malignant tumors.
4	2	1	Heart, Overview of heart Disease, Heart failure	Left- side heart failure, Right-side heart failure.
5	2	1	Congenital heart disease	Left-to Right shunts, Right-to Left shunts, Obstuction lesions.
6	2	1	Ischemic heart disease	Angina pectoris, Myocardial infarction, Chronic ischemic . Heart disease, and sudden cardiac death
7	2	1	Valvular heart disease	Degenerative valve disease, Rheumatic vavular disease, infective endocarditis.
8	2	1	Hematopoietic and lymphoid Systems, red cells disorders	Anemia of blood loss, Hemolytic anemias.
9	2	1	Red cells disorders	Anemia of diminished erythropoiesis.

10	2	1	White cell disorders	Non-neoplastic disorders of white cells, Neoplastic Proliferations of white cells.
11	1	1	Bleeding disorders	Disseminated Intravascular Coagulation, Thrombocytopenia Coagulation disorders.
12	1	1	lung Obstructive lung (airway) diseases	Atelectasis, acute respiratory distress syndrome, obstructive versus restrictive pulmonary diseases, Emphysema, Chronic bronchitis, Asthma, and Bronchiectasis.
13	1	.1	Pulmonary infections	Community acquired acute pneumonias, Community acquired atypical pneumonias, Hospital acquired pneumonias Aspiration pneumonia and lung abscess, Chronic pneumonia Fungal infections.
14	1	1	Lesions of the upper respiratory tract	Acute infections, Nasopharyngeal carcinoma, Laryngeal
				tumors.
15	1	1	Gastrointestinal tract: Stomach	Inflammatory disease of the stomach, Neoplastic disease of the stomach.
16	1	1	Liver, gallbladder, and biliary tract	Clinical syndromes, Jaundice and Cholestasis, Hepatic encephalopathy.

PATHOLOGY (Syllabus 3)			
Discipline		Basic Biomedical Science	
Department		Pathology	
Subject		Oral pathology	
Course code		DE5 013	
Class		II	
Semester	5	Spring	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	2	1	General Oral Cavity And Craniofacial Anomalies	Anatomy, Histology, Physiology, Pathology, and Oral cavity Lesions, Agnatia, Agenesis, Micrognatia, Facial Hemi hypertrophy, and Facial hemi Atrophy.

2	2	1	Craniofacial Anomalies and Teeth Anomalies	CleidocranialDiastosis, Craniofacial Diastosis and MandibulofacialDiastosis, Scale of human teeth development, Disorders of size: Macrodontia and Microdontia, Disorders of Shape: Germination, Twining,
				Fusion, Concrescence, Talons cusp, Dilacerations, Dens in dent, Dens Invagination, Taurodontism, Ectopic Enamel, Mulberry teeth, and Hutchinson teeth.
3	1	1	Teeth Anomalies	Disorders of Number: Anodontia, Hypodontia and Supernumerary teeth, Disorders of structure: Enamel Hypoplasia, Mottled enamel and Amelogenesis Imperfecta Disorder of Structure: Dentinogenesis Imperfecta, Dentin dysplasia, Odontodysplasia, Eruption Disorders: Predeciduous dentation, Delayed eruption, Embedded or impacted teeth, Ankyloses, Transposition, Eruption Sequestrum, Ectopic eruption, and Post permanent dentine.
4	1	1	Dental Caries	Theories and etiology, Classification, Smooth surface caries, Pit and fissure caries, Root caries, Recurrent caries, and Nursing carries, Rampant caries, Arrested caries, Pre-eruptive caries, Caries activity tests, Factors influencing caries, and Control of caries.
5	1	1	Benign Tumors	Squamous Papilla, Myxoma, Chondroma, Torus Palatine, and Torus Mandibular, Nevus, Fibroma, Lipoma, Hemangioma(Deferent Types), Giant cell lesion, and Lymphoangioma.
6	1	1	Benign Tumors and Pre-malignant Tumors	Osteoma, Osteoblastoma, Osteoid Osteoma, Neurofibroma, Leiomyoma, Rhabdomyoma, and Congenital Epulis Definition, classification, Leukoplakia, Erythroplakia, Carcinoma in-situ, Smokers patch, and Erosive lichen planus.
7	1	1	Malignant Tumors	Squamous cell carcinoma, Basal Cell Carcinoma, Verrucous carcinoma, Transitional carcinoma, and Malignant Melanoma Spindle cell carcinoma, Rhabdomyosarcoma, Fibrosarcoma, Chondrosarcoma, Kaposi sarcoma, and Osteosarcoma.
8	1	1	Odontogenic Tumors and Cyst of oral cavity	Classification, Developmental Stages, Ameloblastoma, Squamous Odontogenic tumor, Odontoma, and Malignant tumors, Dentigerous Cyst, Radicular Cyst, Residual Cyst, Nasopalatine Cyst, Traumatic bone Cyst, Gingival Cyst, and Dermoid Cyst.
9	1	1	Periodontal pathology	Stain, Calculus, Dental Plaque, Gingivitis, Necrotizing ulcerative gingivitis, and Desquamative Gingivitis Adult periodontitis, Rapidly progressiveperiodontitis, Aggressive Periodontitis (juvenile), and Periodontal Pocket.
10	1	1	Salivary Gland Pathology	Mumps, Sialadenosis, Sialadenitis, Siallorhea, Sialolithiasis, and Xerostomia, Benign Tumors:Pleomorphic Adenoma, Warthin's' Tumor, Basal Cell Adenoma, Canaliculi Adenoma, and Oncocytoma.
11	1	1	Salivary Gland: Malignant Tumors	Adenocystic Carcinoma, Acinic Cell Carcinoma, Adenoid Cystic Carcinoma, and Mucoepidermoid Carcinoma
			Oral Infections	Bacterial Viral and Fungal InfectionTuberculosis,

12	1	1	Spread of Oral Infections	Diphtheria, Syphilis, Noma, Herpes Simplex virus, Cat scratch disease, Varicella zoster, Candidiasis, Oral manifestations of AIDS, Foot hand and mouth disease, and Aphtosis, Cellulitis, Ludwig Angina, Maxillary Sinusitis, and Intra cranial complications of Dental infection.
13	1	1	Oral Aspect of Metabolic Disease and Pulp Pathology	Oral Aspect of Avitaminosis: Vit D, Vit A, Vit C, and Vit B complex, Oral Aspect of disturbances in hormone: Metabolism, Hyper and Hypo thyroidism, Hyper and Hypo Parathyroidism, and Addison's Disease, Pulpitis, Pulp Degeneration, Pulp Calcification, Pulp Necrosis, Osteomyelitis, Dry socket, Periapical abscess, and Periapical scar.
14	1	1	Lip and Tongue Diseases	Cheilitis, Double Lip, Cleft lip and cleft palate, and Congenital lip pits, Aglossia, Macroglossia, Ankyloglossia, Cleft tongue, Fissured tongue, and Median rhomboid glossitis.
15	1	1	TMJ pathology and Chemical and Physical Injuries	Osteoarthritis, Coronoid hyperplasia, Condylar hyperplasia, Condylar Hypoplasia, Ankyloses, Rheumatoid arthritis, TMJ dysfunction, and Subluxation, Attrition, Abrasion, Erosion, Abfraction, Secondary and tertiary dentin, Teeth resorption, Hypercementosis, Bruxism, Amalgam tattoo, and Inflammatory papillary hyperplasia.
16	1	1	Syndromes of orofacial region	Sjogran Syndrome, Pirre Rabin Syndrome, Ascher Syndrome, Marfan Syndrome, and elkerson Rosenthal Syndrome.

(C)Skills

- □ Identify and interpret the gross and/or microscopic features of common disorders as given above.
- □ Perform with accuracy and reliability basic hematological procedures such as hemoglobin estimation, total and differential WBC count and peripheral blood smear staining, examination and report.
- □ Calculate the indices and interpret the relevant significance.
- □ Perform the basic laboratory hematological tests like bleeding time and clotting time
- □ Perform a complete examination of the urine and detect any abnormalities
- □ Grouping and cross matching of blood
- □ Collect and dispatch clinical samples from patients in a proper manner

Interpret abnormal biochemical laboratory values of common diseases

Teaching and learning methodology

1- Knowledge

Department stresses on teaching basic fundamentals of the disease process and the applied aspects relevant to the clinical subjects in didactic lectures

A-General Patholo

Taught with the help of didactic lectures on specific topics, followed by skills pertaining to that topic. Besides microscopic examination, fresh specimens obtained at autopsy or surgical operations are shown.

B-Systemic Patholo

The following tools are employed:

- Didactic lectures: discussing a particular topic at length in an one hour lecture
- Para clinical seminars: are conducted by a combined team of pathologist and a clinician who discuss the pathophysiology and clinical aspects of the particular disease entity.
- Case studies: The significant and common diseases are discussed in the form of a representative clinical case in which trie clinical features, the course of the disease in that particular patient and relevant laboratory investigations are discussed by a clinical faculty in an interactive manner in small groups.
- This is followed by demonstration of the gross and microscopic features of the disease in that case by the pathologist. This is followed by clinico-pathologic correlation.

II-Skills

- Deals with demonstration of gross, and/or microscopic features of the disease entities.
- Clinical case demonstration patients of a particular disease are demonstrated to the students by a clinical faculty in the ward, discussing the clinical features in the patient which provides them a real-life experience of studying a disease as it presents in a patient.
- By a combination of above modalities/tools, student learns applied aspects of the disease process.

□ Textbooks & reference books recommended (last edition)

- Robbin's Pathologic Basis of Diseases
- Roitt's Essential Immunology
- Walter and Isrel's General Pathology

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

DENTAL MATERIAL

DENTAL MATERIAL

a) INTRODUCTION:

led to new material systems and changing concepts in the Dental field. Interlinked with various specialized
branches of chemistry, skill engineering applied sciences and biological characteristics, the science of Dental material emerged as basic sciences in itself with its own values and principles.

b)AIMS:

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

c) OBJECTIVES:

- To understand the evolution and development of science of Dental material.
- Knowledge of physical and chemical properties and advantages and disadvantages of the material used in dentistry.
- Knowledge of biomechanical requirements of particular restorative material and its application & limitations.
- Laying down standards or specifications of various materials to guide to manufacturers as well as to help professionals.
- Search for newer and better materials which may answer our requirements with greater satisfaction.
- To understand and evaluate the claims made by manufactures of Dental materials.

At the end of the course the student should have the knowledge about the composition, properties, manipulative techniques and their various commercial names. The student should also acquire skills to select and use the materials appropriately for laboratory and clinical use.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

DENTAL MATERIAL			
Discipline		Clinical Science and skills	
Department		Dental Material	
Subject		Dental Material	
Course code		DE4 015	
Class		II	
Semester	4	fall	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	Dentistry and Dental Material	Introduction, Prevention, Restoration, Rehabilitation, Classification
2	1	1	Basic nature and properties of Dental material	Forms of matter, Interatomic bonds, Thermal expansion, crystal structure, non-crystalline structure, stress and strain, Diffusion, surface tension, Wetting.
3	1	1	Physical properties of Dental materials	Stress, Strain, Poisson's Ratio, Proportional limit, Elastic limit, Yield strength, Modulus of Elasticity, Flexibility, Strength impact, Fatigue, brittleness, Hardness, Rheology, Color
4	1	1	Biological Considerations of Dental materials	Biological requirements of Dental materials, Classification, Physical factors affecting pulp health, thermal change, galvanism, Toxicity evaluation.
5	1	1	Tarnish and Corrosion	Definitions, Electromotive force series, Types of corrosion, Protection against corrosion.
6	1	1	Introduction to Restorations, Luting and Pulp therapy	Types of restorations, luting, requirements of luting materials, pulp capping types, bases, liners and varnish.
7	1	1	Dental cements:	Introduction, Classification, biological properties, Silicate cement, Zinc phosphate cement, copper cements.
8	1	1	Zinc Polycarboxylate cement, zinc oxide-eugenol cement Glass Ionomer cements & Calcium hydroxide cement	Introduction, classification, Properties, composition, Modified zinc - oxide cement, protection of cement after setting.
9	1	1	Dental amalgam	Introduction, Applications, Classification, Advantages/Disadvantages, strength, Technical considerations, shaping and finishing, Mercury toxicity,

				precautions.
10	1	1	Composite Resins and Bonding Agents	Introduction, uses, Types, Indications, Composition, Polymerization, wear rates and life expectancy of composites, Techniques of insertion, Bonding, Mode of Action, Indications for use of Bond Agents, Bonding Mechanisms, Application method.
11	1	1	Rigid Impression Materials	Introduction, Advantages of using a cast or model, Desirable properties of an impression material, Classification, Impression compound, properties of impression compound.
12	1	1	Zinc Oxide Eugenol Impression paste & Impression tray	Introduction, Composition, Setting reaction, Setting time, Properties, Manipulation, Disinfection of tray, Advantages, Disadvantages, Other Zinc oxide pastes.
13	1	1	Elastic Impression Materials- Agar and Alginate	Introduction, Types, Hydrocolloids, Types, Composition, Impression Trays, techniques.
14	1	1	Elastomeric Impression Materials	Introduction, Types, Uses, Properties, Polysulfide's, Composition, Setting reactions, Properties, Silicone Rubber Impression materials, types, composition and Setting reactions.
15	1	1	Polyether Rubber Impression Material	Introduction, Composition, Properties, Technical Considerations, Methods of Making Impressions.
16	1	1	Model Cast and Die Materials	Introduction, Types, Improved Dental stone, Gypsum products & waxes in dentistry.

Textbooks & reference books recommended (last edition)

1-Basic Dental material, Johan j. manappallil.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

MICROBIOLOGY

Goals

The broad goals of the teaching of undergraduate students in microbiology are to provide an understanding of the natural history of infectious diseases in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

Learning objectives

A-Knowledge

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

- State the infective micro-organisms of the human body and describe the host-parasite relationship
- -. List pathogenic micro-organisms and describe the pathogenesis of the diseases produced by them
- Indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection
- Describe the mechanisms of immunity to infection
- Acquire knowledge on antimicrobial sensitivity tests to select suitable antimicrobial agents for treatment of infection and scope of immunotherapy and different vaccine available for prevention of communicable diseases.
- Apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
- Recommend laboratory investigations regarding bacteriological examination of food, water, milk and air.

B-Skills

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

- Plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agents.
- Identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
- Use the correct method of collection, storage and transport of clinical material for microbiological investigations.

Course content

MICROBIOLOGY (Syllabus 1)	
Discipline	Basic Biomedical Science
Discipline	Microbiology
Subject	Microbiology
Course code	DE3 014
Class	II

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Semester	3	Spring	
Number of Credits	3	Theory	2
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1&2	2	1	Morphology of Micro Organisms	Definition, Basic types of Microbes. Differences between eukaryotes and prokaryotes, Optic methods.
	2	1	Morphology of Micro Organisms	Structure of Eukaryotic Cells, Structure of Prokaryotic cells. Simple stain and other stains and protoplast, L-form bacteria. .
3	2	1	Morphology of Micro Organisms	Endospore. Classification of Bacteria and five Kingdome classifications.
4	2	1	Physiology of micro Organisms	Biochemical structure of microbial cell. Media and its preparation, Growth of micro-Organism
5&6	2	1	Physiology of Micro Organisms	Culture, Characters of Bacteria, Respiration of Microbes.
	2	1	Physiology of Micro Organism	Isolation of Micro Organism in pure Culture, Microbes Enzymes, Antibiogram
7	2	1	Microbial Flora	Role of Resident flora. Normal Flora of the skin, Mouth and Upper respiratory tract flora. Intestinal, Urethra, Vaginal and Eye flora.
8	2	1	Infections	Microbes, Toxins, Exotoxin and Endotoxins. Period of an infectious disease. Clinical form of infections. Distribution, severity of infectious disease..
9	2	1	Immunology:	Specific and Non Specific host defense mechanism
10	2	1	Immunology: Genetic in immunity	Genetic in immunity. Vaccination. Antigens.
11	2	1	Immunology: Antibodies	Antibodies, Cellular and Humoral immunity.

12	2	1	Gram Positive Cocci Staphylococci	Morphology, Culture, Growth, Characteristics, Antigenic structure, Toxins, Pathogenesis, Clinical Finding, Diagnostic Lab
				Test, Treatment Prevention and Control.
13	2	1	Gram Positive Cocci Streptococci	Morphology, Culture, Growth, Characteristics, Antigenic structure, Toxins, Pathogenesis, Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
14	2	1	Pneumococci	Morphology, Culture, Growth, Characteristics, Antigenic structure, Toxins, Pathogenesis, Clinical Finding, Diagnostic Lab Test, Treatment, Epidemiology, Prevention and Control Neisseria:- (Neisseria Gonorrhea, Neisseria Meningitides) Morphology, Culture, Growth, Characteristic, Antigenic structure, Toxins, Pathogenesis, Clinical Finding, Diagnostic Lab Test, Treatment, Epidemiology, Prevention and Control.
15	2	1	Gram Negative Enteric bacilli:- (Escherichia coli), Gram Negative Enteric bacilli	Morphology, Culture, Growth, Characteristics, Antigenic structure, Toxins, Gram Negative Enteric bacilli: (Escherichia coli) Pathogenesis, Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and control.
16	2	1	Gram Negative Enteric bacilli's:- (Salmonella, Shigella), soft tissue infections, Respiratory infections.	Morphology, Culture, Growth, Characteristics Antigenic structure, Toxins, Gram Negative Enteric bacilli's (Salmonella, Shigella), Pathogenesis, Clinical Finding, Diagnostic Lab Test, Treatment, Epidemiology, Prevention and Control.

MICROBIOLOGY (Syllabus 2)			
Discipline		Basic Biomedical science	
Department		Microbiology	
Subject		Microbiology	
Course code		DE4 014	
Class		II	
Semester	4	fall	
Number of Credits	3	Theory	2
		Practice	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
	2	1	Oral Microbiology and Important Oral Bacteria	Definition of terminologies, Introduction of concept, Gram Positive organisms, Streptococci, Strep mutans, Strep

				salivarius, Strep angiosus
1&2	2	1	Oral microbial flora and Dental Hygiene Dental Hygiene Oral microbes in health and diseases	Role of Resident flora. Normal Flora of mouth and upper respiratory tract flora, Morphology, Culture, Growth Characteristics, Antigenic structure, Toxins, Clostridium: (CI Tetani, CI Perfringens, CI Gas gangrene): - Pathogenesis, Clinical finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
3	2	1	Helicobacter (H.Pylori) Clostridium:- (CI Tetani, CI Perfringens, Gas gangrene) Corynebacterium (C.Diphtheria)	Morphology, Culture, Growth Characteristics, Antigenic structure, Toxins, Pathogenesis, Clinical finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and control.
4	2	1	Haemophlus influenza) Bordetella, Brucella and Mycobacterium TB	Morphology, Culture, Growth, Characteristics, Antigenic Structure, Toxins, Mycobacterium, Pathogenesis, Clinical finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
5&6	2	1	Mycology: - (Surface mycosis, Skin mycosis)	Morphology, Culture, Growth, Characteristics, Antigenic structure. Toxins, Mycology (Surface mycosis, Skin mycosis) Pathogenesis, Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
	2	1	Virology: - (Adenovirus, Para Influenza and Herpes Virus)	Morphology, Culture, Growth, Characteristics, Antigenic structure, Toxins, Pathogenesis, Virology: - (Adenovirus, Para Influenza and Herpes Virus):- Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
7	2	1	Virology: - (Mumps, Measles, Smallpox and Rubella virus, Mumps)	Morphology, Culture, Growth, Characteristics, Antigenic structure. Toxins, Virology: - (Mumps, Measles, Smallpox and Rubella virus):- Pathogenesis, Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
8	2	1	Virology {Hepatitis, Polio myelitis, Rabies and Retro virus (AIDS)	Morphology, Culture, Growth, Characteristics, Antigenic structure. Toxins, Virology {Hepatitis, Polio myelitis, Rabies and Retro virus (AIDS)}:- Pathogenesis, Clinical Finding, Diagnostic Lab test, Treatment, Epidemiology, Prevention and Control.
9	2	1	Parasitology Classification of Parasite and Hosts	Classification of Parasites and hosts, Type of immunity and Other Immunologic Reactions, Nomenclature of Parasites and abstract study of Parasitology.
10	2	1	Entamebea Histolotica	EntamebeaHistolotica:- History, Geographical distribution, Morphology, Reproduction, Life cycle, Pathogenesis, Clinical Findings, Intestinal and Extra intestinal Ameobiasis, Lab Diagnosis, Differential Diagnosis, Treatment, Prevention.
11	2	1	GardiaLabmlia, Trichomonas Vaginalis	History, Geographical distribution,. Morphology, Pathogenesis and Clinical Finding, intestinal, Culture of Trichomonas, Lab Diagnosis, Treatment, Prevention.
12	2	1	Leishmaniasis	Leishmaniasis:- History, Morphology, Culture, Life Cycle, Pathogenesis and Clinical Findings, Lab Diagnosis, Treatment, Prevention.
13	2	1	Trypanosomiasis	Trypanosomiasis: History, Morphology, Life Cycle,

				Pathogenesis and Clinical Findings, Lab Diagnosis, Treatment, Prevention.
14	2	1	Malaria	Malaria:- History, Geographical distribution, Epidemiology, Life Cycle, Pathogenesis, Clinical Findings, Malaria in Pregnancy, Malaria in Children, Complication of Malaria, Lab Diagnosis, Treatment, Prevention.
15	2	1	AscarisLumbricularis:	AscarisLumbricularis: - History, Morphology, Life Cycle, Clinical Findings, Lab Diagnosis, Treatment, Prevention.
16	2	1	Tenia Saginata, Tenia Solium, EchinococcusGranulosis and Shistosomiasis	History, Morphology, Life Cycle, Clinical Findings, Lab Diagnosis, Treatment, Prevention.

Skills

1-Direct demonstration of bacteria by staining

- Gram Staining
- Albert‘s staining
- Acid fast staining

2.Enterobacteriacea

- Common media and biochemical tests
- Culture characteristics of members of Enterobacteriacee

3.Laboratorv diagnosis of E.coli infection and shigellosis

- Stool examination for pus cells and RBCs
- Processing of stool specimen for bacterial culture
- Cultural characteristics, tests for E.coli and its virulence factors
- Cultural characteristics of Shigella and its identification (incl. slide agglutination test)

4. Laboratory diagnosis of cholera

- Collection and transport of specimen
- Culture media and characteristics
- Identification (include; motility, oxidase and other tests)
- Biotyping and serotyping

5. Laboratory diagnosis of food poisoning

- Focus on: laboratory diagnosis of salmonellosis
- Demonstration for Clostridium perfringens and others

6. Laboratory diagnosis of upper respiratory infections

- Focus on: laboratory diagnosis of Streptococcus infection
- Albert's stain
- Media, identification and toxin of Corynebacterium (demonstration)

7. Laboratory diagnosis of lower respiratory tract infections

- Focus on: Klebsiella and Streptococcus pneumonie
- Viral respiratory infection (demonstration of diagnostic methods)

8. Laboratory diagnosis of UTI

- Collection, storage and transport of urine
- Significant bacteria and quantitative/Semi quantitative methods of culture
- ' Media: including CLED
- E.coli/ Klebsiella (revision)
- Focus on: Identification of Proteus and Pseudomonas - cultural characteristics like swarming, pigment production; and tests like OF and oxidase

9. Laboratory diagnosis of wound infections

- Focus on: Staphylococcus (culture/ identification including tests like catalase and coagulase)

11-Laboratory diagnosis of viral infections

- Collection and transport of samples
- Demonstration of egg inoculation techniques, cell culture, cytopathic effect, plaque assay, serological tests (complement fixation, hem agglutination inhibition, neutralization, ELISA).

12-Sterilization and disinfection

- Visit to media and sterilization room (demonstration of autoclave and hot air oven)

13*. Laboratory diagnosis of enteric fever

- Sample collection methods and transport
- Blood culture (in detail)
- Stool and urine culture for Salmonella
- Identification tests and slide agglutination for Salmonella

13.Laboratory diagnosis of meningitis

- Collection, and transport of CSF Other useful specimens
- Direct smear examination
- Culture media, growth characteristics and identification tests (focus: Neisseria, Hemophilus and Streptococcus pneumonia)
- Chronic meningitis: pathogens (demonstration e.g. India ink for Cryptococcus)
- Antigen detection

Textbooks & reference books recommended (last edition)

- Medical Microbiology Greenwood Slack, Peutherer
- Jawetz, Melnick and Adelberg's Medical MicrobiologyGeo F. Brooks, Stephen A. Morse, JanetS. ^ Butel

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

MEDICAL ETHICS &PROFESSIONALISM

Goals

Medical ethics is a systematic effort to work within the ethos of medicine, which has traditionally been service to a patient. There is now a shift from the traditional individual patient-doctor relationshipand medical care. With the advances in science and technology and the needs of patient, their families and the community, there is an increased concern with the health of society. There is shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems.Special attention is given to the role of the physician and the opportunities and challenges to the ethical practice of medicine in today's society. In keeping with its goals to improve quality of education, Ghalib University recommends introduction of medical ethics and professionalism in the regular teaching of DMD course.

Learning objectives

The learning objectives of teaching medical ethics should be to enable to students develops the ability to:

- Identify underlying ethical issues and problems in medical practice;
- Consider the alternatives under the given circumstances;
- Make decisions based on acceptable moral concepts and also tradition's practices.

MEDICAL ETHIC & PROFESSIONALISM					
Discipline			Behavioral and Social Science and Medical Ethics		
Department			Forensic medicine		
Course Title			Medical ethics& Professionalism		
Correquisites			Behavior science		
Course code			DE 4 016		
Academic year			II		
Semester	4		Fall		
Number of Credits	1		Knowledge	1	
			Skills		
Weeks	Hours Knowledge	Skills	Topics	Descriptions	
1	2		Principles of Medical Ethics	History of Medical Ethics, Development of Medical Ethics, Definition, Values and References of Ethics, Definition of Medical Ethics, Goals of Medical Ethics, Key Terms of Medical Ethics. Relation between ethics and Law, Who's a medical Doctor, Medical Doctor and Law, Medical Doctor as Forensic Doctor, Medical Doctor as Eye witness, Ethical responsibility of Medical students.		
2					
3			Deontology (THE STUDY OF	Principles of Deontology, Deontology in surgery.	

4	3		PROFESSIONAL ETHICS AND DUTIES)	Deontology in Gynecology. Deontology in Internal medicine
5				Deontology in Pediatrics Deontology in Forensic Medicine
6	1		Responsibility of medical profession	Attitude of medical doctor The Physician - Patient relationships The Physician-patient's relative relationships The physicians interrelationships Truth and confidentiality
7	1		Medical mistakes and it's incidence in medical profession	Medical mistakes Responsibility of physicians confess on their mistakes, Difficulties in conception of mistakes Profession's incidents
8	2		Malpractice and negligence	Definition of Malpractices , ., Inattentive, Improvidence ,Unprofessionalism Medical malpractices, Patient refusal from medical services, Abusive behavior, Patients abusive behavior.
9				
10	2		Profession Ethics	Contraception ,Abortion ,Hymen repairing Organ donation, In vitro fertilization (IVF), Artificial insemination by husband ,Photography for medical reasons.
11				Treatment of family members and himself, Over-investigating the patient, Prescription of drugs. Charging of fees ,Gifts Receiving, Advanced life directives euthanasia -passive and active suicide The ethical outlook, Dignity of death body.
12	1		Plagiarism	What is a plagiarism, Why plagiarizing is bad? What is URKUND?, Always note the source. Source references, Check for you before URKUND does it.
13	1		Unprofessional practices	Illegal medical practice, Illegal research on human Provision and sell of Narcotics ,Sexual abusive
14,15	2		Professionalism	Respect for patients ,Reflection/self-awareness Responsibility—commitment to excellence/lifelong learning, Teamwork, social responsibility.
16	1		Medical's Oaths	Hypocrite's Oath ,Ibne-Maymon's Oath Declaration of Geneva ,GU Oath

Textbooks & Reference books Recommended(Last Editions)

- Ethics in Clinical Practice Judith C AhronHeim.
- Ethics and Basic Law for Medical Imaging,Bettey G.Wilson.
- Informed Cosent;Legal Knowledge and Clinical Practice,Jessica W.Berg.
- Public Health Law and Ethics,Lawrence O.Gostin.
- Adverse Events,Stress and Litigation,A physician Guide.Sara C Charles.
- Undestanding Medical Professionalism,Shiphra Ginsburg.
- Professionalism in Medical assisting,Kristiana D.Routh

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MEDICAL IMMUNOLOGY

Goals

- The fundamentals of immunology course introduce the components of the immune system, their locations in the human body, and their interactions in different clinical contexts. Students learn how the immune system senses and attempts to eliminate pathogens, and how selected pathogens evade it to cause disease.
- First, the genes and molecules that play key roles in the immune system—including antigens, antigen receptors, antibodies, complement, major histocompatibility complex loci, chemokine, and cytokines—are introduced. The interactions between innate and acquired are then discussed.
- Finally, medically relevant forms of immune deregulation and intervention are explored, including vaccines, immunomodulatory, hypersensitivities, immunodeficiency, autoimmunity, graft-versus-host disease, transplantation immunology, and tumor immunology.

Course content

IMMUNOLOGY			
Discipline		Basic Biomedical Science	
Department		Pathology	
Subject		Immunology	
Course code		DE 4 017	
Class		II	
Semester	4	Fall	
Credits	1	Knowledge	1
		Skills	

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1		Introduction and Overview	Introduction Innate and Acquired Immunity, Active, Passive, and Adoptive Immunity.
2	1		Immunogens and Antigens	Primary and secondary response .Antigenicity and antigen-binding site, Major classes of antigen.
3	1		Antibody structure and function	Structure features and biologic properties of IgG, IgM, IgA, IgD, and IgE.
4	1		Antigen-antibody interaction and Immune assay	Primary and secondary interaction between antibody and antigen Immunoassays and Immunofluorescence.
5	1		Biology and Activation of T and B cells	Early phases of B-cell differentiation-cell differentiation in the thymus.Activation of $CD4^+$ T cells. Function of $CD8^+$ T cells B-cell activation and function.

6	1		Role of Major Histocompatibility in the immune response	Variability of MHC genes and products,Structure and function of MHC molecules, Diversity of MHC molecules.
7	1		Control mechanisms in the immune response	Tolerancejnduction of tolerance in mature T and B lymphocyte Immunologically privileged sites.
8	1		Cytokines	General properties of cytokines,Functional categories of cytokines Role of cytokines and cytokines receptors in disease, Therapy uses of cytokines receptors in disease.
9	1		Complement	The activation pathway and their proteins, Biological activities of complement, Complement and disease.
10	1		Hypersensitivity reaction-(Type I)	General characteristics of type I hypersensitivity, Sensitization, activation, and effector phases, Clinical aspects of type I hypersensitivity, The protect role of IgE.
11	1		Hypersensitivity reaction (Type II and Type III)	Type II cytotoxic reactions, Type III immune complex reactions.
12	1		Hypersensitivity reaction (Type IV)	General characteristics, Treatment of cell-mediated immunity.
13	1		Autoimmunity	Autoimmunity and disease, Criteria for autoimmune disease Etiology of autoimmune disease Examples of autoimmune disease
14	1		Immunodeficiency	Immunodeficiency syndromes, Primary Immunodeficiency syndromes, Secondary Immunodeficiency syndromes.
15	1		Tumor immunology	Tumors antigens, Limitation of the effectiveness of the immune response,Immunodiagnosis,Immunotherapy.
16	1		Resistance and immunization to infectious diseases	Host defense against the various classes of microbial pathogens Mechanisms by which pathogens evade the immune response Principles and objective of immunization, Active and passive immunization.

Teaching-Learning Methodology

- Didactic lecturers: interactive classroom lectures to facilitate learning of terminology, principles and concepts. Books and resource material are suggested to encourage self- directed learning.

  Tutorials: Problem based small group discussions, questions-answer sessions, revision and reinforcement of difficult concepts in tutorial hours. The purpose is to inculcate skills of reasoning, meaningful approaches to learning and facilitate understanding of the subject.

Textbooks & reference books recommended (last edition)

Immunology Ed. 5th Richard A. Goldsby, Thomas J Kindt, Barbara A Osborne, Janis Kuby.
Immunology Ed. 6th Ivan Roitt, Jonathan Brostoff, David Male.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

PROSTHODONTICS

Prosthetics is that of Dentistry pertaining to the restoration & maintenance of oral function, comfort, appearance & health of the patient by the restoration of natural Teeth and or replacement of missing teeth & craniofacial tissue with artificial substitutes

OBJECTIVES

At the completion of this course the students will :

- Be able to understand and use various Dental materials and Impression technics.
- Be competent to carry out treatment of conventional complete and partial removable dentures and full veneer crowns.
- Be able to carry out treatment of routine Prosthodontic procedures.
- Be able to diagnose and appropriately refer patients requiring complex treatment procedures to the specialist

Course content

PROSTHODONTICS (Syllabus 1)					
Discipline			Clinical science and skills		
Department			Prosthodontics		
Subject			Pre-prosthodontics		
Course code			DE5 018		
Class			III		
Semester	5		Spring		
Credits	2		Knowledge	1	
			Skills	1	

Hours				
Weeks	Knowledge	Skills	Topics	Descriptions
1	1	1	Prosthodontics	History, Definition, Classification.
2	1	1	Masticator System	Function Of Masticatory System, Oral Cavity, Muscles Related To Prosthodontics.
3	1	1	Masticator System	Characteristic Of Human Face And Temporomandibular joint.
4	1	1	Mandibular Movement	Relation Of Jaw, Vertical And Horizontal Relation , Factors That Adjustment The Mandibular Movement.
5	1	1	Mandibular Movement	Mandibular Movement In Deferent Planes, Expression , Sagittal Plane, Frontal Plane, Horizontal Plane.

6	1	1	Occlusion And Teeth Location	Definition, Kind Of Occlusion, Location Of Teeth In Dental Arch, Location Of Anterior Teeth, Location Of Posterior Teeth, Occlusion Line.
7	1	1	Teeth Bite	Tooth Bite, Antagonist, Kinds Of Bite, Planes And Lines Of Occlusion
8	1	1	Clinical Examination Of Prosthodontics Patients	Subjective And Objective Examination
9	1	1	Clinical Examination Of Prosthodontics Patients	Special Examination, Treatment Plan In Prosthodontics, Preparation Of Month For Prostheses.
10	1	1	Impression And Impression Materiel	Definition, Classification, Rigid And Thermoplastic Material.
11	1	1	Impression And Impression Materiel	Elastic, Hydrocolloid, And Poly Sulfide, Condensation Silicon, Vinyl Polysiloxan And Poly Ether.
12	1	1	Impression And Impression Materiel	Technique Of Impression, Choose Of Material Complication And Disinfection.
13	1	1	Materia logy	Material For Modeling And Dentistry, Metal Use In Dentistry, Artificial Tooth And Material For Polishing.
14	1	1	Fundamental Of Fixed Prosthesis	Definition And Terminology, Intracranial Restoration, Extracranial Restoration, Metal Full Crown, Non-Metal Full Crown, Combined Full Crown, Partial Crown, Post Crown, Bridge
15	1	1	Fundamental Of Removable Partial Denture (RPD)	Interdiction, Terminology, Classification, Components Of Removable Partial Denture, Diagnosing, Treatment Planning Preparation Of Mouth And Impression In RPD, Constriction Of Artificial Teeth, Initial Placement, Adjustment And Servicing In Removable Partial Denture, Reline Rebase And Repair And Temporary Removable Partial Denture.
16	1	1	Fundamental Of Complete Denture	Definition, Anatomy Of Oral Cavity, Complete Denture Anatomy, Primary Impression In Complete Denture, Final Impression In Complete Denture, Relationships And Movement Of Jaws, Determine Of Vertical Dimension Of Occlusion And Records Of Center Relation, Selection Of Artificial Teeth.

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Dentistry Faculty Curriculum - Syllabus

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PROSTHODONTICS (SYLLABUS 2)					
Discipline			Clinical Science And Skill		
Department			Prosthodontics		
Subject			Fixed Partial Prosthodontics		
COURSE CODE			DE6 018		
Class			III		
Semester		6	Fall		
Credits		2	Knowledge	1	
			Skills	1	

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	An Introduction Of Fixed Prosthodontics	Terminology, Diagnosis, History, TMJ Occlusal Evaluation, Diagnostic Cast, Protection Against Infectious Diseases.
2	1	1	Foundation Of Occlusions	Centric Relation, Mandibular Movement, Organization Of The Occlusion, (Unilateral Balanced Occlusion, Bilateral Balanced Occlusion, Mutually Protected Occlusion) Effects Of Anatomic (Determinants, Molar Disocclusion, Condylar Guidance, Anterior Guidance)
3	1	1	Articulators	Definition, Arcon And Nanarcon Articulators, The Tooth Transverse Horizontal Axis Relationship, Registration Of Condylar Movement.
4	1	1	Interocclusal Records	Centric Relation Record, Maximum Intercuspation Record, Lateral Interocclusal Record.
5	1	1	Articulation Of Cast	Introduction, Whip Mix Facebow And Articulator, Donor, Hanau Facebow And Articulator, (Facebod Record, Mounting The Maxillary Cast, Mounting The Mandibular Cast, Setting Condylar Guidance, Custom Anterior Guidance, Mechanical Anterior Guidance).

6	1	1	Treatment Planning For Single Tooth Restoration	Introduction, Intracoronal Restoration, (Class Ionomer, Composite Resin, Simple And Complex Amalgam, Metal Inlay, Ceramic Inlay MOD Onlay) Extracoronal Restoration (Partial Veneer Crown, Full Metal Crown, Metal- Ceramic Crown, Ceramic Veneer Restoration).
7	1	1	Treatment Planning For The Replacement Of Missing Teeth	Introduction, Selection Of The Type Of Prosthesis, Abutment Evaluation Biomechanical Consideration, Special Problems (Pier Abutment, Tilted Molar Abutment, Canine Replacement Fixed Partial Denture, Cantilever Fixed Partial Denture).
8	1	1	Fixed Partial Denture Configuration	Introduction, Simple Fixed Partial Denture (One Tooth), Simple Fixed Partial Denture (Two Teeth), Complex Fixed Partial Denture (Two Tooth) Complex Fixed Partial Denture (More Than Two Teeth) Pier Abutment.
9		1	Principles Of Tooth Preparation	Preservation Of Tooth Structure, Retention And Resistance, (Taper, Freedom Of Displacement, Length, Substitution Of Internal Features, Path Of Insertion).
10	1	1	Principles of Tooth Preparation	Structure Durability (Occlusion Reduction, Functional Cusp Bevel, Axial Reduction) Marginal Integrity (Finish Line Configuration) Preservation of Periodontum, Instrumentation.
11	1	1	Preparations for Full Veneer Crowns	Introduction, Full Metal Vrown preparations, Metal Ceramic Crowns, (Anterior Metal – Ceramic Crowns, posterior metal Ceramic Crowns) All Ceramic Crowns.
12			Preparations of Partial Veneer Crowns	Introduction,Maxillary posterior – Three – Quarter Crowns, Posterior partial Veneer Variations, Anterior – Three - Quarter Crowns, pin – Modified – Three – Quarter Crowns
13			Preparations for Intracoronal Restoration	Introduction, proximo – Occlusal Inlays, Metal Inlays Variation, MOD Onlays.
14			Preparation for Extensively Damaged Teeth	Introduction, Principle of Substitution (Box form, Grooves, pins) Bases and Core (Bases, Cores) Modification For Damaged Vital Teeth, Orthodontics Adjuncts To Restoring Damaged Teeth(Regaining Interproximal Space, Extrusion of Teeth)

15			Preparation for Extensively Damaged Teeth	Restoration of Endodontically Treated Teeth (Rationale, Prefabricated Dowel With Amalgam Or Resin Cored, Costume Cast Dowel Core, Canal Preparation, Resin pattern Fabrication, Finishing and Cementation of the Dowel Core).
16			Preparation for periodontal weakened teeth	Introduction, Preparation Finish Line (Location, Furcation Flutes) Root resection (Indication, Contraindication, Capacity of Resected Root, Resection Technique, Tooth Preparation and Crown Configuration) Success and Failure.

PROSTHODONTICS (Syllabus 3)				
Discipline			Clinical science and skills	
Department			Prosthodontics	
Subject			Fixed Partial Prosthodontics	
Course code			DE7 018	
Class			IV	
Semester	7		SPRING	
Credits	2		Knowledge	1
			Skills	1
Hours	Topics		Descriptions	
		Knowledge / Skills		
1	1	1	Provisional Restoration	Introduction Types Of Provisional Restoration Resins For Provisional Restoration, Technique For Custom Provisional Restoration, (Over Impression-Fabricated Provisional Crown) Template – Fabricated Provisional Fixed Partial Denture
2	1	1	Provisional Restoration	Template Fabricated VLC Provisional Restoration, Shall Fabricated Provisional Restoration Over Impression – Fabricated, Bis-Acryl Composite Crown, Technique For Prefabricated Provisional Restoration.

3	1	1	Fluid Control And Soft Tissue Management	Introduction Fluid Control, Finish Line Exposure (Mechanical, Chemiomechanical, Rotary Curettage, Electorsnrgry Gingival Sulcus Enlargement Removal Of Edentulous Cuff, Crown Lengthening).
4	1	1	Impression	Introduction Comparison Of Impression Materials, Reversible Hydrocolloid Polysulfide, Condensation Silicone Polyvinyl Siloxane, Polyether, Polyether Urethane Methacrylate. Impression For Pin- Relined Restoration, Disinfection Of Impression.
5	1	1	Working Cast And Die	Introduction , Working Cast With A Separated Die, Working Cast With Removable Die.
6	1	1	Wax Pattern	Introduction Wax Pattern Fabrication Axial Contours, Occlusal Morphology, Cusp Marginal Ridge Arrangement, Marginal Finishing.
7	1	1	The Functionally Generated Path Technique	Introduction, Function Core And Wax Pattern Fabrication For Functional Tracing.
8	1	1	Investing And Casting	Introduction, Dental Casting Alloys, Investing Materials, Gypsum-Bonded Investment .Sprue Former Attachment, Investing Procedure, Bum Out, Cleaning The Casting, Phosphate-Bonded Investment, Casting Gold-Palladium And Base Metal Alloys.
9	1	1	Finishing And Cementation	Introduction , Abrasives And Polishing Materials Preliminary Finishing Of Gold Restoration, Preliminary Finishing Of Base Metal Restoration.
10	1	1	Finishing And Cementation	Cements , Bonding Mechanisms, Cement Selection, Cementation, Special Consideration.
11	1	1	Esthetic Consideration	Introduction , Appearance Zone, Shade Selection, Shade Selection Sequence
12	1	1	All Ceramic Restoration	Introduction, All Ceramic Crowns, Porcelain Laminate Veneer, Cementation And Finishing Of All Ceramic Restoration, Crown And Veneer, Cementation.
13	1	1	Metal Ceramic Restoration	Introduction Bonding Mechanisms, Alloys Listed, Coping Design, Single Coping Wax Pattern Porcelain Addition Finishing And Cementation

14	1	1	Pontiac And Edentulous Ridge	Introduction Tissue Contact Post Insertion Hygiene Pontiac Design The Edentulous Ridge Pontiac Fabrication.
15	1	1	Soldering Joints And Other Connectors	Introduction, Gold Alloys Fixed Partial Denture Soldering, Adding Proximal Contacts. Repairing Casting Voids, Breaking Solder Joints, Armamentarium, Soldering Metal-Ceramic Alloys, Prevent And Post Veneer Metal-Ceramic Alloys Soldering, No Rigid Connectors
16	1	1	Resin-Bonded Fixed Partial Denture	Interdiction, Metal Framework, Resin Cements, Pors And Cons, Tooth Preparation Framework Fabrication Master Cast Duplication, Resin Coping Fabrication, Wax Pattern, Investing And Casting, Delivery Sequence.

PROSTHODONTICS (Syllabus 4)			
Discipline		Clinical science and skills	
Department		Prosthodontics	
Subject		Partial Removable Prosthodontics	
Course code		DE8 018	
Class		IV	
Semester	8	Fall	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	Partially Edentulous Epidemiology, Physiology and Terminology	Tooth loss age, consequences of tooth loss, Functional Restoration with prostheses, Mastication, Food reduction, Current R-P-D use, Need for R-P-D, Terminology.
2	1	1	Clasp – Retainer Partial Denture	Point of view, tooth supported, tooth and Tissue supported, Six phase of partial denture service, Establishment and Verification of occlusal relation and tooth arrangements, Initial placement procedures, Reasons of failure of caps – Retainer partial denture, self – assessment aids.
3	1	1	Classifications Of Partial Edentulous Arches	Requirements Of An Acceptable Method Of Classification, Kennedy Classification, Applegate's Rules For Applying The Kennedy Classification, Mauks, Godfreys And Fried

				Man's Classification, Self-Assessment Aids.
4	1	1	Components Of RPD (Major Connectors)	Major Connectors, Location, Mandibular Major Connectors, Maxillary Major Connectors.
5	1	1	Components Of RPD (Minor Connectors)	Minor Connectors, Function From And Location, Tissue Stop, Finishing Line, Connectors In Review, Self-Assessment Aids.
6	1	1	Components Of RPD (Rest And Rest Seat)	From Of The Occlusal Rest And Rest Seat, Support Of Rests-Lingual Rest On Canines And incisor Teeth, Incisal Rest And Rest Seats, Self-Assessment.
7	1	1	Components Of Removable Partial Denture(Direct Retainers)	Direct Retainer's Role In Prosthesis Movement Control, Types Of Direct Retainers Analysis Of Tooth Contours For Basic Principles Of Clasp, Design, Reciprocal Arm Function. Types Of Clasp Assemblies, Clasp Design.
8	1	1	Components Of Removable Partial Denture(Direct Retainers)	Factors Influencing Effectiveness Of Indirect Retainers. Auxiliary Function Of Indirect Retainers, From Of Indirect Retainers, Modification Areas, Self-Assessment Aids.
9	1	1	Denture Base Considerations& Principles Of Removable Partial Denture Design	Functions Of Denture Base, Tooth Supported And Distal Extension Partial Denture Base Methods Of Attaching Denture Base, Accuracy And Permanence Of Form, Comparative Tissue Response Thermal Conductivity Differentiation Between Two Main Type Of RPD , Difference In Support Impression Registration, Components Of Partial Denture Design. Direct retainer for distal extension partial dentures,
10	1	1	Diagnosis And Treatment Planning& Preparation Of Mouth For Removable Partial Dentures	Purpose And Uniqueness Of Treatment, Patient Interview, Infection Control, Clinical Examination, Diagnosis Cast Material And Methods For Recording Diagnosis Finding Interpretation Of Examination Data, Radiographic Interpretation, Periodontal Consideration, Caries Activity, Evaluation Of The Prosthesis Foundation-Teeth And Residual Ridge Centric Relation. Oral Surgical Preparation. Extraction, Removable Of Residual Roots, Impacted Teeth, Cyst And Odontogenic Tumors, Exostoses And Tori, Hyperplasic Tissue, Muscle Attachment And Frena Etc
11	1	1	Impression Materials	Rigid Material, Thermoplastic, Elastic Material

			And Procedures For Removable Partial Denture	Hydrocolloids, Mercaotan Rubber-Base, Polyether, Silicone Impression Material, Impression Of Partially Edentulous Arch, Possible Causes Of An Inaccurate And A Weak Cast Of Dental Arch, Individual Impression Trays, Self-Assessment Aids.
12	1	1	Support For The Distal Extension Denture Base	Distal Extension Removable Partial Denture, Factor Influence The Support Of Distal Extension Base, Contour And Quality Of The Residual Ridge, Extension Of Residual Ridge Coverage By The Denture Base, Accuracy Of The Fit Of A Denture Base, Design Of A Removable Partial Denture Framework, Total Occlusal Load Applied, Self-Assessment
13	1	1	Laboratory Procedures	Duplicating A Stone Cast, Duplicating Procedure, Waxing The Removable Partial Denture Framework Attaching Wrought-Wrieretainer Arms By Soldering. Waxing Metal Bases, Spruing, Investing. Burnout, Casting And Finishing Of The Removable Partial Denture Framework, Making Record Base, Occlusion Rims.
14	1	1	Initial Placement, Adjustment, And Servicing Of The Removable Partial Denture	Adjustment To Bearing Surface Of Denture Base, Occlusal Interference From Denture Framework, Adjustment Of Occlusion In Harmony With Natural And Artificial Dentition, Instruction To The Patient, Follow Up Services, Self-Assessment Aids.
15	1	1	Relining And Rebasing The Removable Partial Denture	Relining Tooth-Supported Denture Base, Relining Distal Extension Denture Base, Methods Of Reestablishing Occlusion On Relined Removable Partial Denture, Self-assessment aids.
16	1	1	Repairs And Addition To Removable Partial Denture	Broken Clasp Arms, Fractu Red Occlusal Rests, Distortion Of Other Components- Major And Minor Connectors, Loss Of Tooth Or Teeth Not Involved In The Support Or Retention Of The Restoration. Loss Of An Abutment Tooth Necessitating Its Replacement, Other Types Of Repairs, Repair By The Soldering, Self-Assessment aids.

PROSTHODONTICS (Syllabus 5)	
Discipline	Clinical science and skills
Department	Prosthodontics
Subject	Complete denture
Course code	DE9 018

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Class		V	
Semester	9	Spring	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1	1	1	Introduction	Definition, Branches Of Prosthodontics, Biomechanics Of The Edentulous State,
2	1	1	Anatomy Related To Complete Denture	Bone Of Basal Seat (Maxilla And Mandibular)
3	1	1	Anatomy Related To Complete Denture	Intra Oral Anatomy (Maxillary Basal Coverage And Mandibular Basal Coverage).
4	1	1	Anatomy related to complete denture	Surfaces of the complete denture, anatomy of maxillary denture And anatomy of mandibular denture.
5	1	1	Anatomy related to complete denture	Macroscopic Anatomy and histology of month and anatomy Lower part of the face.
6	1	1	Anatomy related to complete denture	Muscular anatomy relates to complete denture.
7	1	1	Examination, diagnosis and Treatment planning	Interview with patient – first interview, Recording general information, psychology evaluation, Chief complaints and assessment of patients expectation, Medical history, medical consultation, Current medication, Dental history, Extra oral, Intra oral and Radiographic examination, Additional test and medical consultation, Treatment plan, prognosis, conclusion.
8	1	1	Surgical and nonsurgical Preparation of the mouth for Complete denture	Non-surgical methods, Surgical methods-prosthetic surgery, Preoperative examination, Surgical procedures, Procedures to improve the bony alveolar ridge, conclusion.
9	1	1	Impression of complete Denture	Definition, aims of impression.
10	1	1	Impression of complete Denture	Preliminary impression and primary cast.
11	1	1	Impression of complete	Individual tary, border modeling, final impression,

			Denture	Boxing. Master cast, impression technique
12	1	1	Effective factors on Movement of jaw relations	T.M.J, muscles and ligament, teeth and C.N.S anatomy.
13	1	1	Movement of mandible	Record of sagittal plane, record of horizontal plane, record of Frontal , Axes of mandibular rotation.
14	1	1	Jaw relation and record Mechanism	Vertical relation, horizontal relation, orientation relation.
15	1	1	Jaw relation and record Mechanism	Record base, skills record of jaw relation.
16	1	1	Tooth selection	Anterior and posterior tooth selection of maxilla and mandible.

PROSTHODONTICS (Syllabus 6)			
Discipline		Clinical science and skills	
Department		Prosthodontics	
Subject		Complete denture	
Course code		DE10 018	
Class		V	
Semester	10	Fall	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	Articulator	Definition, Classification (Simple, Average Value, Adjustable).
2	1	1	Transfer The Jaw Relation To Articulator	Preparation Cast For Monting. Transfer Of Cast To Articulator.
3	1	1	Arrangement Of Artificial Teeth	Principle The Teeth Setting, Setting Of Sex Maxillary Anterior Teeth, Setting Of Maxillary Posterior Teeth, Setting Sex Mandible Anterior Teeth, Setting Mandible Posterior Teeth.
4	1	1	Try In The Artificial	Try In Procedure (Centric Relation, Vertical Dimension,

			Teeth	Medline, Anterior Posterior And Superior Inferior Position Of Maxillary And Mandible Anterior Teeth, Occlusion Plane And Spee Curve, Esthetic Factors, Labial Relation Of Anterior Teeth And Profile, Take Opinion Of Patient.
5	1	1	Record Of Non-Centric Relation	Primary Occlusion Record And Manner Of Determining Condoyle Direction, Current Problems In Primary Recording And Its Solution, Measuring Bennet Angle On Lateral Records, Incisal Guidance, Correction Of Sat Teeth On Base Of Balancing Occlusion.
6	1	1	Occlusion In Complete Denture	Importance Of Occlusion, Centric Occlusion, Non Centric Occlusion, Effective Factors In Primary Occlusion. Interference Of Tree Factors In Occlusion, Compensating Curve, Effective Factors In Lateral Occlusion.
7	1	1	Laboratory Procedure	From Polishing Surface Of Denture, Modeling Maxillary Denture, Model age Mandible Denture.
8	1	1	Laboratory Procedure	Flasking, Wax Elimination, Application Of Tin Fol Substitute, Maxing The Acrylic Powder And Liquid, Acrylization, Deflasking
9	1	1	Occlusal mistake after acrylization and its correction	Remounting In Split Cast Water, Remounting After New Record, Transferring Face Bow Record To Articulator, Preparing New Recording Cast, Work Procedure, Revision Of Prostheses, New Recording After Completion Of Laboratory Procedures, Causes Of Occlusion Mistake.
10	1	1	Submitting denture to patients	Insert denture in to the month, method of suing cream to show pressure area, how to keep denture, denture hygiene, month hygiene, diary of edentulous patient, use of denture adhesive and home liner, first visit of patient after submitting denture, next visit of patient
11	1	1	Relining, rebasing and denture repair	Relining (definition, indication. Contraindication, relining material and techniques) denture repair type of denture fractures, causes of fractures, contraindication, repair material, procedure, repairing fractured teeth.
12	1	1	Single denture	Type, problem with the single complete denture, diagnosis and treatment planning, tooth modification techniques methods to obtain balanced occlusion, occlusion material

				for single complete denture, casr metal denture bases.
13	1	1	Over denture	Definition, classification, indication, contraindication, advantage, disadvantage, treatment sequence for the over denture, retention of on over denture
14	1	1	Immediate denture	Definition, type, indication, contraindications advantages, disadvantages, examination and treatment planning, pretreatment records, treatment option, surgery and placement, post placement recall, follow up, conclusion
15	1	1	Implants supported complete denture	Definition, classification of implants, general indication for implants prostheses, contraindication, uses of implant the subperiostal implant, osseointgration, mucosal seal, implant in complete denture treatment.
16	1	1	Maxillofacial prosthetics	Definition, scope for, maxillofacial prosthodontics, classification of maxillofacial defects, classification of maxillofacial prostheses, extra oral prostheses. Intara oral prostheses, treatment prostheses, tissue implants. Retention of prostheses

Textbooks and reference Books recommended (Last Editions)

1. Prosthodontics And Treatment For Edentulous Patient (Complete Denture And Implant Supported Prosthesis), Carl S Bucher And Charli S Blender
2. Textbook Of Complete Denture (Fifth Edition), O. Rahin, Charls. Heartwell
3. Essential Of Complete Denture Prosthodontics (Second Edition) Edit By Sheldon Winkler
4. Complete Denture Prosthodontics, Tohn J.Manappallil
5. Prosthodontics Treatment For Edentulous Patients (Complete Denture And Implant Supported Prosthesis), Zarb Hobkirk Eckert L Vb ,Jacob 13 Edition
6. Fundamental Of Fixed Prosthodontics, Herbert T Shilling Burg Third Edition
7. Textbook Of Prosthodontics, Deepak Nallaswamy.
8. Removable Partial Denture (Rpd), Mccrackens, Twelfth Edition , Alan B. Carr Darid T, Brown

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Dentistry Faculty Curriculum - Syllabus

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CLINICAL PHARMACOLOGY

Goals

The broad goals of teaching pharmacology to undergraduate are: to impart knowledge , skill and attitudes to the students so that they can prescribe drugs safely, effectively and maintain competency in professional life. To instill in them a rational and scientific basis of therapeutics.

Learning Objectives

. A – Konoledge

At the end of course the student should be able to:

- Understand pharmacokinetics and pharmacodynamics principles involved in the use of drugs
- Understand and identify the various factor that can affect the action of drugs
- Know the various routes of drug administration with advantages and disadvantages of these routs:
- Undertake dosage calculations as appropriate for the patient and be able to select the proper drug and dose for the "at risk population" i.e patients with kidney or liver diseases, elderlies, pregnant and lactating mother and children.
- Understand the importance of rational prescribing of drugs and the concept of essential drugs & rational use drugs.
- To be able to identify and monitor adverse drug reaction (ADRs) and appreciate the importance of ADR reporting Know the drugs used in systemic illnesses, infections and chemotherapy etc. with main mechanism (s) of action, pharmacokinetics, uses, side –affects and indications:
- Understand the principle and practice of pharmacology
- Understand the methods in experimental pharmacology, principle of bioassay and be able to correlate drug effects with the action of drugs at the receptors.
- Have knowledge of common drugs and doses used for different ailments:
- Have an understanding of basic mechanism by which a drug acts:
- Should be able to select rationally from the available drugs.

B- Clinical Skills:

At the end of the course the student should be able to:

- Prescribe drugs for common ailments:
- Identify adverse reaction and interactions of commonly used drugs:
- Interpret the data of experiments designed for the study of effects of drugs and bioassays which are observed during the study;
- Scan information on common pharmaceutical preparations and critically evaluate drug formulations;
- Load the required dose of medicines accurately in hypodermic syringes; inject medicines by the intradermal, subcutaneous, intramuscular and intravenous routes using aseptic techniques;

  Set-up an intravenous drip and adjust the drip rate according to required dosage;
  - Calculate the drug dosage using appropriate formulas for an individual patient;
  - Administer the required dose of different drug formulations using appropriate devices and techniques (e.g., hypodermic syringes, inhalers, transdermal patches etc.)

- Advice and interpret the therapeutic monitoring reports of important drugs;
- Recognize and report adverse drug reactions to suitable authorities;
- Analyze critically, drug promotional literature for proprietary preparations in terms of:
  - Pharmacological actions of their ingredients
  - Claims of pharmaceutical companies
  - Economics of use
  - Rational or irrational nature of fixed dose drug combinations.

C – Attitudes & Communication skills:

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

- Communicate with patients regarding proper use of drug
- Take adequate precaution during prescribing drug(s)
- Understand the legal aspects of prescription
- Counsel patients for compliance
- Take adequate care to write prescriptions legibly (easy to read)
- Understand rationality of poly pharmacy
- Update themselves regarding recent advances in pharmacology

Course content

PHARMACOLOGY (Syllabus 1)

Discipline		Basic Biomedical science	
Department		Pharmacology	
Subject		Medical Pharmacology	
Course code		DE5 019	
Class		III	
Semester	5	Spring	
Credits	2	Knowledge	1
		Skills	1

Weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1	1	1	Introduction of pharmacology	1- History & role of pharmacology medicine 2- Definitions 3- Mode of Drug Administration(Enteral, Parenteral, local) 4- Pharmacokinetics (Absorption, Distribution, Metabolism, Excretion).
2	1	1	Introduction of	Introduction of pharmacology, pharmacodynamics

			pharmacology	(mechanism of action of drugs, Receptors, therapeutic index, synergism & Antagonism, factors modifying effects of drugs).
3	1	1	Introduction of pharmacology	Introduction of Pharmacology 1- Adverse Drugs Reaction 2- Drugs interaction.
4	1	1	Autonomic Nervous System Pharmacology	I- Introduction- brief introduction of anatomy, physiology & biochemistry of Autonomic nervous system including ANS neurotransmitters, Receptors & effects of ANS on body organs. II- Cholinergic Drugs:(1)introduction and classification of cholinergic drugs. (2)- Acetylcholine, Pilocarpine, Neostigmine. III- Content for Presentation included: Pharmacokinetics & pharmacodynamics, pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications.
5	1	1	Autonomic Nervous System Pharmacology	I- Anti Cholinergic Drugs 1- introduction & classification 2- Atropine, Hyoscine II- Muscle Relaxant 1- introduction & classification 2- Suxamethonium III- Content for Presentation included: pharmacokinetics & pharmacodynamics, pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications.
6	1	1	Autonomic Nervous System Pharmacology	I- Adrenergic Drugs 1- introduction & classification 2- Adrenaline, Dopamine 3- Content for Presentation included: Pharmacokinetics & Pharmacodynamics, pharmacologic Effects, Clinical Usage, important side Effects, Contraindications, Cautions & Drug Interaction, dose Strength and Dosage Form.
7	1	1	Autonomic Nervous System Pharmacology	Anti-Adrenergic Drugs 1- Introduction & classification. 2- alpha blockers (Prazosin) Beta Blockers (Propranolol, Atenolol) 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effect, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.

8	1	1	CNS Pharmacology Pharmacology of Sedative- Hypnotics	Introduction of CNS Pharmacology 1- introduction & classification 2- Diazepam, Alprazolam, Midazolam 5- 3- Benzodiazepine Antagonists: Pharmacokinetics & pharmacodynamics, pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
9	1	1	CNS Pharmacology General Anesthetics	1- Genrtal Anesthetics: introduction & classification 2- Halothan, Sodium Thiopental, Ketamine 3- Premedication 4- Content for Presentation included: Pharmacokinetics & pharmacodynamics, pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
10	1	1	Local Anesthetics	Local Anesthetics: 1- introduction & classification 2- Ester Group: Cocaine, Procaine, Benzocaine, Tetracaine. 3- Amide group: Lignocaine, Mepivacaine, Bupivacaine. 4- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
11	1	1	Analgesics Narcotic Analgesics	Narcotic Analgesics 1- introduction & classification 2- Morphine, Codeine, Tramadol 3- Opiate Antagonists 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
12	1	1	Analgesics Non Steroidal Anti- Inflammatory Drugs(NSAIDs)	1- introduction & classification 2- Acetyl Salicylic Acid, Ibuprofen, Piroxicam, Naproxen, Diclofenac, Indomethacine, Celecoxib, Valdecoxib, Rofecoxibe, Nemisulide 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.

13	1	1	Non Steroidal Anti- Inflammatory Drugs(NSAISs) Cont…	Paracetamol Drugs Used in Rheumatoid Arthritis-Gout and Migraine 1- introduction & classification 2- Gold Salt, Penicillamine, Chloroquine, Glucocorticoids – Colchicine, Allopurinol – Ergotamin, Sumatriptam 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
14	1	1	Autacoids	1- Introduction & Classifications 2- Anti histaminics : Diphenhydramin, Dimenhydramine, Promethazine, Chlorphe niramine, Pheniramine, Loratadine, Cetrizine, Fexofenadine. Drugs 3- Serotonin(5HT), Agonist & Antagonists: 4- Ergot alkaloids: Ergometrine, Ergotamine. 5- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
15	1	1	Respiratory System Pharmacology	1- Introduction & classification 2- Bronchodilators: Salbutamol, A minophylline, Theophylline, Adrenaline, Ipratro pium, Glucocorticoids(Beclomethasone,Hydrocortisone), Sodium cromoglycate, Montelukast 3- Antitussives: Codeine, Dextromethorphane 4- Mucolytics & Expectorants: Acetylcysteine, Ambroxol 5-Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
16	1	1	Gastro- Intestinal System Pharmacology	1- Introduction & classification 2- Antacides : Al- Hydroxide, Mg-Hydroxide, Sodium Bicarbonate, Ca-Carbonate 3- H2- Receptor Blockers: Ranitidine 4- PPI: Omeprazole 5- Ulcer Protectants & Anticholnergics: Sucralfate, Pirenzepine. 6- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage..

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PHARMACOLOGY (Syllabus 2)					
Discipline			Basic Biomedical Science		
Department			Pharmacology		
Subject			Medical Pharmacology		
Course code			DE6 019		
C lass			III		
Semester		6	Fall		
Credits		2	Knowledge	1	
			Skills	1	

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	Gastro- Intestinal System Pharmacology	1- Prokinetic Agent: Metoclopramide, Domperidone II- Anti-Emitics: introduction & classification 1- Domperidone, Metoclopramide 2- 5-HT antagonists: Ondansetron 3- Antimoscarinics: Hyoscine 4- Antihistaminics: Dimenhydrinate III- Laxatives: introduction & classification Ispaghula Husk, Paraffin, Lactulose, Mg-Hydroxide, Bisacodyl IV- Drugs Used in Diarrhea (Symptomatic): Diphynoxylate, Loperamide V- Content for Presentation included: Pharmacokinetics & Pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
2	1	1	Deuretics	1- introduction & classification 2- Furosemide,Hydrochlorthiazide, Spironolactone, Mannitol 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.

3	1	1	Cardiovascular System Pharmacology	I- Drugs Used in Heart Failure 1- Introduction & classification 2- Digoxin II- Antiarrythmics: Introduction & Classification 3- Content for Presentation included: pharmacodynamics, pharmacologic Effects, Clinical Usage.
4	1	1	Cardiovascular System Pharmacology	I- Antianginal Drugs 1- introduction & classification 2- Digoxin II- Antiarrythmics: Introduction & Classification 1- introduction & classification 2- Methyl- dopa, Amlodipin, Captopril, Losartan, Atenolol, Hydralazine, Sodium Nitroprusside 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
5	1	1	Anti – infective Drugs	1- introduction & classification of antibiotics 2- Factors affecting Bacterial Chemotherapy 3- Antimicrobial Resistance 4- Selecting of appropriate antibiotics 5- Super infection 6- Antibiotic Prophylaxis / Chemoprophylaxis 7- irrational Use of Antibiotics 8- Combination Use of Antibiotics.
6	1	1	Anti- infective Drugs (cont…)	Sulfamides / Anti-infective Beta-Lactam Antibiotics, Cephalosporin's / other betalactams, 1- introduction & classification 2- Penicillins, Cephalosporins 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
7	1	1	Anti- infective Drugs (cont…)	Aminoglycosides, Macrolodes, Tetracycline's & Chloramphenical 1- introduction & classification 2- Gentamicine, Azithromycine, Doxycycline, Chloramphenical 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical

				Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
8	1	1	Anti- infective Drugs (cont…)	Quinolones & other Anti-infective drugs used for Anaerobic infections 1- introduction & classification 2- Cyprofloxacine, Levofloxacin, other anti infective like Clindamycine, Lincomycine, Vancomycine, Polymexin, Bacitricin, Fosfomycin. 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
9	1	1	Anti- infective Drugs (cont…)	Urinary Antiseptics, Anti- Fungal Drugs & Anti- TB Drugs 1- introduction & classification 2- Nitrofurantoin, Nalidixic acid 3- Amphotricin B, Griseofulvin, Azoles, Nystatin 4- Anti TB drugs brief information on Anti TB Drugs Like first line drugs and second line drugs and their names. 5- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
10	1	1	Anti-infective Drugs (Cont…)	Anti- Protozoal Drugs: Anti-malarial 1- introduction & classification 2- Chloroquine, Quinine, Pyrimaquine, Pyrimethamine+ Sulfadoxine 3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
11	1	1	Anti-infective Drugs (Cont…)	Anti- Protozoal Drugs (Anti- Amebic, & Anthelmintics) 1- introduction & classification 2- Chloroquine, Quinine, Pyrimaquine, Pyrimethamine+ Sulfadoxine 3- Albendazole, Mebendazole, Niclosemide 4- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
12	1	1	Anti-septis & Disinfectants	1- introduction & classification 2- Acids, Alcohols, Aldehyds, Surfactants, Yalogens, Phenols, Oxidizing agents, Dyes

				3- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
13	1	1	Hormones Pharmacology	1- introduction & classification 2- Oxytocin, 2- Levo-thyroxine & antithyroid and iodine 3- estrogens, Progestines & contraceptives 4- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage,
14	1	1	Hormones Pharmacology	Corticosteroids 1- introduction & classification 2- Pharmacological effects 3- Hydrocortisone, Dexxamethasone, Prednisolone 4- Insuline & antidiabetic drugs 5- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects, Contraindications, Cautions & Drug Interaction, dose Strength & Dosage form.
15	1	1	Blood Pharmacology (Drugs Used in Blood Disorder)	1- introduction & classification 2- Hematinics: Irone Folic acid, Vitamin B 12 3- Drugs used in coagulopathy Introduction and Classification anticoacolants Yeparine & Warfarin 4- Thrombolytics 5- platelate aggregation inhibitors 6- Coagolants AND 7- Hypolipidemic drugs 8- Content for Presentation included: Pharmacokinetics & pharmacodynamics, Pharmacologic Effects, Clinical Usage, important Side Effects.
16	1	1	1- Rational Use of Drugs & Rational Prescription 2- Dental Pharmacology	1- Rational Use of Drugs & Rational Prescription 2- Dental Pharmacology: Introduction & Classification (Dentifrices, Styptics, Mouthwashes, Astringents, Disclosing Agents, Anticaries drugs, Drugs used in Dental Plaque, Sialogogue & Antisialogouge, Emergencies in Dental Practices).

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Internal Medicine

Goals

The goals of this course are to provide training in the discipline of internal medicine, to provide exposure to pathophysiology, diagnostic methods, and treatment methods used in this field. It focuses on diagnostic decision making, case presentation skills, History and Physical skills, Therapeutic decision making, Communication skills, and Professionalism.

Learning objectives

a- Knowledge

At the end of training, each student must be able to:

- Understand the various manifestations of diseases;
- Understand the basic principle of history taking and clinical examinations;
- Elicit a detailed history; perform a thorough physical examination including mental status;
- Correlate the clinical symptoms and physical signs to make a provisional anatomical, physiological, etiopathological diagnosis along with the functional disability and suggest relevant investigation;
- Interpret reasonably the relevant investigations;
- Professionally present and discuss the principals involved in the management of the patient, initiate first line management and outline short-term and long term management;
- Manage acute medical emergencies like acute myocardial infarction, acute pulmonary edema, acute anaphylactic and hypovolemic shock, status asthmaticus, tension pneumothorax, hemoptysis, gastro- intestinal bleeding, diabetic coma.
-

b- Clinical Skills

Students should be able to elicit the patient's chief complaint, history of present illness, past medical history, social, family, occupational histories and complete a review of systems;
Perform a physical examination in a logical, organized and thorough manner;
Demonstrate the ability to write daily progress notes on the ward and appropriate outpatient progress notes;
Formulate a differential diagnosis based on the findings from the history and physical examination;
Use the differential diagnosis to help guide diagnostic test ordering and its sequence;

- Participate in selecting the diagnostic studies with the greatest likelihood of useful results;
- Electrolyte panel, general chemistry panel, electrocardiogram, chest X-ray, urinalysis;
- Formulate an initial therapeutic plan;
- Counsel patients about how to take their medications and what to expect what to expect when they take their medications, including beneficial outcomes and potential adverse effects;
- Monitor response to therapy.

Course content

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INTERNAL MEDICINE (Syllabus 1)			
Discipline		Clinical science and skills	
Department		Cardipulmonary Diseases	
Pre-requisite		Basic Biomedical sience	
Course code		DE5 020	
Academic year		III	
Semester	5	Spring	
Creidits	2	Knowledge	1
		Skills	1

Weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	History taking & physical Examination	Identification, chief complaints, present illness, past history, family history, social, occupational history. Physical examination: Vital sign (Temperature, respiratory Rate, Pulse examination (Character of pulse). General physical examination (hair, head, eye, sinuses, oral cavity, neck).
2	1	1	Review of system & some important symptom	Examination of RS, CVS, GIS, UGS and extremities cough, sputum, hemoptysis, dyspenea(definition, etiology, etiology, types).
3	1	1	Physical examination of respiratory system	Inspection(topographic lines of the chest, chest deformity), Palpation of trachea, palpation of vocal fremitus percussion: Method of percussion, Auscultation: Normal breathing sound and added sounds(Ronchi, cracking and pleural rub).
4	1	1	Physical examination of cardiovascular disease	Orthopnea, PND, Chest pain, palpaitation, Edema (Definition & etiology). Inspection of pericardium, PMI, Palpation: PMI, Thrill, Heave, Auscultation: Normal sound (S_1, S_2, S_3, & S_4) Murmurs: systolic and diastolic.
5	1	1	ECG	Normal ECG, waves, intervals, segments, interpretation of ECG: rhythm, rate, axis (right and left axis deviation)
6	1	1	Symptoms and physical examination of gastrointestinal system	Symptoms: dysphagia, abdominal pain, nausea and vomiting, diarrhea, hematemesis, melena, Inspection and auscultation, abdominalpalpation, Palpation of the spleen,

				liver & gall bladder.
7	1	1	Symptom and sign in patient with blood disorder	General symptoms (fever, weight loss, weakness, specific symptoms in nervous system, eyes, ears, mouth, CVS, GI & genitourinary system) physical examination of skin, eyes, oral cavity, lymph nodes, chest, spleen, liver, nervous system.
8	1	1	Symptom of urinary tract semiology of endocrine & complain of patient with joint disorder	Pain of (urethral, bladder, prostatic, testicular, & renal) Dysuria, hematuria, pyuria, necturia, frequenc, oliguria, anuria, enuresis, urinary incontinence & poly uria, ajor symptoms and signs of Addison disease, hyper & hypothyroidism, cushin syndrome and acromegaly symptoms and signs in patient with joint disorders joint(pain, stifnes & locking) & history taking.
9	1	1	Acute trachea bronchitis & chronic bronchitis	Acute trachea bronchitis: definition, etiology, symptpms & signs and treatment, Chronic bronchitis: definition, predisposing factors, clinical finding, diagnosis, treatment and prognosis.
10	1	1	Bronchial asthma	Definition, etiology, clinical manifestation, deferential diagnosis and treatment, Treatment of status asthmaticus.
11	1	1	Community acquired pneumonia hospital acquired pneumonia	Community acquired pneumonia: definition, etiology, clinic and treatment, Hospital acquired pneumonia: definition, etiology, clinic and treatment.
12	1	1	Bronchiectasis & Iung abscess	Bronchiectasis: definition, etiology, clinic, differential diagnosis and treatment, Lung abscess: etiology, clinic, differential diagnosis & treatment.
13	1	1	Acute rheumatic fever	Etiology, clinic, lab exam, diagnosis, differential diagnosis, treatment and preention.
14	1	1	Mitral stenosis and mitral insufficinency	Mitral stenosis: definition, pathological changes, clinic, diagnosis and treatment. Mitral insufficiency: definition, etiology, clinic, diagnosis and treatment.
15	1	1	Aortic insufficiency and aortic stenosis	Aortic insufficiency: etiology, clinic, diagnosis, deferential diagnosis and treatment. Aortic stenosis: etiology, clinic, diagnosis, deferential diagnosis and treatment.
16	1	1	Infective endocarditis & sub acute infective	Etiology, predisposing factors, pathological changes, blood calture, diagnosis, treatment and prevention.

			endocarditis	

INTERNAL MEDICINE(Syllabus 2)				
Discipline			Clinical sicence and skills	
Department			Cardiovascular medicine	
Course title			CV,GI and kidney diseeases	
Pre-requisite			Physical diagnosis	
Course code			DE 6 020	
Academic year			III	
Semester		6	Fall	
Total credits Number		2	Knowledge	1
			skills	1

Weeks	Hours		Topics	Descriptions
	Knowlge	Laboratory		
1	1	1	Ischemic Heart Disease(IHD)	Definition, Etiology and pathophysiology(brief) Effect of ischemia, stable Angina pectoris, Unstable angina pectoris, Asymptomatic ischemia. Clinical feature, Diagnosis and treatment.
2	1	1	Acute Myocardial infraction(AMI)	NSTEMI, STEMI, Definition, Etiology, pathophysiology, clinical manifestation, Diagnosis, Name of complications, Treatment.
3	1	1	Hypertensive Vascular Disease	Definition, Essential hypertension, secondary hypertension Effects of hypertension, clinical feature and diagnosis, treatment, Drug classes with example.
4	1	1	Congenitel Heart Disease in the Adults	A cyanotic congenital heart disease with left to right shunt; ASD.VSD,PDA

5	1	1	Rhythm and conduction disturbances:	Supraventricular arrhythmia, sinus tachycardia, sinus bradycardia, atrial fibrillation, PSVT, Ventricular arrhythmia ventricular premature beat, ventricular tachycardia.
6	1	1	Heart Failure	Definition, Etiology, precipitating clinical feature, Diagnosis causes, treatment, treatment of acute pulmonary edema.
7	1	1	Shock	Definition, pathogenesis, organs response, specific from of shock, cardiogenic shock, septic shock, Hypovolemic.
8	1	1	Syncope, cardiovascular collapse, cardiac Arrest and sudden cardiac death: \	Definition, Etiology, clinical manifestation, Diagnosis &treatment.
9	1	1	Gastroesophageal reflux didease (GERD)	Definition, Anti-reflux mechanism, clinical feature Diagnosis, DDX, complications and treatment.
10	1	1	Gastritis and Gastropathy	and treatment Definition, classification, clinical feature Diagnosis and treatment.
11	1	1	Peptic Ulcer disease (PUD)	Definition, Etiology, clinical feature Diagnosis, DDX, complications and treatment.
12	1	1	Chronic Hepatitis	Definition, Etiology, ch, Hepatitis B and C, clinical feature Diagnosis and treatment.
13	1	1	Liver cirrhosis	Definition, Etiology, complications clinical feature , treatment.
14	1	1	Urinary tract infection	Acute pyelonephritis, Acute cystitis and acute prostatitis. Definition, , clinical feature Diagnosis, DDX, complications treatment.
15	1	1	Acute and chronic Renal failure	Definition, clinical feature Diagnosis, DDX, complications and treatment.
16	1	1	The major Glomerulopathies	The major Glomerulopathies (just name of them),Nephrotic syndrome, Definition, pathophysiology , clinical feature Diagnosis, DDX, complications and treatment.

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INTERNAL MEDICINE (Syllabus 3)					
Discipline			Clinical sicence and skills		
Department			Heamatology & Endocrinology		
Subject			Heamatology & Endocrinology		
Course code			DE 7 020		
class			IV		
Semester		7	Spring		
credits		2	Knowlge	1	
			Skills	1	

Weeks	Hours		Topics	Descriptions
	knowlge	skills		
1	1	1	Diabetes mellitus	Definition classification, pathogenesis(type 1 and type 2). Clinical feature of DM, lab Investigation (urine exam, blood exam), Differential diagnosis, treatment (diet, exercise, hypoglycemic drugs, insulin: indications and complications of insulin therapy).
2	1	1	Diabetes Mellitus	Complications of DM: Acute and chronic Complications, Complications of DM(ocular Complications,D . Nephropathy, D. Neuropathy,D.foot).DM and surgery.
3	1	1	Thyrotoxicosis	Definition, Etiology, Clinical feature diagnosis and lab Investigation Differential diagnosis, treatment.
4	1	1	Cushing Syndrome & Addison Dissease.	Definition, Etiology, Clinical feature diagnosis and lab Investigation diagnosis, treatment.

5	1	1	Hyperpituitarism	Acromegaly: Definition, pathogenesis Etiology, Clinical feature diagnosis and lab Investigation Differential diagnosis, treatment.
6	1	1	Rheumatoid Arthritis	Definition pathology and pathogenesis Clinical features lab Investigation Course and prognosis, Differential diagnosis, treatment
7	1	1	Metabolic Bone Discase / Osteoporosis & osteomalacia	Osteoporosis: Definition, pathogenesis and Etiology clinical feature diagnosis Differential diagnosis, treatment. Osteomalacia: Definition pathophysiology Etiology, Metabolism of vitamin – D, Clinical features treatment.
8	1	1	Anemia & Iron Deficiency Anemia	Anemia: Definition signs and symptoms, Approach to the patient with Anemia, lab Investigation, classification of Anemia, Iron Deficiency Anemia: Definition, Etiology, Clinical feature lab Investigation diagnosis Differential diagnosis, treatment.
9	1	1	Megaloblastic Anemia	Definition, cobalamin: Clinical feature Etiology and pathogenesis, diagnosis Differential diagnosis, folic Acid: Etiology and pathogenesis, diagnosis and lab Investigation treatment.
10	1	1	Hemolytic Anemia	Definition classification, lab Investigation Autoimmune Hemolytic Anemia: pathogenesis Etiology clinical findings, diagnosis lab Investigation treatment prognosis, cold Agglutinin Disease: , Clinical featur lab Investigation treatment.
11	1	1	Bone Marrow Failure & Neutropenia	Definition classification, Aplastic Anemia : Definition , Epidemiology, Etiology pathogenesis clinical findings, lab Investigation diagnosis treatment prognosis Neutropenia: Definition, Etiology, lab Investigation, Differential diagnosis, treatment.

12	1	1	Leukemia	Definition, pathophysiology, Acute Lymphoblastic Leukemia (ALL): Definition, Etiology classification, Clinical feature lab Investigation, treatment, Acute Myeloid Leukemia (AML): Incidence, Etiology classification, Clinical feature lab Investigation, prognosis, treatment, chronic Myelocytic Leukemia (CML): Definition, Etiology Clinical feature lab findings, diagnosis treatment, , chronic Myelocytic Leukemia(CLL): Etiology, Epidemiology, Clinical feature lab Investigation diagnosis, treatment.
13	1	1	Hodgkin	Etiology, Epidemiology, Clinical feature, pathological classification, diagnosis, Differential diagnosis, treatment.
14	1	1	Idiopathic thromboeytopenic purpura (ITP) &Disseminated Intravascular coagulation (DIC)	Idiopathic Thrombocytopenic purpura (ITP): Definition, Etiology and pathogenesis, Clinical feature lab Investigation, Differential diagnosis, treatment, Disseminated Intravascular coagulation (DIC): Definition, Etiology and pathogenesis, pathology Clinical feature lab features, Acute DIC, treatment.
15	1	1	Aequrid Immunodeficieney syndrome(AIDS)	Definition, origin of HIV, Etiology and pathogenesis, diagnosis of HIV Infection, lab features, course and prognosis, Hematologic Abnormalities, thrombocytopenia in HIV infection treatment, prophylaxis.
16	1	1	Vitamin B1 and Vitamin C Deficiency	Vitamin B1: Definition, Absorption and Metabolism, sources, Deficiency of Vitamin B1, Clinical feature diagnosis, treatment, prevention vitamin C . Deficiency: Absorption sources and Requirements, symptoms and signs, diagnosis, treatment, Toxicity.

Recommended Textbooks and Reference Books (Last edition)

- Bates Guide to Medical Examination and History taking, Lynn S.Beckley.
- Harrison‘s priciples of Internal Medicine, Wener, Longo, Fauci, kasper.
- Cecil Textbook of Internal Medicin Goldman, ousiello.
- Oxford Textbook of Internal Medicin, David A.Warrel timothy M.Cox.
- Harrison‘s Gastroenterology and hepatology, Dan Longo, Antonie Fauci.
- Harrison‘s Cardiovascular Medicine, Joseph Loscalzo.

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SURGERY

Goals

The surgical clerkship is designed to introduce students to the knowledge and skills aspects of surgical patient care. Emphasis is placed on the underlying pathophysiology rather than technical aspects. Students are fully involved in the daily care of surgical patients and participate in diagnostic and therapeutic decision making. This course experience includes didactic teaching sessions as well as small –group interactions.

Learning objectives

a-Knowledge

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

- Describe etiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
- Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion;
- Define asepsis, disinfection and sterilization and recommend judicious use of antibiotics;
- Define asepsis, disinfection and risk factors of common malignancies in the country and their management including prevention.

b-skills

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

- Diagnose common acute and chronic surgical conditions;
- Plan various laboratory tests for surgical conditions and interpret the results;
- Identify and manage patients of hemorrhagic, septicemic and other types of shock
- Be able to maintain patent air-way and resuscitate;
    - A critically injured patient
    - A patient with cardio-respiratory failure
    - A drowning case
- Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children;
- Provide primary care for a patient of burns;
- Acquire principles of operative surgery, including pre-operative, and post –operative care and monitoring;
- Treat open wounds including preventive measures against tetanus and gas gangrene;

Procedures:

- Gets the permission;

- Explains the procedure;
- Wears gloves;
- Chooses an appropriate site;
- Applies tourniquet
    - Cleans the area with antiseptic
    - Holds the cannula properly (avoids touching the catheter)
    - Inserts the cannula at an appropriate angle (oblique angle & in line with the vein)
    - Inspects the backflow of blood in the chamb
    - Advances the cannula for a further distance
        - Withdraws the stiletto & advances the canula
        - Fixes the cannula
        - Connects the drip
        - Suturing
        - IV cannulation
        - surgical knot

Course content

SURGERY (Syllabus 1)					
Discipline			Clinical science and skills		
Department			surgery		
Subject			Principle of surgery		
Course code			DE 5 021		
Class			III		
Semester		5	Spring		
credits		2	Knowledge	1	
			Skills	1	
Weeks	Hours: knowledge	Hours: skills	Topics	Description	
1	2	2	Principle to complete the file of	Taking History of the patient physical exam of	

2			surgical patient	the patient, provisional diagnosis, special exam. Clinical diagnosis treatment, prognosis, follow up, termination.
3 4	2	2	Aseptic Techniques(Antisepsis & Asepsis)	Antisepsis, definition, mechanical antiseptics, chemical antiseptics, physical antiseptics Biological antiseptic, Antibiotics, Asepsis, Disinfection, sterilization Techniques and methods(scrubbing up, gowning, gloving, preparation of surgical area, operative theater, infection control in surgical ward & in the hospital.
5	1	1	Dressing	Dressing; goals, purpose of wound dressing, types of dressings: primary dressings, secondary dressings, one layer dressings, skin closure dressing(island dressing) dry sterile dressing, three layer dressing, pressures dressing, stent dressing, Bolster/tie-over dressing, wet-to dry dressings, wet- to- wet dressings, vacuum- assisted dressings changing the dressing, material to fix the dressing.
6 7	2	2	Bleeding & Transfusion	Definition, classification, clinic, body reaction to bleeding, treatment of bleeding, permanent hemostase, Methods, mechanical, thermal chemical, biological, Transfusion;
8 9	2	2	Shock	Definition, Etiology, classification, hypovolemic shock: path physiology, immediate & continue, compensatory reaction septic shock: path physiology, diagnosis treatment, cardiac compressive shock ; : path physiology, diagnosis treatment, cardiac obstructive shock, vasovagal shock, psychogenic shock, burn shock, anaphylactic shock,

10 11	2	2	Trauma	Definition epidemiology , prophylaxis, mechanism & intensity of trauma death due to trauma, management before reacting to the hospital triag, evaluation, traumatic patient s care in the hospital primary survey, ABCDE, emergency thoracotomy, trauma severity score, resuscitation phases, secondary survey &treatment priority, definitive care.
12 13	2	2	Wounds	Definition, pathophysiology, clinic classification Acute wounds, open, close, complex, war wound; entertains & exit whole mechanism of missile wound pathophysiology and treatment D2PC, blast injury: mechanism treatment special tissue injuries, chronic wound: ulcer, bed sore.
14	1	1	Surgical infection	Surgical infection Definition pathogenesis, essential definition (like infection, inflammation….) principle for treatment cellulites clinic, treatment lymph angitis surgical infection, erysipelas oid, abscess, hydra adenitis, carbuncle, furuncle phlegmon, anthrax, clostridia, infection, tetanus, and necrotizing fasciitis, hospital acquire nosocomial infection.
15 16	2	2	Burn	Definition etiology determination of severity, depth & site of burn inhalation injuries co morbid factors categorization pathophysiology of thermal burn, metabolic reaction clinic treatment definitive treatment fluid management respiratory care, nutrition & metabolic needs, wound care, complications, frost bite:- definition etiology pathophysiology, clinic treatment, electric burn:- etiology pathophysiology, clinic treatment, chemical burn:- etiology pathophysiology, clinic treatment, Radiation burn immediate action, on normal tissue, systemic reaction, prevention treatment, late reaction to radiation.

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Surgery (Syllabus 2)					
Discipline			Clinical science and skills		
Department			Abdominal surgical		
Subject			Abdominal surgical disease		
Course code			DE6 020		
Class			III		
Semester		6	Fall		
credits		2	Knowledge	1	
			skills	1	

Weeks	Hours		Topics	Descriptions
	knowlge	skills		
1	1	1	The stomach and Duodenum	Perforated peptic ulcer, Etiology, pathology, clinical features and treatment.
2	1	1	Pyloric stenosis and peptic ulcer Bleeding	Classification, Etiology, pathology, clinical features and treatment.
3	1	1	The small intestine	Mickele's Diverticulum, and crohn's disease(pathology, clinic and treatment)
4	1	1	Intestinal obstructions	Definition Classification, Etiology, Anatomopathology, clinical features treatment.
5	1	1	The Appendix vermiform	Acute Appendicitis: Etiology, pathology, clinical features diagnosis, DD and treatment.
6	1	1	The colon	Ulcerative colitis, Ileoceacal TB, Diverticulitisis Etiology, pathology, clinical features complication and treatment.
7	1	1	The Rectum and Anal canal	Heamorrhoids, Definition Classification, Etiology, course of Heamorrhoid, clinical

				features treatment, and complication.
8	1	1	The Rectum and Anal canal	Anal fissure, the ano-Rectal fistula and Abscess Incidence etiology Classification, clinical features and management.
9	1	1	The Liver	The pyogenic and Amoebic abscess the liver hydatic cyst: Etiology, pathology, clinical features and treatment.
10	1	1	The Gall Bladder	Gall stones or cholelithiasis Acute cholelithiasis: etiology, pathology, clinical features and treatment.
11	1	1	The pancreas	Acute and chronic pancreatitis: definition Etiology, pathology, clinical features complication and treatment.
12	1	1	The spleen	Rupture of spleen: Etiology, pathology, clinical features and treatment.
13	1	1	The peritoneum	Acute generalized and peritonitis: Etiology, pathology, clinical features and treatment.
14	1	1	The Hernia	Definition Etiology, composition of hernia, classification or anatomopathology.
15	1	1	The Hernia	Inguinal Hernia and femoral hernia etiology, pathology, clinical features and treatment.
16	1	1	Acute abdomen	Definition Etiology, pathophysiology, clinic, investigation, anatomopathology, DD.

SURGERY (Syllabus 3)	
Discipline	Clinical science and skills
Department	Thoracic and cardiovascular surgery
Subject	Thoracic and cardiovascular Diseases
Course code	DE 7 021
Class	IV

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Semester	7	Spring	
credits	2	Knowledge	1
		Skills	1

Weeks	Hours		Topics	Descriptions
	knowlge	skills		
1	1	1	Thyroid diseases	Surgical anatomy, physiology classification, History and physical examination, test of thyroid function, simple goiter.
2	1	1	Thyroid diseases	Thyrotoxicosis, symptoms and signs, treatment, thyroid tumors, thyroiditis.
3	1	1	Breast diseases	Surgical anatomy, physiology, symptoms, Breast injury, Acute and chronic infection & inflammation.
4	1	1	Breast diseases	Breast cyst, tumors, spread of breast tumors, clinical features treatment.
5	1	1	Thoracic trauma	Thoracic injuries & trauma, Rib fracture, sternum fracture flail chest.
6	1	1	Thoracic trauma	Pneumothorax, Hemothorax, cardiac tamponad mediastinal emphysema thoracotomy.
7	1	1	Diaphragmatic Hernia	Hiatus Hernia, clinical feature treatment , Treatment of reflux esophagitis.
8	1	1	Mediastinum	Medistinitis, clinical feature treatment , cysts & tumors of mediastinum.
9	1	1	Esophageal diseases	Surgical anatomy and physiology, foreign bodies & injury of esophagus.
10	1	1	Esophageal diseases	Corrosive esophagitis, esophageal diverticula, Achalasia, Benign stricture & Bronchiectases, Lung cysts.
11	1	1	Lung & pleural Diseases	Lung & pleural diseases, surgical anatomy, inhaled foreign bodies, lung abscess,

				Bronchiectases, lung cysts.
12	1	1	Lung & pleural Diseases	Lung TB, Bronchopleural fistula, pleural empyema, lung &Bronchial tumors clinic feature treatment.
13	1	1	Heart diseases	Anatomy and physiology physical examination, prosthetic valves, Aortic valve Diseases, mitral valve Diseases, Tricuspid stenosis and insufficiency, pulmonic valve diseases.
14	1	1	Heart diseases	Coronary Artery Disease, congenital heart diseases.
15	1	1	Arterial diseases	Arterial stenosis, Acute arterial occlusion duo to embolism peripheral aneurysm, AV fistula, Vasospastic condition and trauma.
16	1	1	Venous diseases	Deep vein thrombosis superfacial vein thrombosis, varicose vein, symptoms, treatment.

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PUBLIC HEALTH

Basics of public Health

Learning objectives

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

- Understand the Basics concept of public health
- Understand the Medicine progress in different periods of human history
- Understand health Germ theory of disease, level of health care
- Describe and evaluate health determinants
- Recognized health indicators which recommended by WHO and national health indicators
- Understand disease, risk factor, causation
- Understand primary health care and family medicine

Course content

<table>
<tr><th colspan="6">Basic of public health</th></tr>
<tr><td colspan="3">Discipline</td><td colspan="3">Behavior & social science & medical ethics</td></tr>
<tr><td colspan="3">Department</td><td colspan="3">Health management & Administration</td></tr>
<tr><td colspan="3">Subject</td><td colspan="3">Basic of public health</td></tr>
<tr><td colspan="3">Course code</td><td colspan="3">DE 5 022</td></tr>
<tr><td colspan="3">Class</td><td colspan="3">III</td></tr>
<tr><td colspan="2">Semester</td><td>5</td><td colspan="3">Spring</td></tr>
<tr><td colspan="2" rowspan="2">credits</td><td rowspan="2">1</td><td>Theory</td><td colspan="2">1</td></tr>
<tr><td>skills</td><td colspan="2"></td></tr>
<tr><td rowspan="2">Weeks</td><td colspan="2">Hours</td><td rowspan="2">Topics</td><td colspan="2" rowspan="2">Descriptions</td></tr>
<tr><td>knowlg</td><td>skills</td></tr>
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1	1		History of medicine	Brief Introduction of medicine history in different periods of human life from history of medicine in Antiquity and primitive medicine to Down of scientific medicine, Revival medicine and modern medicine.
2	1		Germ theory of disease	Definition of medicine, birth of preventive medicine, modern medicine curative medicine preventive medicine and community medicine.
3	1		Health and health determinants	Definition of health introduction of scope of health introduction of different determinants of health such as social and economic environment physical environment adperson's individual characteristics and behaviors.
4	1		Introduction of public health	Introduction of public health purpose and scope of public health components of public health importance of public health.
5	1		Essentials of public health	Monitoring health status Diagnose and investigate health problems information education and people empowerment community mobilization development of policy and plans enforce laws and regulations that protect and ensure public health and safety link people to needed personal health services Assure a competent public and personal health care work force service and conducting research for new insights and innovative solutions to health problems.
6	1		Concepts of health and disease	Concepts of health changing concept of health Biomedical concept Ecological concepts sociological concepts Holistic concepts definition and dimensions of health.
7	1		Concepts quality of life and standards of life.	Introduction of quality of life, concepts of well-being, standards of life, level of living, physical quality of life index.
8	1		Health & development	Concepts of development, health and development, importance of health to development, human development indexes; education index, human poverty index.
9	1		Health indicators	Introduction of health indicators morbidity rate

				mortality rate dead rate crude dead rate life expectancy national health services coverage indicators and WHO recommended health.
10	1		Health services philosophies	Health care introduction of health care characteristics; appropriateness comprehensiveness accessibility feasibility Affordability and Adequacy level of health care.
11	1		Concepts of disease	Definition of disease illness and sickness theory of disease and introduction of differences between them spectrum of disease.
12	1		Concepts of causation	Concepts of causation theory of disease epidemiological triad multi factorial causation web of causation natural history of disease.
13	1		Risk factors	What is risk factor? Risk factors and health problems high risk group people risky behavior.
14	1		Primary health care(PHC)	Definition types of primary health care Almata declaration principle of PHC components of primary health care.
15	1		Primary health care(PHC)	Definition types of primary health care Almata declaration principle of PHC components of primary health care.
16	1		Family medicine	Introduction of family medicine principle of family medicine general practice or family medicine Basics and foundation of family medicine.

ENVIRONEMENT & OCCUPATONAL HEALTH

Learning objectives

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

- Describe the physical environment inside the home at the workplace and in the community and its impact on health and disease.
- Describe the family environment.
- Suggest appropriate methods for improving the internal/external environment ;
- Define safe water, describe the sources of water(tap, hand pump, well);
- State the criteria (national and WHO) for safe water;

- Describe appropriate methods for making water safe at the domiciliary level;
- Describe sources of waste and methods of waste control at individual and community levels;
- Define air pollution causes of air pollution and describe appropriate measures of control;
- Describe the effects of noise and radiation on health;
- Describe the common vectors of diseases and methods of vectors control;
- Describe appropriate methods for making water safe at the domiciliary level;
- Describe sources of waste and methods of waste control at individual and community levels;
- Define air pollution causes of air pollution and describe appropriate measures of control;
- Describe the effects of noise and radiation on health;
- Describe the common vectors of diseases and methods of vectors control;
- Describe the various insecticides that are used for vector control;
- Describe insecticide resistance;
- Occupational health in health workers; medical measure, engineering measures, Legislation;
- Monitoring the workplace control of occupational exposures toxic chemical physical factors biological agents

Occupational health in health worker organization diagnosis and prevention of diseases in health workers identification of Occupational health problem in special group, identification of Occupational health problem in special group

Course contents

Environmental & Occupational Health				
Discipline		Behavior & social science & medical ethics		
Department		Environment & Occupational Health		
Subject		Environment & Occupational Health		
Course code		DE6 022		
Class		III		
Semester	6	Fall		
Credits	1	Theory	1	
		skills	0	
٧	Hours			

	knowlg	skills	Topics	Descriptions
1	1		Concept of Occupational Health	Definition and general information of Occupational Health.
2	1		Type and sources of Occupational exposures.	Physical, chemical, biological, mechanical, psychosocial.
3	1		Occupational hazards in dentistry	Hazards from physical agents.
4	1		Occupational hazards in dentistry	Hazards from chemical agents.
5	1		Occupational hazards in dentistry	Hazards from biological agents.
6	1		Occupational hazards in dentistry	Hazards from psychological agents.
7	1		Control measures	Routine precaution, immunization.
8	1		Control measures	Personal protective measures.
9	1		Control measures	Instruments sterilization.
10	1		Control measures	Ventilation, disposal of waste.
11	1		Key principle in Occupational safety and health	Rights and duties: workers' rights employers 'responsibilities, governments' duties.
12	1		Environmental health	Definition and general information of Health.
13	1		Personal environment	Children, young people elderly.
14	1		Air	Air pollutant, indoor and outdoor air pollution, general methods for control.
15	1		Food	Foodborne illness and causes, inorganic and organic chemical contaminant and additives, antibiotic and hormone use in farm animal, care in food preservation and handling, food sanitation program.
16	1		water	General information, source of drinking water human uses of water ways of human exposure, impact of waterborne diseases, drinking water and chemicals, drinking water standards, water purification processes.

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Behavioral Sciences & Health Education

Learning objectives

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

- Understand the concept of behavioral sciences and health education / promotion
- Understand human behavior and its application inpatient care
- Use principles of ethics in common clinical situations and dilemmas
- Understand the concept of motivation. Its impact on human behavior and illness related behavior.
- Identify different social and anthropological factors operating upon health and disease state.
- Understand different types of emotions and their impact on health of the individual.
  Define learning comprehend deferent types of learning and conditioning. State methods of effective.
- Learning and demonstrate application of learning in treatment.
- Understand different cognitive processes, comprehend memory process, describe short term memory and differentiate with long term memory.
- Use principles of ethics in common clinical settings
- Deal with the common psychological reactions seen in doctor- patient relationship
- Comprehend concept of thinking and its application to health care.
- Understand health education and contents of health education.
- Discuss the principles and process of communication for health education.

Course contents

Behavioral Sciences & Health Education	
Discipline	Behavior & social science & medical ethics
Department	Behavior sciences/ health education.
Subject	Behavior sciences/ health education.
Course code	DE7 022
Academic year	IV

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Semester			7	Spring	
Credits			1	Theory	1
				skills	
Weeks	Hours		Topics	Descriptions	
	knowlge	Skills			
1	1		Introduction to behavioral sciences.	Traditional vs. holistic medicine, what are behavior sciences?, biopsychosocial model of health care, non- pharmacological interventions (NPIs) in clinical practice.	
2	1		Introduction to behavioral sciences.	Crisis intervention/ disaster management, conflict resolution, breaking the bad news, empathy amongst medical students.	
3	1		Medical ethics professionalism and doctor patient relationship.	Relevance of ethics in the life of doctor, scope of meaning of medical ethics common medical omissions in medical practice ethical dilemmas in a doctor s' life, rights & responsibilities of patients doctor patient relationship professionalism in health care: how to access attitude?	
4	1		Use of principles of psychology in medical practice.	Learning metacognition, memory perception.	
5	1		Use of principles of psychology in medical practice.	Thinking, emotion motivation.	
6	1		Use of principles of psychology in medical practice.	Intelligence, personality development, personality types.	
7	1		Sociology and anthropology in health and disease.	Culture, beliefs, values and norms, social structure, roles, family child rearing practices, death and dying, health belief models social support, role of religion, treatment adherence, stigma, sick role, culturally relevant care and cultural sensitivity.	
8	1		Psychosocial aspects of health and	Psychosocial aspects of health Psychosocial aspects	

			disease.	of disease reaction of the patient to illness and hospitalization.
9	1		Psychosocial aspects of health and disease.	Psychosocial issues in special hospital setting common psychiatric disorders in general health settings stress and its management, psycho trauma.
10	1		Psychosocial aspects of health and disease.	Psychosocial aspects of pain, psychosocial aspects of sleep and awareness, psychosocial aspects of aging, coping with death, Psychosocial peculiarities of dentistry.
11	1		Health education / promotion	Definition of key terms, health, health education, health literacy health promotion life style population rick continuum prevention primary health care, quality of life and wellness, relationships between health education and health literacy,
12	1		Health education and behavior	Changing concept, aims and objectives role of health care providers, approach to health education, model of health education, contents of health education.
13	1		Principles of health education	Credibility, interest, participation, motivation, comprehension, reinforcement, learning by doing, known to unknown, sitting on example, good human relation , feedback.
14	1		Practice of health education	Individual aids, methods in health communication, individual approach , individual approach, group approach, mass approach education of general public.
15	1		Communication for health education.	The communication process, types of communication.
16	1		Communication for health education.	Barriers of communication, health communication functions of health communication.

EPIDEMIOLLOGY

Learning objectives

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

- Understand the basic concepts and application of Epidemiology
- Describe epidemiological measures of health and diseases: frequency
- Describe epidemiological measures of health and diseases: association and impact

- Differentiate between different type of studies i-e. cross – sectional, ecological, cohort case-control, and intervention studies
- Interpret the results of epidemiological studies
- Understand the prevention strategies
- Know epidemiological surveillance and routine data
- Describe screening and diagnostic tests

Course contents

EPIDEMIOLOGY					
Discipline			Behavior & social science & medical ethics		
Department			Epidemiology and biostatistics		
Subject			Introduction to epidemiology		
Course code			DE10 022		
Academic year			V		
Semester		10	Fall		
Credits		1	Theory	1	
			Skills		
Weeks	Hours: knowled	Hours: Skills	Topics	Descriptions	
1	1	1	Basic concepts and application of epidemiology	Studying epidemiology; distribution and determinants of health status or event; the epidemiological approach: what who, where, why; models of causation of diseases.	
2	1	1	Basic concepts and application of epidemiology	Natural history of diseases; applications of epidemiology in public health: community health assessment and priority setting, evaluating health interventions and programs, preventing diseases and	

				promoting health, improving diagnosis, treatment and prognosis of clinical diseases.
3	1	1	Epidemiological measures of health and diseases: frequency	Definition of a case; measure of diseases frequency: prevalence, incidence, rick or cumulative incidence, odds and incidence rate.
4	1	1	Epidemiological measures of health and diseases frequency.	Use of frequency measures and crude and specific rates: standardized rates, direct standardization and in- direct standardization.
5	1	1	Epidemiological measures of health and diseases: association and impact	Measure of exposure effect and impact: relative measures, risk ratio, rate ratio, odds ratio, absolute measures, attributable(absolute) risk.
6	1	1	Epidemiological measures of health and diseases: association and impact	Population attributable (absolute) risk and population attributable fraction, selection of appropriate measure for different study design.
7	1	1	Cross-sectional studies	What is a cross-sectional study? Descriptive and analytical studies study design, sampling, data collection , analysis, strength and weaknesses,
8	1	1	Cohort-control studies	What is a cohort? Type of cohort study? Study design; selection of the study population exposures follow- up and outcomes, analysis, strengths and weaknesses.
9	1	1	Case-control studies	Study design, hypothesis, selection of cases , selection of controls and measuring exposures, analysis and interpretation bias confounding and strengths and weaknesses.
10	1	1	Intervention studies	Types of intervention study, study design selection of population allocation of treatment regimens efficacy and effectiveness, other types of study design.
11	1	1	Intervention studies	Measuring outcome, analysis, interpretation, ethical issues, and strengths and weaknesses.
12	1	1	Interpretation of the results of Epidemiological studies	Biases: selection bias, information bias, differential misclassification , non- differential misclassification and avoiding information bias; and confounding and control of confounding, role of chance determining a cause –effect relationship: temporal does –response, strength of association biological plausibility.

				Consistency with other studies specificity, reversibility, coherence, and analogy.
13	1	1	Screening and diagnostic tests	Definition and purpose of screening mass or targeted screening reliability and validity of screening test, predictive value, ethics in screening and criteria for screening.
14	1	1	Screening and diagnostic tests	Evaluating screening program: relative burden of diseases feasibility effectiveness, biases, cost and study design for evaluating screening.
15	1	1	What is health research	Introduction, field selection of research, drivers for health research criteria for good research topic.
16	1	1	Planning the health research	Introduction research design and selecting appropriate design defining and refining research question, generating research hypothesis, sampling measurement notes on questionnaire design.

BIOSTATISTICS

Learning objectives

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

- Describe the process of measurement
- Describe the type of studies
- Calculate and present frequency distribution
- Familiarize with summary statistics: central location and measure of dispersion
- Describe the probability concepts
- Familiarize with binomial probability distribution
- Describe normal probabilities distribution
- Introduction to statistical inference
- Basics of hypotheses testing
- Basic of confidence intervals

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BASIC BIOSTATISTICS					
Discipline			Behavior & social science & medical ethics		
Department			Epidemiology and biostatistics		
Course title			Basic Biostatistics		
Course code			DE10 022		
Academic year			V		
Semester		10	Fall		
credits		1	Theory	1	
			Skills		

Weeks	Hours		Topics	Descriptions
	knowledge	skills		
1	1	1	measurement	What is biostatistics? Organizing data.
2	1	1	measurement	Type of measurements data quality, and exercise.
3	1	1	Type of studies: surveys	Simple random samples, table of random digits, other types of probability samples.
*4	1	1	Type of studies: comparative studies	The basics, explanatory variables and response variable, confounding, factors and treatments, random assignment of treatment, blinding and ethics.
5	1	1	Frequency distribution: stem-plots.	Shape location spread additional illustrations of stem plots, frequency count from stem- plots, frequency table class interval frequency table, additional frequency chart.
6	1	1	Summary statistics: central location	Mean mode median and their comparison; range; quartiles.
7	1	1	Summary statistics: central location	5 points summary and interquartile rang; and box plot, variance and standard deviation (SD) facts about

				SD and selecting summary statistics.
8	1	1	Probability concepts	What is probability? types of random variables, discrete random variables continuous random variable more rules and properties of probability.
9	1	1	Binomial probability distribution	Binomial random variables, calculating binomial probabilities, probability calculators, expected value and variance of binomial random variables and using the binomial distribution to help make judgment.
10	1	1	Normal probabilities distribution	Normal distribution :A heuristic example characteristics of normal distribution, the 68-95-99.7 rule, and determining normal probabilities: standardizing values, the standard normal table, probabilities for ranges of normal random variables.
11	1	1	Normal probabilities distribution	Finding values that correspond to normal probabilities: terminology and notation and assessing departures from normality.
12	1	1	Introduction to statistical inference	Concept: sampling variability, parameters and statistics; sampling behavior of mean: simulation experiment the sampling distribution of mean the effect of increasing the sample size and sampling behavior of count and proportion: the normal approximation to the binomial.
13	1	1	Basics of hypotheses testing	The null and alternative hypotheses, test statistics, p-value significance level, one sample z- test, and power and sample size.
14	1	1	Basic of confidence intervals	Introduction to estimation, confidence level for μ when ŝ is between hypothesis testing and confidence interval.
15	1	1	Inference a bout mean:	Estimated standard error, student's t distribution one sample t test, confidence interval for mean paired sample, conditions for inference, sample size and power.
16	1	1	Comparing independent mean	Paired and in depended samples, exploratory and descriptive statistics, inference about mean difference, equal variance t procedure, conditions for inference sample size and power.

OPERATIVE DENTISTRY &ENDODONTICS

Operative dentistry

Operative dentistry is one of the branches of dentistry that deals with the art and science of the diagnosis prevention treatment and prognosis of diseases.

At the end of training each student must be able:

- To diagnose Dental caries, Dental defects, malformed teeth and discolored teeth for treatment planning.
- To prevent any recurrence of the causative disease and their defects it is the procedures done for prevention before the manifestation of any sign and symptoms of disease.
- To restore form function phonetics and aesthetics.
- To maintain for providing service for longer duration.
- To know about tooth nomenclature and physiology of tooth form.
- To know principles of cavity preparation for amalgam and composite resin material for different classes.
- To become familiar with amalgam restorations glass ionomer cement and pin retained restorations.
- To control pain during operative procedures.
- To manage deep carious lesions, indirect and direct pulp capping.
- To understand about isolation methods infection control patient operating position and matricing and tooth separation.
- To know about pulp protection and interim restorations.
- To know about Dental hypersensitivity and cervical lesions and their management.

Endodontics

At the end of training each student must be able:

- To know about scope of endodontics, endodontics diagnostic procedures and basic principles of the endodontics treatment.
- To become familiar with the anatomy of pulp cavity and periapical tissues, pulp and periapical pathologies and their treatment.
- To know rationale of endodontic treatment case selection indication and contraindications for rootcanal treatments.
- To become familiar with the internal anatomy of different teeth.

- To be able to perform preparation of root canal space, determination of working length, cleaning and shaping of root canals irrigating solution chemical aids to instrumentation.
- To know about disinfection of root canal space and intra canal medicaments.
- To understand about problems during cleaning and shaping of root canal spaces, perforation and its management broken instruments and its management.
- To know about obturation of the root canal system and different methods of obturation system.
- To understand about root canal sealers. Ideal properties classification, manipulation of root canal sealers.
- To learn about traumatised teeth classification of fractured teeth management of fractured tooth and root.
- To know about emergency endodontic procedures.
- To learn the importance of asepsis and infection control in endodontic treatment.
- To become familiar with geriatric endodontics and the usages of laser in endodontics.
  To learn the endo and perio relationship and restoration of endodntically treated teeth

Course contents

OPERATIVE DENTISTRY (Syllabus 1)					
Discipline			Clinical science and skills		
Department			Operative dentistry & endodontics		
Subject			Operative dentistry		
Course code			DE5 023		
Class			III		
Semester		5	Spring		
credit		2	knowledge	1	
			Clerkship	1	
Weeks	Hours: knowlg	Hours: skills	Topics	Descriptions	
1	1	1	Introduction of operative dentistry	Definition, History, indication operative dentistry procedures purpose of operative dentistry and recent	

				advanced in restorative dentistry.
2	1	1	Tooth nomenclature	Classes of human teeth, sets of teeth and tooth numbering system.
3	1	1	Tooth nomenclature	Nomenclature of tooth surfaces, nomenclature related to Dental caries and nomenclature related to noncarious defects of teeth.
4	1	1	Physiology of tooth form	Function of teeth and physiology of tooth form.
5	1	1	Physiology of tooth form	Occlusion and operative dentistry.
6	1	1	Dental caries	Definition sites of Dental caries epidemiology of Dental caries Dental plaque/biofilm theories of Dental caries local factors affecting the incidence of caries and irradiation and. Dental caries.
7	1	1	Dental caries	Classification of Dental caries and diagnosis of Dental caries.
8	1	1	Dental caries	Diagnosis of Dental caries, arrested caries, root caries and caries risk assessment.
9	1	1	Dental caries	Prevention of Dental caries, current methods of caries prevention and management of Dental caries.
10	1	1	Principles of tooth preparation	Introduction, purpose of tooth preparation terminology of tooth preparation number of line angles and point angles in different tooth preparation design and tooth preparation.
11	1	1	Principles of tooth preparation	Steps in tooth preparation.
12	1	1	Principles of tooth preparation	Steps in tooth preparation.
13	1	1	Patient evaluation diagnosis and treatment planning	Introduction patient evaluation examination and diagnosis.
14	1	1	Patient evaluation diagnosis and treatment planning	Examination and diagnosis treatment planning and treatment record.
15	1	1	Isolation of the operating field	Introduction components of oral environment and equipment needed for Isolation of operating field.
16	1	1	Isolation of the operating field	Equipment needed for Isolation of operating field

				and pharmacological methods and methods used for gingival tissue management.

OPERATIVE DENTISTRY (Syllabus 2)				
Discipline			Clinical science and skills	
Department			Operative dentistry & endodontics	
Subject			Operative dentistry	
Course code			DE6 023	
Class			III	
Semester		6	fall	
credit		2	knowledge	1
			Clerkship	1

weeks	Hours		Topics	Descriptions
	knowlg	skills		
1	1	1	Patient and operating position	Introduction chair and patient position operating position consideration for doctors while doing patient setting arrangement of operator and assistant.
2	1	1	Infection control	Rational for infection control cross infection objective of infection control universal precautions classification of instrument and instrument processing.
3	1	1	Infection control	Instrument processing procedures management of Dental equipment needle stick injury disinfection and infection control checklist.
4	1	1	Pain control	Introduction methods of pain control in Dental clinic anxiety control local Anesthesia use of high

				speed rotary instruments with sharp burs and coolants analgesia and hypnosis.
5	1	1	Matricing and tooth separation	Introduction and Matricing.
6	1	1	Matricing and tooth separation	Matricing .
7	1	1	Matricing and tooth separation	Matricing and tooth separation
8	1	1	Pulp protection	Introduction pulpal irritants effect of Dental caries on pulp effect of tooth preparation on pulp effect of chemical irritants on pulp and pulp protection procedures.
9	1	1	Pulp protection	Material use for pulp protection methods of pulp protection under different restorations.
10	1	1	Interim restorations.	Introduction material used for interim restoration.
11	1	1	Interim restorations.	Material used for interim restorations.
12	1	1	Management of deep caries lesions	Indirect and direct pulp capping.
13	1	1	Tooth preparation for composite restorations.	Class III tooth preparation , class IV Tooth preparation and class V Tooth preparation.
14	1	1	Tooth preparation for composite restorations.	Tooth preparation for posterior composites restoration class I Tooth preparation class II Tooth preparation and restorative technique for composites.
15	1	1	Tooth preparation for composite restorations.	Restorative technique, repair of composite restorations and indirect composite inlays and onlays.
16	1	1	Aesthetics in dentistry	Introduction Dental aesthetics dentofacial composition color translucency, aesthetics and operative dentistry.

OPERATIVE DENTISTRY (Syllabus 3)	
Discipline	Clinical science and skills
Department	Operative & endodontics

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Subject		Operative dentistry	
Course code		DE7 023	
Class		IV	
Semester	7	spring	
credit	2	knowledge	1
		Clerkship	1

Weeks	Hours		Topics	Descriptions
	knowledg	skills		
1	1	1	Amalgam restorations.	Introduction composition of amalgam powder, composition of amalgam alloys advantages of silver Amalgam, disadvantages of silver amalgam, indications of amalgam restoration, types of amalgam powder physical properties of amalgam and recent advantages in amalgam.
2	1	1	Amalgam restorations.	Principles of Tooth preparation for amalgam restoration.
3	1	1	Amalgam restorations.	Principles of Tooth preparation for amalgam restorations and steps of amalgam restoration.
4	1	1	Amalgam restorations.	Steps of amalgam restoration failure of amalgam restoration and Mercury hygiene.
5	1	1	Pin retained restoration.	Introduction, advantages, of pin amalgam restorations, disadvantages of pin amalgam restorations indications for pin amalgam restorations contraindications for pin amalgam restorations and retentive material.
6	1	1	Pin retained restoration.	Principles and techniques of pin placement, factors affecting retention of pin in tooth structure and factors affecting retention of pins in restorative material.
7	1	1	Pin retained restoration.	Pins and stresses failure of pin retained restorations, pin placement for maxillary teeth pin placement for

				mandibular teeth, pin amalgam foundation and amalgam pin.
8	1	1	Glass Ionomer cement	Introduction classification of Glass Ionomer cements, generation of glass Ionomer composition of glass Ionomer cement indications of glass Ionomer cement contraindications of glass Ionomer cement and properties of glass Ionomer cement.
9	1	1	Glass Ionomer cement	Use of glass Ionomer cements and clinical steps for placement of glass Ionomer cement.
10	1	1	Tooth hypersensitivity	Introduction, definition, neurophysiology of teeth, mechanism of dentin sensitivity, incidence and distribution of dentin hypersensitivity, etiology and predisposing factors.
11	1	1	Tooth hypersensitivity	Differential diagnosis, diagnosis and treatment strategies.
12	1	1	Management of discolored teeth	Introduction, classification of discoloration and etiology of tooth discoloration.
13	1	1	Management of discolored teeth	Bleaching, History of tooth bleaching, contraindications for bleaching, medicaments used as bleaching agents and constituents of bleaching Gels, Home bleaching technique and in- office bleaching.
14	1	1	Management of discolored teeth	Bleaching of Nonvital teeth and effect of bleaching agents on tooth and its supporting structure.
15	1	1	Cervical lesions	Introduction, classification of cervical lesions, carious cervical lesions and Noncarious cervical lesions.
16	1	1	Cervical lesions	Noncarious cervical lesions and management of cervical lesions.

Textbooks & reference books recommended(last edition)

1- Textbook of operative Dentistry
Writer (Nisha Garg & Amit Garg)
2- Sturtevant's Art & science of operative dentistry
Writer (Harald O Heymann, Edward J Swift, Andre V Ritter)

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ENDODONTICS (Syllabus 1)					
Discipline			Clinical science and skills		
Department			Operative Dentistry & endodontic		
Subject			endodontic		
Course code			DE8 023		
Class			IV		
Semester		8	Fall		
credit		2	knowledge	1	
			Clerkship	1	

Weeks	Hours		Topics	Descriptions
	knowlg	skills		
1	1	1	Introduction and scope of endodontics	Introduction, History of endodontics, and patient education.
2	1	1	Pulp and periradicular Tissue	Introduction, development of Dental pulp, histology of Dental pulp, supportive Elements and innervations of pulp.
3	1	1	Pulp and periradicular Tissue	Anatomy of Dental pulp, pulp chamber, root canal, functions of pulp. Age changes in pulp, pulpal calcification, calcific metamorphosis and periradicular Tissue.
4	1	1	Pathologies of pulp and periapex	Introduction, pulp pathologies, Etiology of pulpal diseases, progression of pulpal pathologies, diagnostic Aids for pulpal pathology, classification of pulpal pathologies and Barodontalgia.
5	1	1	Pathologies of pulp and periapex	Reversible pulpitis, irreversible pulpitis, chronic pulpitis and internal resorption.
6	1	1	Pathologies of pulp and periapex	Pulp necrosis, pulp degeneration, periradicular pathologies, Etiology of periradicular diseases,

				diagnosis of periradicular pathologies and classification of periradicular pathologies.
7	1	1	Pathologies of pulp and periapex	Acute Apical periodontitis, Acute Apical Abscess, phoenix Abscess, periapical Granuloma and radicular Cyst.
8	1	1	Pathologies of pulp and periapex	Chronic Alveolar Abscess, persistent Apical periodontitis, External root resorption and diseases of periradicular Tissue of Nonendodontic, origin.
9	1	1	Diagnostic procedures	Case History
10	1	1	Diagnostic procedures	Pulp vitality tests, recent advances in pulp vitality testing and diagnostic findings.
11	1	1	Diagnostic procedures	Role of radiographs in endodontic, digital radiography, digital Dental radiography and phosphor imaging system.
12	1	1	Differential diagnosis of orofacial pain.	Introduction, pain, diagnosis, sources of Odontogenic & Non Odontogenic pain.
13	1	1	Case selection and treatment planning	Endodontic therapy, contraindications of Endodontic therapy treatment planning, medical conditions influencing Endodontic treatment planning and sequence of treatment delivery.
14	1	1	Internal anatomy	Introduction, pulp cavity, common canal configuration, methods of determining pulp anatomy and variations in internal anatomy of teeth.
15	1	1	Internal anatomy	Variations in internal anatomy of teeth, factors affecting internal anatomy and individual tooth anatomy.
16	1	1	Internal anatomy	individual tooth anatomy, C- Shaped canals and classification of C- shaped Root canals.

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ENDODONTICS (Syllabus 2)					
Discipline			Clinical science and skills		
Department			Operative Dentistry & endodontic		
Subject			endodontic		
Course code			DE9 023		
Class			V		
Semester		9	spring		
credit		2	knowledge	1	
			Clerkship	1	

Weeks	Hours		Topics	Descriptions
	knowlg	skills		
1	1	1	Access cavity preparation	Definition, instruments for access cavity preparation and Guidelines for access cavity preparation.
2	1	1	Access cavity preparation	Access cavity for anterior teeth, access cavity preparation for premolars, access cavity preparation for maxillary molars and access cavity preparation for mandibular molars.
3	1	1	Access cavity preparation	Clinical managing difficult cases for access opening.
4	1	1	Working length determination.	Definition, significance of working length, difference methods of working length determination and radiographic methods of working length determination.
5	1	1	Working length determination.	Grossman method and electronic apex locators.
6	1	1	Irrigation and intracanal medicaments	Ideal requirements for an Irrigant, functions of Irrigants, factors that modify activity of Irrigating solutions, common used Irrigating solutions, choice of an Irrigant solutions, normal saline, sodium hypochlorite, urea, hydrogen peroxide, urea peroxide

				and chlorhexidine.
7	1	1	Irrigation and intracanal medicaments	Chelating agents, Ultrasonic Irrigation newer Irrigation solutions and method of Irrigation.
8	1	1	Irrigation and intracanal medicaments	Endovac (apical negative pressure Irrigation system) intracanal medicaments characteristic of intracanal medicaments and placement of intracanal medicaments.
9	1	1	Cleaning and shaping of root canal system.	Objective of biomechanical preparation, different movements of instruments, basic principles of canal instrumentation technique of root canal preparation, standardized preparation technique and step back technique.
10	1	1	Cleaning and shaping of root canal system.	Modified step back technique, passive step back technique coronal to apical approach technique step down technique crown down pressure less technique Hybrid technique of canal preparation ,double flare technique modified double flare technique balanced force technique reverse balanced force preparation, types of crown down hand instrumentation technique modified manual step down technique and profile GT technique.
11	1	1	Cleaning and shaping of root canal system.	Quantic instrument technique protaper file, engine driven preparation with NiTi instrument, profile system, greater taper file, light speed system, k3 rotary file system real world endo sequence file, hero 642, wave one file system and canal preparation using ultrasonic instrument.
12	1	1	Cleaning and shaping of root canal system.	Canal preparation using sonic instruments laser assisted root canal therapy, evaluation criteria of canal preparation and special anatomy problem in canal cleaning and shaping.
13	1	1	Obturation of root canal system	Timing of obturation, extent of root canal filling and material used for Obturation.
14	1	1	Obturation of root canal system	Material used for obturation methods sealer placement and obturation techniques.
15	1	1	Obturation of root canal system	Armamentarium for obturation lateral compaction

				technique variation of lateral compaction technique chemical alteration of gutta-percha, vertical compaction technique and system B: continuous wave of condensation technique.
16	1	1	Obturation of root canal system	Lateral / vertical compaction of warm Gutta-percha, sectional methods of obturation, thermo mechanical compaction of the Gutta-percha thermopllasticized injectable gutta-percha obturation solid core carrier technique obturation with silver cone apical third filling postobturation instructions and repair following endodontic treatment.

ENDODONTICS (Syllabus 3)				
Discipline			Clinical science and skills	
Department			Operative Dentistry & endodontic	
Subject			endodontic	
Course code			DE10 023	
Class			V	
Semester		10	Fall	
credit		2	knowledge	1
			Clerkship	1
Weeks	Hours: Konwledge	Hours: skills	Topics	Descriptions
1	1	1	Single visit Endodontics	Advantages and disadvantages of single visit Endodontics criteria of case selection and contraindications of Single visit Endodontics.
2	1	1	Mid treatment flare- ups in	Etiology mechanisms for flare-up clinical conditions

			Endodontic	related to flare-ups and management of flare-ups.
3	1	1	Endodontic emergencies	Diagnosis and treatment planning pretreatment Endodontic emergencies and conditions requiring Endodontic emergencies treatment.
4	1	1	Endodontic emergencies	conditions requiring Endodontic emergencies treatment intratreatment emergencies and postobturation emergencies.
5	1	1	Procedures Accidents	Inadequately cleaned and shaped root canal system instrument separation.
6	1	1	Procedures Accidents	Deviation from normal canal anatomy, inadequate canal preparation and perforation.
7	1	1	Procedures Accidents	Preparation obturation related vertical root fracture and instrument Aspiration.
8	1	1	Endodontic periodontal relationship	Definition pathways of communication between pulp and periodontium, impact of pulpal diseases on the periodontium, impact of periodontium diseases on the pulpal issue, etiology of Endodontic periodontal problems, classification and diagnosis of Endodontic-periodontal lesions.
9	1	1	Endodontic periodontal relationship	Primary Endodontic lesions, Primary Endodontic lesions with secondary periodontal involvement Primary periodontal lesions, Primary periodontal lesions with secondary Endodontic involvement, independent Endodontic and periodontal lesions which do not communicate and true combined Endo-periolesions.
10	1	1	Restoration of endodontically treated teeth	Introduction importance of coronal restoration factors making endodontically treated teeth different from vital teeth restorative treatment planning for endodontically treated teeth components of the restored tooth.
11	1	1	Restoration of endodontically treated teeth	Factors to be considered while planning post and core.
12	1	1	Restoration of endodontically treated teeth	Preparation of the canal space and core custom made post core fabrication investing and casting evaluation

				and cementation.
13	1	1	Management of traumatic injuries	Classification of dentofacial injuries examination of traumatic injuries crown infraction, crown fracture complicated crown fracture and crown root fracture.
14	1	1	Management of traumatic injuries	Root fracture luxation injuries assessment of traumatic injuries and prevention of traumatic injuries.
15	1	1	Geriatric endodontic	Age changes in the teeth, endodontic in geriatric patients, diagnosis and treatment plan.
16	1	1	Laser endodontic	History types of laser, laser interaction with biological tissues laser safety in Dental practice soft and hard tissue application of laser in dentistry.

Textbooks & reference books recommended(last edition)

1- Textbook of endodontic
Writer (Nisha Garg & Amit Garg)
2- Grossman's Endodontic
Writer (Grossman)
3- Endodontic(principles & practice)
Writer (Mahmoud Torabinejad, Richard E. Walton)
4- Textbook of Endodontic
Writer (Anil kohli).

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CLINICAL NEUROLOGY

Learning objectives

At the end of this syllabus , students should be able to:

- List categories of diseases of the nervous system;
- Describe the common clinical presentations of nervous system diseases.
- Incorporate laboratory data into the assessment of a patient with a nervous system disorder;
- Describe the diagnostic procedures, work up, approach to the patient and treatment options for various disorders including cerebrovascular accident, neoplastic diseases, headache and epilepcy;
- Discuss the goals of therapy of CNS disorders based on the underlying pathophysiological condition;

CLINICAL NEUROLOGY & PSYCHIATRY					
Discipline			Clinical science and skills		
Department			Neuropsychiatry		
Subject			Clinical neurology and psychiatry		
Course code			DE6 024		
Class			III		
Semester		6	Fall		
credit		2	knowledge	1	
			Clerkship	1	
Weeks	Hours: knowlg	Hours: skills	Topics	Descriptions	
1	1	1	Neurological History and examination	Motor system examination (inspection, tone, forces reflexes), cranial nerves examinations (olfactory, optic, occulomotor, trochlear, trigeminal, abducens, facial, vestibulocochlear, glossopharyngeal, vague, accessory and hypoglossal nerves), co-ordination and cerebellar examination, station and gait, sensory system examination (lamniscal and extra lamniscal	

				sensory system).
2	1	1	coma	Definition mechanisms, classification, initial management of unconscious patient (ABCD) history vital sign respiration head and neck papilledema position of eye ball movement of eye ball pupils extremities etiology of unconsciousness and coma(metabolic & neurologic).Investigation (blood, CSF, urine, stool, imaging, special tests) assessment of brain stem in unconscious patients, Glasgow coma scale, locked in syndrome, vegetative state, special nursing care for unconscious patient.
3	1	1	Seizure disorders	Definition etiology , classification , petit mal seizure, Grand mal seizure, partial seizure(simple & complex seizure), reflex seizure, febrile convulsion pseudo seizure status epilepticus management of tonic and colonics status epilepticus laboratory investigation differential diagnosis treatment of seizure disorders, prognosis.
4	1	1	Facial paralysis	Anatomy physiology facial paralysis: definition, incidence clinic etiology, diagnosis differential diagnosis, prognosis, treatment.
5	1	1	Headache	Headache: etiology, history, classification migraine: definition, classification differential diagnosis, treatment. Cluster headache: definition, diagnosis, treatment.
6	1	1	Neuralgia	Trigeminal neuralgia: definition, etiology, diagnosis treatment prognosis, glossopharyngeal: definition etiology, diagnosis treatment.
7	1	1	Clinical approach to the unconscious patients	Glasgow coma scale, eye ball movement, respiration, pupils and motor system examination, laboratory investigations, blood, CSF urine and stool, imaging.
8	1	1	vertigo	Vertigo: definition, etiology classification important poin when faced to patient who has vertigo, clinic and investigation.
9	1	1	Psychiatric history and examination	Presentation (level of consciousness, general appearance), motor behavior, affect.

10	1	1	Cognitive state exam	Cognitive state (Attention, orientation, languages, memory) reasoning, mood, thought, perception.
11	1	1	Schizophrenic disorders	Definition, natural history, incidence, prevalence, etiology, sign & symptoms, sub types of schizophrenia, course, D/DX, diagnostic criteria, treatment, prognosis.
12	1	1	Mood disorders	Epidemiology, natural history etiology clinic, DSM-IV diagnostic critic for mania, DSM-IV diagnostic criteria for anxiety patients, Bipolar disorder, dysthymia cyclothymia types of bipolar disorder course and prognosis, treatment for mania social treatment behavior treatment, psychotherapy.
13	1	1	Anxiety disorders	Definition epidemiology, knowledge of anxiety panic attack agoraphobia social phobia, specific phobia, OCD generalized anxiety disorders, treatment.
14	1	1	Substance related disorders	Definition phenomenology intoxication neuroadaptation dependence abuse & addiction, etiology, epidemiology, neuropharmacology, antagonist, clinic, over dosage, withdrawal syndrome, course, side effect, diagnosis, treatment. Cocaine and amphetamines, nicotine, cannabis related disorders, (neuropharmacology, clinic, treatment) Alcohol related disorders, epidemiology, etiology, intoxication, neuroadaptation Alcohol withdrawal, Alcohol withdrawal seizures, alcohol induces psychotic disorder, alcohol receptor, alcohol withdrawal delirium, treatment.
15	1	1	Somatoform disorders	Definition types somatization disorders conversion disorders, pain disorders, hypochondriasis, body dimorphic disorder.
16	1	1	Malingering	Definition, sign and symptoms, diagnosis, treatment.

Textbooks & reference books recommended (last edition)

- Neurology in clinical practice, Robert B. Darrof.
- Harrison's neurology in clinic medicine, Stephen L. Hausen.
- Textbook of clinical neurology, Christopher G Goetz.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

NEUROSURGERY

Learning objectives

Knowledge

At the end of course the student must be able to:

- Perform a comprehensive neurologic examination;
- Assess clinical level of neurologic dysfunction and propose etiologic differential diagnosis;
- Assess skull and spine X- ray films, CT and CTA scans and MRI, MRA and MRV scans;
- Assess relevant laboratory data including intracranial pressure, arterial blood pressure arterial blood gases serum electrolytes and osmolality, and central venous pressure as they relate to proper management of the neurologically impaired patient;
- Demonstrate the ability to differentiate between trauma, metabolic disorders, congenital anomalies, tumors and infections which result in neurologic dysfunction with specific reference to their manner of presentation and methods of treatment;
- Undertake initial management of the acutely impaired neurologic patient by assessing the degree of neurologic dysfunction, assessing the quality of the airway.

Course content

NEUROSURGERY			
Discipline		Clinical science and skills	
Department		Neurosurgery	
Course title		Neurosurgery	
Prerequisite		Principles of surgery & neurology	
Course code		DE 10 036	
Academic year		V	
Semester	10	Fall	
Number of credit	2	knowledge	1
		Clerkship	1
Hours			

	Topics		Descriptions	
	Knowledge	clerkship		
1	1	1	Introduction and history of neurosurgery.	Introduction of neurosurgery, historical background of neurosurgery, neuroanatomy (functional), brain and cranial nerves spine & special cord, peripheral nerves, CSF and neurovascular review, the principle of neuro- investigation.
2	1	1	Intracranial diseases, diagnosis and management of head Trauma	Introduction and classification of H.I understand and assign the Glasgow coma score, recognize the presentation of brain herniation syndroomes in the setting of trauma. Initiate management of elevated intracranial pressure in head trauma recognize and initiate management of concussion, brain contusion and diffuse axonal injury.
3	1	1		Recognize and initiate management of acute subdural and epidural hematoma, including surgical indications, recognize and initiate management of penetrating trauma including gunshot wounds. Recognize and understand the principles of management of open, closed and basilar skull fractures, including cerebrospinal fluid leak, and chronic subdural hematoma (in children and adults).
4	1	1	Closed head injury	Scalp injury abrasion laceration, infected wound, of the skull vault fractures liner fracture depressed fracture, compound depressed fracture base crani fracture anterior cranial fossa middle cranial fossa posterior cranial fossa.
5	1	1	Head injury	Traumatic brain injury, concussion cerebral, contusion cerebral. Compression (EDH &SDH) laceration cerebral management and principles of treatment complication of head injury. Traumatic coma, synd increased intracranial pressure brain

				death.
6	1	1	Open head injury	Open head injury penetrated brain injury, perforated brain injury (war wound and non-war wound).
7	1	1	Spinal diseases	Introduction and classification of SCI, the emergence room diagnosis and interpretation of radiologic studies in spinal trauma, initiate acute management of spinal cord injury including immobilization, steroids and systemic measure, understand the definition and subsequent management principles of the unstable spine, understand management principle in spinal cord injury including indications for decompressive surgery and treatment of the medical complication associated with cord injury (skin, bladder, bowel movement, respiratory).
8	1	1	Spinal cord injury	The history and examination of SCI complication of spinal cord injury paraplegia (caring), caring for a spinal injury and principles of treatment, neuro-rehabilitation.
9	1	1	Diagnosis and management of brain abscess.	Recognize the clinical manifestation of abscess and focal infections due to local spread, hematogenous diseases associated with immune deficiency and how they differ from the mimic tumors understand the general principles in the treatment of abscess and focal intracranial infections, brain abscess, T.B (complications), parasites (Hydatid cyst).
10	1	1	Diagnosis and management of principle nerve injury and entrapment.	Diagnosis traumatic nerve injury (laceration, stretch and compression) and understand indications and general strategies of treatment. Recognize the signs and symptoms of common nerve entrapment (carpal tunnel syndrome, ulnar nerve entrapment thoracic outlet syndrome and meralgia paresthetica), their etiology conservative management strategies and indications for surgical intervention.
11	1	1	Spine TB And spinal cord tumors	Introductions, etiology pathophysiology, clinic, laboratory and imaging, diagnosis complications, surgical and medical management &prognosis.
12	1	1		Diagnosis and understand the natural history and management principles of whiplash and soft tissue

			Diagnosis and management of non-traumatic neck and back problems.	injury. Recognize the broad categories of spinal pain and radiculopathy: the sign and symptoms (including cauda equine syndrome). Their common causes, their diagnosis and their management (cervical and lumbar disc herniation, osteoarthritic diseases spondylolisthesis), their differential diagnosis and management (including metastatic diseases and primary spinal tumors), recognize the broad categories of myelopathy: the signs and symptoms (including comparison of acute and chronic spinal cord injury), the common causes their diagnosis and their management (cervical and lumbar disc herniation and osteoarthritic diseases),differential diagnosis and management (including transverse myelopathy, metastatic diseases and primary spinal tumors).
13	1	1	Diagnosis and management of brain tumor.	Introduction: know the relative incidence and location of the major types of primary and secondary brain tumors understand the general clinical manifestations (focal deficit and irritations, mass effect; supratentorial Vs. infratentorial) of brain tumors recognize specific syndromes: extra- axial (cerebellopontine, pituitary, frontal…) and intra-axial, in brain tumor presentation , review the diagnostic tools that are currently used for evaluation (laboratory tests, radiology, biopsy). Understand broad treatment strategies (surgery, radiosurgery, radiation and chemotherapy) in the treatment of tumors.
14	1	1	Diagnosis and management of surgically treatable pain problems, movement disorders.	Recognize the features of trigeminal and glossopharyngeal neuralgia, causalgia and cancer pain, indications for surgical referral and the spectrum of surgical therapeutic option recognize movement disorders amenable to surgical intervention, including Parkinson’s diseases.
15	1	1	Diagnosis and management of surgically treatable pain problems, movement disorders.	Dystonia, spasticity, and hemifacial spasm, indications for surgical referral and the spectrum of surgical therapeutic options, understand the general classification of seizure disorders definition of intractable epilepsy, and the broad categories of

				surgical intervention for epilepsy including invasive electrodes respective and disconnective surgery.
16	1	1	Diagnosis and management of headaches	Know the major causes of intracranial hemorrhage: vascolopathy in the aged (hypertension and amyloidosis) aneurysm, vascular malformation tumor and coagulopathy. Recognize the symptoms and signs of subarachnoid, cerebral and cerebellar hemorrhage. Apply diagnostic tools in evaluation of acute headache (CT and MRI, role of lumber puncture): understand the natural history and broad treatment strategies (surgery, radiosurgery, interventional radiology as well as treatment of vasospasm) of intracranial aneurysms and vascular malformations differentiate the symptomatology of migraine, cluster, and tension headache and sinusitis headache.

Skills / procedures

- Perform neurologic examination (determine Glasgow coma scale);
- Perform a lumbar puncture for cerebrospinal fluid analysis and placement of lumbar drain;
- Develop interpersonal skills with neurologic patients.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

Oral and maxillofacial surgery

a) AIM

To produce a graduate who is competent in performing extraction of teeth and minor surgeries under both local and general anesthesia, prevent and management complication, acquire knowledge regarding aseptic procedures have reasonable, understanding of management of infections patients and prevention of cross infections, learn about BLS, acquire a reasonable knowledge and understanding of the various diseases, injuries infections occurring in the oral & maxillofacial region and offer solutions to such of those common conditions and Hassan exposure in to the in- patient management of maxillofacial problems and also to acquire reasonable knowledge regarding the surgical principals involved in implant placement and be able to communicate properly and understand medico legal responsibilities.

b) OBJECTIVES

Knowledge

At the end of the course the student must be able to:

- Apply the knowledge gained in the preclinical subjects and related
- Medical subjects like general surgery and general medicine in the
- Management of patients with oral surgical problems.
- Diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
- Decide the requirement of a patient to have oral surgical specialist Opinion or treatment.
- Understand the principles of emergency management of maxillofacial injuries, BLS measures and the medico legal responsibilities and formalities.
- Understand the management of major oral surgical procedures and principles involved in patient management.
- Be able to decide the need for medical/ surgical consultations and the method of doing so.
- Should know ethical issues and have communication ability.
- Should know the systemic and local diseases drugs used and drug interactions.

Course content

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Dentistry Faculty Curriculum - Syllabus

(2017)

ORAL SURGERY (Syllabus 1)				
Discipline			Clinical science and skills	
Department			Oral & maxillofacial surgery	
Subject			Oral surgery	
Course code			DE5 025	
Class			III	
Semester		5	Spring	
Credit		2	Knowledge	
			Clerkship	

Weeks	Hours		Topics	Descriptions
	theore	Practic		
1	1	1	**Preoperative Health Status Evaluation** - Medical History - Physical Examination	
2	1	1	**Prevention and Management of Patients with Compromising Medical Conditions** - Cardiovascular Problems - Pulmonary Problems - Renal Problems - Hepatic Disorders - Endocrine Disorders - Hematologic Problems - Altered Consciousness o Vasovagal Syncope o Orthostatic Hypotension o Seizure - Local Anesthetic Toxicity	

			Management of Patients During and After Pregnancy
3	1	1	**Infection Control in Surgical Practice** - Communicable Pathogenic Organisms 1- Aseptic Techniques
4	1	1	**Principles of Exodontia** - Instruments for Teeth Extraction - Dental Forceps - Dental Elevators - Presurgical Medical Assessment - Pain and Anxiety Control o Local Anesthesia o Sedation - Indications for Removal of Teeth - Contraindications for Removal of Teeth o Systemic Contraindications 2- Local Contraindications
5	1	1	**Principles of Routine Exodontia** - Clinical Evaluation of Teeth for Removal - Radiographic Examination of the Tooth for Removal - Patient and Surgeon Preparation o Chair Position for Extractions
6	1	1	**Principles of Routine Exodontia** - Mechanical Principles Involved in Tooth Extraction - Principles of Elevator and Forceps Use - Procedure for Closed Extraction
7	1	1	**Principles of Routine Exodontia** - Specific Techniques for the Removal of Each Tooth o Maxillary Teeth o Mandibular Teeth

			- Post Extraction Tooth Socket Care
8	1	1	**Principles of More Complex Exodontia** - Principles of Flap Design, Development and Management
9	1	1	**Principles of More Complex Exodontia** - Principles of Suturing
10	1	1	**Principles of More Complex Exodontia** - Principles and Techniques for Open Extractions o Indications for Open Extraction o Technique for Open Extraction of Single-Rooted Tooth
11	1	1	**Principles of More Complex Exodontia** - Techniques for Open Extraction of Multirooted Teeth - Removal of Root Fragments and Tips - Justification for Leaving Root Fragments
12	1	1	**Principles of More Complex Exodontia** - Multiple Extractions - Treatment Planning - Extraction Sequencing - Technique for Multiple Extraction
13	1	1	**Principles of Routine Exodontia** - Mechanical Principles Involved in Tooth Extraction - Principles of Elevator and Forceps Use - Procedure for Closed Extraction
14	1	1	**Principles of Management of Impacted Teeth** - Indications for Removal of Impacted Teeth - Contraindications for Removal of Impacted Teeth

15	1	1	**Principles of Management of Impacted Teeth** - Classification Systems for Mandibular Third Molar Impactions - Root Morphology - Classification Systems for Maxillary Third Molar Impactions
16	1	1	**Principles of Management of Impacted Teeth** - Removal of Impacted Teeth - Surgical Procedures - Perioperative Patient Management

Oral surgery (syllabus 2)			
Discipline		Clinical science and skills	
Department		Oral & maxillofacial surgery	
Subject		Oral surgery	
Course code		DE 6 025	
Class		III	
Semester	6	Fall	
Credit	2	knowledge	1
		Clerkship	1

Weeks	Hours		Topics	]Descriptions
	knowled	clerkship		

1,2,3	3	3	Sterilization and infection control	Introduction, cleansing of instruments, methods of Sterilization operating room decorum post-surgical asepsis. Infection control (Infection, infection control, cross infection, routes of transmission,) Infection control (infectious diseases of concem in dentistry, general principles, waste disposal in a health care sitting)
4,5	2	2	Suturing materials and techniques	Introduction, historical background role of suture in wound healing feature of ideal suture material. Principles of suturing suture methods, knots, suture removal.
6&7	2	2	Endodontic surgery	Indication and contraindications for endodontic surgery classification of endodontic surgery: surgical drainage per radicular surgery (soft tissue management and hard tissue management).
				Corrective surgery (perforation repair periodontal repair) replacement surgery Implant surgery Endodontic microsurgery
8,9,10	3	3	Management of hospital patients.	Essential drugs for surgery, drug enforcement administration schedule of drugs and examples, Emergency drugs required a dental clinic, applied anatomy, sites for intra muscular and intra venous injections techniques. Hospital governance (administrative organization, medical staff membership), hospital dentistry (hospitalizing patients for dental care , care of hospitalized patient management of postoperative problems).
11	1	1	Wound repair	Causes of tissue damage wound repair (epithelialization stages of wound healing) surgical

				significance of wound healing concepts (factors that impair wound healing, healing by primary – secondary and tertiary intention healing of extraction sockrts, bone healing implant osscointegration facial neuropathology of traumatic origin).
12 / 13	2	2	Post-operative care and managements	Post-operative instructions, physiology of cold and heat in the control of pain and swelling, analgesics and anti- inflammatory drugs in the control of pain and swelling. Control of infection – antibiotics, principles of antibiotic therapy prevention of antibiotic abuse, long term post-operative follow up.
14,15, 16	3	3	Hemorrhage , hemostasis and shocks	Hemorrhage (types of hemorrhage and homeostasis). Shock (classification and treatment). Management of anaphylactic shock

MAXILLOFACIAL SURGERY(SYLLABUS 1)			
Discipline		Clinical science and skills	
Department		Oral & maxillofacial surgery	
Subject		maxillofacial surgery	
Course code		DE7 025	
Class		IV	
Semester	7	Spring	
Credits	2	theoretical	1

			practical	1
Weeks	Hours		Topics	Descriptions
	theoretic	practical		
1	1	1	**Orofacial and Neck Infections** - Etiology - Pathways of Odontogenic Infection (Odontogenic Infection, General Course of and Odontogenic Abscess) Microbiology, Medical Therapy, Antibiotic Therapy, Surgical Therapy	
2	1	1	**Orofacial and Neck Infections** - Spread of Orofacial Infection (Routes of spread, Factors influencing spread, Anatomical Considerations in Dent alveolar Infections Evaluation of the Patient with Orofacial Infection (History taking, Physical examination, Clinical features, Radiological feature, General principles of therapy for the management of acute extensive orofacial infection)	
3	1	1	**Orofacial and Neck Infections** - Potential Spaces - Classification of Fascial Spaces - Potential Primary Spaces Related to Upper Jaw - Canine Fossa Involvement (Infraorbital Space) - Buccal Space Involvement Infratemporal Fossa Space	
4	1	1	**Orofacial and Neck Infections** - Potential Primary Spaces Related to Upper Jaw - Submental Space - Submandibular Space Sublingual Space	
5	1	1	**Orofacial and Neck Infections** Secondary Potential Fascial Spaces	

6	1	1	**Orofacial and Neck Infections** Para pharyngeal Spaces
7	1	1	**Ludwig's Angina** - Introduction - Etiology - Pathology - Microbiology - Clinical Features Treatment

8	1	1	**Ludwig's Angina**
			
			- Complications
			  - Involvement of Carotid Sheath
			  - Brain Abscess
			  - Meningitis
			  - Mediastinitis
			Cavernous Sinus Thrombophlebitis

9	1	1	**Osteomyelitis of the Jaw Bones** - Definition - Predisposing Factors - Etiology - Pathogenesis - Microbiology Classification and Staging
10	1	1	**Osteomyelitis of the Jaw Bones** - Acute Pyogenic OML (Acute Supportive) - Chronic OML - Management - Conservative Treatment Surgical Treatment

11	1	1	**Osteomyelitis of the Jaw Bones** - Infantile OML - Actinomycotic OML Tuberculous OML
12	1	1	**Osteoradionecrosis of the Facial Bones** - Introduction - Definition - Incidence - Etiopathology (Pathological Changes) - Radiological Features - Treatment Prevention of ORN
13	1	1	**Maxillary Sinus and its Implications** - Anatomy of the Maxillary Sinus - Physiology Applied Surgical Anatomy
14	1	1	**Maxillary Sinus and its Implications** - Clinical Examination of Maxillary Sinus - Radiology of Maxillary Sinus ○ Extra oral View Intraoral View
15	1	1	**Maxillary Sinus and its Implications** - Odontogenic Sinusitis - Acute Maxillary Sinusitis Chronic Maxillary Sinusitis
16	1	1	**Oroantral Communication and Fistula** - Definition - Etiology - Signs and Symptoms Management

MAXILLOFACIAL SURGERY(SYLLABUS 2)					
Discipline			Clinical science and skills		
Department			Oral & maxillofacial surgery		
Subject			maxillofacial surgery		
Course code			DE8 025		
Class			IV		
Semester		8	Fall		
Credits		2	theoretical	1	
			practical	1	

Weeks	Hours		Topics	Descriptions
	theoret	practic		
1	1	1	**Maxillofacial Trauma**	- Basic Principles for the Management of Maxillofacial Injuries - General Care of the Injured Patient - Basic ABCs to be Followed
2	1	1	**Maxillofacial Trauma**	- Soft Tissue Injuries - Wound Management - Abrasion - Contusion - Hematoma - Lacerated Wound - Incised Wound - Penetrating and Punctured Wound - Crushed Wound - Gunshot Injuries - Treatment

			- Factors Modifying Wound Healing
3	1	1	**Injuries of the Maxillofacial Skeleton** - Introduction - Etiology of Maxillofacial Injuries - Local Clinical Examination of Maxillofacial Injuries
4	1	1	**Injuries of the Maxillofacial Skeleton** - Fractures of the Jaw Bones - Different Types of Dental Wiring Techniques o Essig's Wiring o Gilmer's Wiring o Risdon's Wiring o Ivy Eyelet Wiring o Col. Stout's Multiloop Wiring
5	1	1	**Fractures of the Middle Third of the Facial Skeleton** - Middle Third of the Facial Skeleton - Anatomy - Applied Anatomy
6	1	1	**Fractures of the Middle Third of the Facial Skeleton** - Classification - LeFort I - LeFort II - LeFort III - Management of LeFort I, II and III
7	1	1	**Fractures of the Zygomtic Complex** - Applied Anatomy of Zygomatic Complex - Classification of Zygomatic Complex Fracture - Signs and Symptoms - Management
8	1	1	**Fractures of the Zygomtic Complex** - Complications o Diplopia o Enophthalmos o Blindness
9	1	1	**Mandibular Fractures** - Anatomy of the Mandible - Areas of Weakness - Muscle Action

			-
10			Mandibular fracture • Factors Influencing Displacement of a Mandibular Fracture • Classification of Mandibular Fracture
11	1	1	**Mandibular Fractures** - Management of Mandibular Fractures in Children - Management of Mandibular Fractures in Adults - Surgical Approaches to the Mandible - Bone Plating in Mandibular Fractures
12	1	1	**Fracture of the Condylar Process and Its Management** - Classification of Condylar Fractures - Etiological Factors Leading to Condylar Fractures - Diagnostic Findings of Condylar Fractures - Treatment of Condylar Fractures
13	1	1	**Temporomandibular Joint Disorders** - Anatomy of the Temporomandibular Joint
14	1	1	**Temporomandibular Joint Disorders** - Classification - Dislocation, Subluxation, Hypermobility of Temporomandibular Joint
15	1	1	**Surgical Approaches to Mandibular Condyle and Its Neck** - Postauricular Approach - Endaural Approach - Submandibular (Risdon) Approach - Postramal (Hind) Approach - Preauricular Approach - Surgical Approach via Popowich Incision - Coronal Approach
16	1	1	**Ankylosis of the Temporomandibular Joint** - Introduction - Classification - Etiopathology and Pathogenesis - Diagnosis - Clinical and Radiographic Manifestations - Management - Complications during Temporomandibular Joint Ankylosis Surgery

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MAXILLOFACIAL SURGERY(SYLLABUS 3)				
Discipline			Clinical science and skills	
Department			Oral & maxillofacial surgery	
Subject			maxillofacial surgery	
Course code			DE9 025	
Class			V	
Semester		9	Spring	
Credits		2	theoretical	1
			practical	1

Weeks	Hours		Topics	Descriptions
	theoretic	practical		
1	1	1	**Cysts of the Orofacial Region**	- Introduction - Pathogenesis of Cyst Formation - Classification of Cysts of Orofacial Region

2	1	1	**Cysts of the Orofacial Region**	- Intraosseous Cysts
				  ○ Primordial Cyst
				  ○ Dentigerous (Folicular) Cyst
				  ○ Developmental Lateral Periodontal Cysts

3	1	1	**Cysts of the Orofacial Region**	- Intraosseous Cyst of Nonodontogenic Origin
				  ○ Developmental Fissural Cysts
				  ○ Median Mandibular Cyst
				  ○ Median Palatal Cyst

			○ Globulomaxillary Cyst ○ Nasopalatine Duct Cyst
4	1	1	**Cysts of the Orofacial Region** - Clinical and Radiographic Features - General Principles of Treatment of Cysts of the Oral Cavity - Operative Procedures - Surgical Technique
5	1	1	**Cysts of the Orofacial Region** - Nonodontogenic Nonepithelial Bone Cysts (Cyst like Conditions) ○ Solitary Bone Cyst ○ Stafne's Idiopathic Bone Cavity ○ Aneurysmal Bone Cyst
6	1	1	**Diseases of the Salivary Glands** - Anatomy of Salivary Glands - Physiology of Salivary Glands - Classification of Salivary Gland Diseases
7	1	1	**Diseases of the Salivary Glands** - Salivary Gland Dysfunction (Sialorrhea, Xerostomia) - Sialolithiasis - Sialadenitis
8	1	1	**Diseases of the Salivary Glands** - Cysts of the Salivary Glands (Mucocele, Ranula)
9	1	1	**Diseases of the Salivary Glands** - Tumors of the Salivary Glands - Benign Tumors - Malignant Tumors
10	1	1	**Diseases of the Salivary Glands** - Necrotizing Sialometaplasia - Sialadenosis
11	1	1	**Benign Tumors of the Jaw Bones** - Odontogenic Tumors - Nonodontogenic Tumors - Clinical Examination of the Lesion - Principles of Surgical Management of Jaw Tumors

12	1	1	**Benign Tumors of the Jaw Bones** - Ameloblastoma, History, classification, clinical features, radiographic findings, - Histopathology, treatment
13	1	1	**Odotogenic tumors of various origin** tumors arising from Odotogenic epithelial without Odotogenic ectomesenchyme tumors arising from Odotogenic epithelial with Odotogenic ectomesenchyme with or without dental hard tissue formation.
14	1	1	**Tumors arising from Odotogenic epithelial** with or without inclusion of Odotogenic epithelium nonodontogenic lesions of the jaws Nonneoplastic bone lesions keratocystic Odotogenic tumor.
15, 16	2	2	**Carcinoma of the oral cavity** Lymphatic spread, TNM classification, staging Biopsy-type, filing of histopathology request from outline of management of squamous cell carcinoma: surgery, radiation and chemotherapy, role of dental surgeons in the prevention and early detection of oral cancer.

MAXILLOFACIAL SURGERY(SYLLABUS 4)			
Discipline		Clinical science and skills	
Department		Oral & maxillofacial surgery	
Subject		maxillofacial surgery	
Course code		DE10 025	
Class		V	
Semester	10	fall	
Credits	2	theoretical	1
		practical	1

Weeks	Hours		Topics	Descriptions
	theoretic	practical		
1,2,3	3	3	Implant and Osseo integration	Evolution of dental implant material, types of implants successful implant biological considerations for implant – tissue integration. Classification of implant, classification of the bone, endosteal implant, one stage and two stage implant surgeries assessment of bone for implant placement. Component of implant, implant for completely edentulous patient, loading concept, implant failure, peri-imolant, comparison of normal teeth and implant, complications.
4,5,6	3	3	**Pre-prosthetic surgery** Objective of the pre prosthetic surgery, pathophysiology of edentulous bone loss characteristics of ideal denture base area Aims of pre prosthetic surgery, treatment planning and exam Alveolar ridge correction: (alveolectomy, aleoloplasty). Excision of tori, removal of tori, soft tissue surgeries for the correction of alveolar ridge, frenectomy ridge extension procedure.	
7,8	2	2	**Orthogenetic surgery** Introduction, Diagnosis and treatment planning Perisurgical orthodontic phase Orthodontic surgery (osteotomy procedures)	
9	1	1	**Surgical reconstruction of the jaw** defects (Grafts) Biologic basic of reconstruction, types of grafts Assessment of patient in need of reconstruction.	

10,11	2	2	**Lasers in oral and maxillofacial surgery**, piezosurgery. Surgical diathermy (cautery, electrocautery), cryosurgery.
12	1	1	**Myofascial Pain Dysfunction Syndrome** - Introduction - History - Clinical Features - Etiology - Signs and Symptoms
13,14	2	2	**Trigeminal Neuralgia** - Definition - Etiology and Pathogenesis - General Characteristics - Clinical Characteristics - Diagnosis Management ○ Conservative Management ○ Surgical Management
15,16	2	2	**Motor disturbance of the face and jaw** • ethiology and classification • evaluation of facial nerve function • bell's palsy • clinical features and managements

Textbooks and reference books recommended (last Editions)

1. S.M. Balaji. (2012). Oral and Maxillofacial Surgery.
2. Vinod Kapoor. (2010). Oral and Maxillofacial Surgery.
3. Anil Malik Neelima. (2011) Oral and Maxillofacial Surgery.
4. Fragiskos D. Fragiskos. (2007). Oral Surgery.
5. James R. Hupp, Edward Elis Iii, Myron R. Tuker. (2013). Contemporary Oral And Maxillofacial Surgery. 6th ed.

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Dentistry Faculty Curriculum - Syllabus

(2017)

OTHORHINOLARYNGOLOGY

Goals

Adequate knowledge , skills and attitude for optimum treatment (including emergencies), rehabilitation of common otorhinolaryngology disorders and assessment of the need for referral to specialized care.

Learning Objectives:

A-knowledge

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

- Examine and diagnosis common ear, nose and throat problems;
- Suggest common investigation procedures and their interpretation to diagnose and manage the patient;
- Treat the common ear , nose and throat and neck problem at primary care center, while treating the patient;
- He should know the rational use of commonly used drugs with their adverse effects.
- Train to perform various minor surgical procedures like ear syringing nasal packing and biopsy procedures;
- Assist common surgical procedures such as tonsillectomy, mastoidectomy, septoplasty, tracheostomy and endoscopic removal of foreign bodies.

B-skills

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

- Proper ear , nose and throat examination;
- Discussion on common ENT conditions like deviate nasal septum, nasal polyps, cancer of larynx;
- Oriented to commonly used ENT instruments and X-Ray in ENT practice;
- Exposed to commonly done OPD procedures like nasal packing, ear packing, cautery etc.
- Exposed to selective operative procedures like tracheostomy, tonsillectomy, septoplasty,nasal polypectomy etc.

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OTORHINOLARYNGOLOGY			
Discipline		Clinical science and skills	
Department		ENT	
Subject		ENT	
Course code		DE7 027	
Class		IV	
Semester	7	Spring	
Credit	2	knowledge Q	1

		Clerkship	1
Weeks	Hours	Topics	Descriptions
	knowlg / skills		
1	1 / 1	Anatomy Of The Ear	Auricle, external auditory canal & tympanic membrane, middle, ear, inner ear mechanism of hearing and sound transmission.
2	1 / 1	Symptomatology of aural diseases	Otalgia, otorrhagia, irritation, otorrhea, tinnitus.
3	1 / 1	Symptomatology of the ear	Deafness (definition, trauma, inflammatory, tumors.
4	1 / 1	Diseases of external ear auricle& external auditory canal.	Congenital trauma inflammatory, tumors.
5	1 / 1	Diseases of external ear & tympanic membrane.	Wax, foreign bodies, keratosis, atresia and stenosis.
6	1 / 1	Diseases of the middle ear	Acute supportive otitis media, acute necrotizing otitis media serous, otitis media.
7	1 / 1	Anatomy and physiology of nose and Para nasal sinuses.	External nose, nasal cavity, maxillary sinuses frontal sinuses, ethomidalsinuses, sphenoid sinuses.

8	1	1	Rhinitis & epistaxis	Physiology of nose and Para nasal sinuses.
9	1	1	sinusitis	Pathogenesis, microbiology, clinical features, treatment oriental fistula, SCC of maxillary sinuses.
10	1	1	Facial fracture	Types, clinical feature, investigation, treatment.
11	1	1	Anatomy and physiology of pharynx.	Nasopharynx, oropharynx, laryngopharynx, adenoid hypertrophy.
12	1	1	Acute tonsillitis, chronic tonsillitis acute pharyngitis & chronic pharyngitis.	Acute tonsillitis, chronic tonsillitis acute pharyngitis & chronic pharyngitis.
13	1	1	Deep neck space infections(Ludwig's angina),	Surgical anatomy of the neck, causes, treatment.
14	1	1	Anatomy & physiology of larynx	Anatomy and physiology of larynx.
15	1	1	Stridor and acute laryngitis	Types of stridor , causes of stridor, acute laryngitis, sign and symptoms, treatment.
16	1	1	Tumors of the larynx & tracheostomy.	Benign & malignant tumors of larynx, definition applied anatomy of the trachea, classification functions of tracheostomy, indications contraindications, procedures.

Textbooks and Reference Books Recommended (Last editions)

- Cumming 'S Otolaryngology, Head & Neck Surgery, Paul W.Flint, Bruce H.Haughy.
- Essential Otolaryngology, Head & Neck K, J, Lee.
- Scott- Brawn's Otolaryngology, David Adams & Michael Cennamond.
- Key Topics In Otolaryngology, N j Roland, Rdr. Mcrae, AW.Mc Combe.
- Ballenger 'S Otolaryngology, Head & Neck Surgery James B. Snow- Ashley Wackym.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

PEDIATRIC & PREVENTIVE DENTISTRY

Goals

The goals of the course are to prepare the students to diagnose, evaluate, treatment plan, and treat or refer the oral diseases and conditions of children and also adolescents.

Course objectives:

The student will be able to:

- Understand the principles of growth and development.
- Understand the value of radiographs for children, and be familiar with proper radiographic technique for the child patient.
- Understand the basic principle of operative dentistry for primary and young permanent teeth and perform various procedures including amalgam composite and stainless steel crowns.
- Assess and treat pulpal problems in primary and young permanent teeth.
- Understand oral surgical techniques for children and the use of topical and local anesthetics for the control of pain.
- Understand pain and anxiety control measures including behavioral management, use of drugs and medications and hospital treatment.
- Understand the etiological factors and treatment methods for periodontal diseases in children.
- Describe the etiology and treatment procedures for occlusion and space maintenance problems.
- Recognize and understand treatment and preventive procedures for Dental injuries to primary and permanent teeth including splinting devices for avulsed teeth and restoration of fractured anterior teeth.

Course content

PEDLATRIC & PREVENTIVE DENTISTRY (Syllabus 1)	
Discipline	Clinical science and skills
Department	Pediatric & preventive dentistry
Subject	Pediatric dentistry

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

Course code		DE7 028	
Class		IV	
Semester	7	spring	
credit	2	knowledge	1
		Clerkship	1

Weeks	Hours		Topics	Descriptions
	knowlg	skills		
1	1	1	Introduction to pedodontics and preventive dentistry.	Definition, scope, objective and importance.
2	1	1	Development of dentition and jaws.	Definition, tooth development stages, deciduous dentition, permanent dentition, development of maxilla and mandible development of occlusion.
3	1	1	Eruption and shedding of primary teeth.	Clinical eruption stages, theories of eruption, definition, resorption, and time.
4	1	1	Delayed eruption of teeth	Local and systemic factors.
5	1	1	Dental Anatomy and Histology	Anatomical structure of primary and permanent teeth Enamel, dentin cementium Pulp, PDL.
6	1	1	teething	Definition, clinical manifestation & treatment.
7	1	1	Morphology of primary and permanent teeth.	Introduction, morphological differences between primary and permanent teeth, skills application of understanding tooth morphology, importance of first permanent molar.
8	1	1	Congenital abnormalities of teeth in children	Definition, classification, clinical features & management.
9	1	1	Tooth development disturbances in children	Number, size & shape disturbances of teeth in children.
10	1	1	Structural defects of development teeth.	Amelogenesis, dentinogenesis & cementogenesis imperfecta enamel hypoplasia, types, clinical features & treatment.

11	1	1	Child psychology	Definition, theories of child psychology psychological development of children with age, factors affecting child‘s reaction to Dental treatment.
12	1	1	Behavioral management .	Definition types of behavioral encounter in Dental clinic, non-pharmacological and pharmacological methods of behavior management.
13	1	1	Case History Recording	Principle of examination, diagnosis & treatment planning, Dental radiology related to pedodontics.
14	1	1	Oral surgical procedures in children	Indications and contra- indications of extractions of primary and permanent teeth in children, methods and techniques.
15	1	1	Local anesthesia	Knowledge of local anesthesia, types indications, contra indication complications & principles.
16	1	1	Space maintainers	Fixed and removable SM, knowledge of functional appliances, intra- oral and extra- oral appliances.

PEDIATRIC & PREVENTIVE DENTISTRY (Syllabus 2)				
Discipline			Clinical science and skills	
Department			pediatric & preventive dentistry	
Subject			pediatric & preventive dentistry	
Course code			DE8 028	
Class			IV	
Semester		8	Fall	
credit		2	knowledge	1
			skills	1
٧٤	Hours			

	knowlg	skills	Topics	Descriptions
1	1	1	Oral habits in children	Definition, etiology & classification clinical features of digit sucking, tongue trusting, mouth breathing & various other secondary habits, management of oral habits in children.
2	1	1	Space maintainers	Fixed and removable SM, knowledge of functional appliances, intra- oral and extra- oral appliances.
3	1	1	Preventive dentistry for children	Definition, Principles, Types Of Preventive Approach To Carizzes Control Mechanical Aids, Chemotherapeutic Aids.
4	1	1	Preventive dentistry for children	Parent counseling, definition, objective, instructions to the parents, education of parents in various aspects of dentistry.
5	1	1	Pit and fissure sealants.	Definition, indication, contra- indication, age related, method.
6	1	1	Fuorides	Historical background, systemic & topical fluorides, mechanism of action, fluoride therapy technique.
7	1	1	Fluoride toxicity	Definition, classification, management, Defluorides, technique.
8	1	1	Dental caries	Historical background, definition, etiology & pathogenesis caries pattern in primary, young permanent and permanent teeth in children.
9	1	1	Rampant caries early childhood caries & extensive caries.	Definition etiology, pathogenesis, clinical fetures, complications and management.
10	1	1	Role of diet and nutrition in Dental caries.	Definition, classes of nutrients, diet and Dental caries, diet counseling.
11	1	1	Pediatric operative dentistry	Principle & concepts of Pediatric operative dentistry.
12	1	1	Pediatric operative dentistry	Procedures required for restoration(isolation, rubber dam, additional isolation Aids) Modification of cavity preparation in primary teeth, young permanent first molars, matrices & wedges used for restoring the tooth.

13	1	1	Pediatric operative dentistry	Modern Restorative Materials And Techniques.
14	1	1	Pediatric operative dentistry	Semi- permanent restorations (polycarbonate crowns, stainless steel crown) factors to be considered in preoperative evaluation, clinical procedure.
15	1	1	Pediatric Esthetics in Dentistry	Esthetic restorations of primary anterior teeth, full coronal restorations advanced pediatric Esthetic.
16	1	1	Children with special health care needs.	Definition classification special considerations in detal management.

PEDIATRIC & PREVENTIVE DENTISTRY (Syllabus 3)			
Discipline		Clinical science and skills	
Department		pediatric & preventive dentistry	
Subject		pediatric & preventive dentistry	
Course code		DE9 028	
Class		V	
Semester	9	spring	
credit	2	knowledge	1
		skills	1

Weeks	Hours		Topics	Descriptions
	knowlg	skills		
1	1	1	The pulp – Dentin complex in primary and young permanent teeth.	Fundamental of dentistry / pulp histology, Dentinogenic response to injury, reactions to Dental caries, reactions to Dental procedures, reactions to Dental material.
2	1	1	Clinical considerations of root canal morphology in primary teeth.	Morphology of primary anterior teeth & primary molars for endodontic.

3	1	1	Principles and diagnosis of pulp diseases in children.	History and characteristics of pain, clinical examination, radiographic examination of pulp diseases in children.
4	1	1	Pulp pathology in primary & young permanent teeth	Classification & Clinical manifestations of various pulp diseases in primary and young permanent teeth.
5	1	1	Pulp therapy for primary dentition	Pulp capping, Pulptomy, Formocresol pulpotomy and alternatives to Formolcresol pulpotomy(Gluteraldehyde, fericsalfate, MTA, Laser, Electrosurgery).
6	1	1	Non-vital pulp therapy in primary teeth	Pulpectomy in primary teeth, Access opening, Root filling materials for primary teeth, Follow-up after pulpectomy.
7	1	1	Pulp therapy in young and immature Permanent teeth	Definition, Apexogenesis & Apexification (Indications, Contraindications & techniques).
8	1	1	Gingival & periodontal diseases in children[1]	Introduction, Differences between Child and adult periodontium, Physiologic Gingival changes associated with tooth eruption, Gingivitis in children, Scurvy, Developmental Disorders of Gingivae, etiology, classification & treatment-
9	1	1	Gingival & periodontal diseases in children[2]	Definition, Characteristics of periodontal diseases in children, differentiation diagnosis of Dental abcess of primary teeth with other swellings of mouth in children classification & treatment.
10	1	1	Lesions of Oral Mucosa in Children[1]	Viral infections affecting oral mucosa (Herpes simplex, varicella Zoster infection, Herpangina, Measles, Mumps).
11	1	1	Lesions of Oral Mucosa in Children[2]	Congenital syphilis, Tuberculosis, candidiasis, Aphtos ulcers, traumatic ulcers.
12	1	1	Management of Medically comprised patients 1	Heart Disease, Leukemia, Diabetes Mellitus, Respiratory diseases.
13	1	1	Management of Medically comprised patients2	Sickle-cell anemia, Hemophilia, Dental Procedures with high risk for bleeding, AIDS.
14	1	1	Traumatic Injures to Anterior Teeth in children 1	Trauma on tooth germ Components, Trauma on Detnin-Pulp Complex, Etiology, Mechanism of Dental Injuries, Classification of traumatic Injuries, Exmination and Diagnosis, Management.
15	1	1	Traumatic Injures to Anterior Teeth in children2	Luxation, classification & Management.
16	I	1	Setting up of pedodontic clinic	Initial Communication with parents, Dental Clinic Environment, Infection control.

Textbooks and Reference Books Reeommended Last edition)

1- Text Book of Pedodontics, Shobha Tandon, 2naedition, 2008.
2- Mc Donald and Avery's, Dentistry for Child and Adolesent. 3rd edition, 2010.
3- Principles and Practice of Pedodontics, Arathi Rao, 3rd edition, 2012.
4- Text Book of Pediatric Dentistry, Nikhil Marwah, 2011.
5- Pediatric Dentistry,Principles and Practice^1*1 edition, Ms Muthu - N Sivakumar.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

CLINICAL ANESTHESIOLOGY

Goals

- The purpose of anesthesia training for medical students is not to make anesthesiologists out'of all medical students, but to give students knowledge of basic concepts used in anesthesia and to teach them skills of airway management and vascular access that may be useful to them in other areas of medical practice.
- The physician should have a good knowledge of what the anesthetic will do to the patient, even though the physician des not administer it him or herself.
- The student, therefore, should observe and study the physiological changes which take place in the anesthetized patient. When these changes are of sufficient magnitude, they become complications or toxic effects. The student should learn what these are, how they are caused, and how they may present and be treated.
- Emphasis should be laid on good preoperative preparation. Students should learn basic techniques of maintaining a clear airway and giving assisted or artificial ventilation.
- They should also learn how to position the patents head, how to hold the chin and how to insert an airway. Medical students should learn enough about an anesthetic machine.
- In addition to these technical accomplishments, the student may have the opportunity to administer either general or spinal anesthesia under the direct and constant supervision of a member of the staff.

Learning objectives

A-Knowledge

The students, at the end of their posting should be able to:

- Introduce principles of acute medicine as it is practiced in managing the anesthetized patient in the operating room and in managing the patient in the recovery unit;
- Discuss and demonstrate principles of applied physiology and applied pharmacology;
- Simulation on Human-Patient Simulator (HPS) is ideal to teach many aspects of applied physiology and pharmacology;
- Review principles of resuscitation (cardiopulmonary);
- Teach care of the unconscious patient, including airway and ventilation management;
- Teach management of blood ,fluid, electrolyte balance , and metabolic disturbances in the surgical patient, with specific emphasis on those derangements which are encountered in the anesthetized patient;
- Review management of acute and chronic pain problems;
- Introduce concepts of drug interactions, especially as they apply to patients receiving anesthesia;
- Demonstrate the evaluation of patients relative to surgical and anesthetic risk; *
- Teach appropriate preoperative preparation of patients subjected to surgery and artesthesia;
- Introduce the various techniques of anesthesiology;
- Pharmacology of muscle relaxant, application and monitoring;

- Pharmacology: Basic / Applied of local anesthetics: Various types of blocks advantages / Problems with each. Descriptions for same main blocks. Local infiltration,brachial plexus, caudal etc.

B-Skiils (logbook)

- Maintenance of clear airway
- Bag Mask Ventilation
- Starting a venous access
- Cardiopulmonary Resuscitation-CPR(Basic and advanced)
- Giving a simple infiltration block, Some nerve block
- Performing a lumbar puncture-LP
- I/V Cannulation
- Oropharyngeal/Nasopharyngeal Airway insertion
- Bag Mask Ventilation first on Manikin
- Mask Ventilation in unconscious patient
- Attaching pulse oximeter,BP cuff and electrocardiography(ECG) electrodes and setting up a monitor
- Demonstration of epidural/nerve block
- LMA (Laryngeal Mask Airway) insertion demonstration
- Intubation demonstration
- CPR on manikin

Course content

local anesthesiology

Discipline		Clinical Science and Skills	
Department		Anesthesia	
Subject		local Anesthesia	
Course code		DE 5 026	
Class		III	
Semester	5	Spring	
Credits	2	Knowledge	1
		Skills	1

weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions

1	1	1	**Neurophysiology** - Desirable Properties of Local Anesthetics - Fundamentals of Impulse Generation and Transmission - Mode and Site of Action of Local Anesthetics - Active Forms of Local Anesthetics c- Kinetic of Local Anesthetic Onset and Duration of Action	
2	1	1	**Pharmacology of Local Anesthetics** - Pharmacokinetics of Local Anesthetics Systemic Actions of Local Anesthetics	
3	1	1	**Pharmacology of Vasoconstrictors** - Chemical Structure - Modes of Action - Dilutions of Vasoconstrictors - Pharmacology of Specific Agents (epinephrine, norepinephrine) - Selection of a Vasoconstrictor	
4	1	1	**Clinical Action of Specific Agents** - Selection of a Local Anesthetic - Duration - Maximum Doses of Local Anesthetics - Ester-Type Local Anesthetics (Procaine HCL, Propoxycaine HCL, Procaine HCL + Propoxycaine HCL) - Amide-Type Local Anesthetics (Lidocaine HCL, Mepivacaine HCL, Prilocaine HCL, Articaine HCL, Bupivacaine HCL) - Anesthetics for Topical Application	
5	1	1	**The Syringe, Needle and Cartridge** - Types of Syringes (Nondisposable Syringes, Disposable Syringes, Safety Syringes) - Care and Handling of Syringes - Problems (Leakage during injection, Broken cartridge, Bent harpoon, Disengagement of the Harpoon from the Plunger during aspiration, Surface Deposits) - The Needles (Types, Anatomy, Gauge, Length, Care and Handling, Problems, Recommendations) d- The Cartridge (Contents, Care and Handling, Problems, Recommendations)	5
6	1	1	**Physical and Psychological Evaluation** - Goals of Physical and Psychological Evaluation	6

			- Physical Evaluation (Medical History Questionnaire) Physical Examination	
7	1	1	**Basic Injection Technique**	7
8	1	1	**Anatomic Consideration** - Trigeminal Nerve - Osteology: Maxilla - Osteology: Mandible	8
9	1	1	**Techniques of Maxillary Anesthesia** - Introduction - Supraperiosteal (Infiltration) Injection - Posterior Superior Alveolar Nerve Block - Middle Superior Alveolar Nerve Block	9
10	1	1	**Techniques of Maxillary Anesthesia** - Anterior Superior Alveolar Nerve Block (Infraorbital Nerve Block) - Palatal Anesthesia - Greater Palatine Nerve Block - Nasopalatine Nerve Block - Local Infiltration of the Palate	10
11	1	1	**Techniques of Mandibular Anesthesia** - Inferior Alveolar Nerve Block - Buccal Nerve Block - Mental Nerve Block	11
12	1	1	**Techniques of Mandibular Anesthesia** - Incisive Nerve Block - The Gow-Gates Technique - Vazirani-Akinosi Closed-Mouth Mandibular Block	12
13	1	1	**Supplemental Injection Techniques** - Periodontal Ligament Injection - Intrapulpal Injection - Mandibular Infiltration in Adults	13
14	1	1	**Local Complications of Local Anesthesia** - Needle Breakage - Prolonged Anesthesia or Paresthesia - Facial Nerve Palalysis - Soft Tissue Injury	14
15	1	1	**Local Complications of Local Anesthesia** - Hematoma - Pain on Injection - Burning on Injection - Infection - Edema - Sloughing of Tissues	15

			- Postanesthetic Intraoral Lesions	
16	1	1	**Systemic Complications** e- Overdose and Allergy	16

General anesthesiology

Discipline		Clinical Science and Skills	
Department		Anesthesia	
Subject		Anesthesia	
Course code		DE 6 026	
Class		III	
Semester	6	Spring	
Credits	2	Knowledge	1
		Skills	1
		2	

weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1&2	1	1	Introduction	Anesthesia& Pain – Anesthesia History
	1	1	Evaluation of patient	Visit – Risk (P.S) The A.S.A Scoring system).
3	1	1	Premedication	Premedication Drugs, Goal of permedication.
4	1	1	Intubation	Endotracheal Intubation, Indication, Laryngoscope, Technic of intubation, Difficult intubation.
5&6	1	1	Clinical Anesthesia	Technic of Anesthesia, Steps and sign in general Anesthesia.
	1	1	Ether	Definition of Ether, Technic and Administration, Side effect Contraindication.
7	1	1	Nitrous oxide+ Halothane	Definition of N20, Pharmacology property of N20, Use of N20 in anesthesia, Definition of Halothane, Effect of Halothane in Anesthesia, Definition of Methoxyfluran - Enflurane - Isoflurane - Desflurane and Sevoflurane.

8	1	1	IV Anesthetics(Thiopental)	Intravenous Anesthesia, Definition, Effect, Complication.
9	1	1	Ketamine + propofol	Definition of Ketamine, Effect, Indication and contraindication, Definition of Propofol, Effect, Clinical use.
10	1	1	Curare	Definition, Depolarization of Curare, Non Depolarization Curare D-Tubocurarine - Gallamin - Povalon, Antagonist of Non Depolarizing Curare.
11	1	1	Local Anesthetics (SA)	Definition, Advantage and dis advantage, Lidocaine Bupvacaine, Toxicity of local Anesthesia.
12	1	1	Neuroleptic analgesia	Definition, Method, Stage of Neuroleptic Analgesia.
13	1	1	IV fluid therapy	Definition, Goal, Fluid and electrolyte, Replacement of fluid and electrolyte, Intravenous Solution.
14	1	1	Tarns fusion	Definition , Rolls of Transfusion-Indication - Types Transfusion.
15	1	1	CPR	Definition, Ethology,-Cardiopulmonary diseases, Drugs.
16	1	1	Respiratory failure	Definition, Clinical Course of Hypoxia, Tracheostomy.

Teaching-Learning Methodology

Teaching and learning in anesthesiology should be guided through a series of posting in which the emphasis is laid on skills hands -on experience.

Human patient simulator (HPS) isused for better skill development and to reduce the danger to the patients during the learning curve of student. To allow repeat practice according to ability of the student to reach the level of competence needed.

Logbook for Skills

- I/V Cannulation-5times
- Oropharyngeal/Nasopharyngeal airway insertion -lOtimes
- Bag Mask Ventilation first on Manikin-5times
- Mask Ventilation in unconscious patient -5times
- Attaching pulse oximeter,BP cuff and ECG
- Applying electrodes and setting up a monitor-5times
- Lumbar puncture -2times
- Infiltration block -2times
- Demonstration of epidural/nerve block -2times each
- LMA(Laryngeal Mask Airway) insertion demonstration -5times…

Textbooks & reference Books Recommended(last editions)

- Handbook of Local Anesthesia, Stanely F. Malamed, 6th/e, 2012, Elsevier, California, USA
- Fundamentals of Anesfhesia,Hugh C HemmingsMD,PhD.
- Clinical Anesthesiology,G,Edward Morgan, Jr.
- Morgan &Mekhails ,Clinical anesthesiology, John F.Botterworfh,David C Macky.
- Anesthesiology,David E.Longnecker.
- Miller's Anesthesiology.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

FORENSIC ODONTOLOGY

Goals& objectives

Practice the under graduate dentistry student effeciently and effectively, backed by scientific and skills knowledge and skill.

Exercise empathy and a caring attitude and maintain expected ethical standardrequirement for dentistry undergraduate students.

Willing to share the knowledge and skills with any learner, junior or colleagues.

Develop the faculty for critical analysis and evaluation of various concepts and views, to adopt the
most rational approachs.

Course content

Discipline		Clinical Science and Skills	
Department		Forensic Medicine & Medical Ethics	
Subject		Forensic Odontology	
Course code		DE7 029	
Class		IV	
Semester	7	Spring	
Credits	2	Knowledge	1
		Skills	1
		2	

weeks	Hours		Topics	Descriptions
	Knowledge	Skills		
1	1	1	Forensic Sciences	Definition, what is a Forensic Dentist?, Goals, Relations to other Sciences , Principal Terms, Experthesses , Types & forms of forensic Examination , Methods of Forensic Medicine, Terminology, Experts of Forensic Medicine, Rights and Responsibility of Expert, report's form, Historical Aspects, Events and Advances, Most famous contributor to Forensic sciences.
2	1	1	Thanatolog	S Definition, classification, Definition .Stages & Types of Death, Early Modifications of the body Lat modification of the body,Destructive processes of the body(Putrefaction, destructive of the body by animals, insects and plants) preservation

				processes of the body.
3	1	1	Forensic Traumatology	Definition, Traumatism, Classification; Excoriation Echymosis, Wounds, Fracture, Joint Dislocation, Joint anathrosis. Actions in death causing injuries Causes of Death in Mechanical InjuriesFirearm injuries, Definition, Classification, Fire Factors, Mechanism of bullet effects.
4	1	1	Asphyxia	Definition, classification of Hypoxia, stages of Asphyxia, External and Internal sign of Asphyxia, Hanging, Strangulation, Smothering, Compression of chest and abdomen, Airway obstruction, Oral and Nasal Obstruction, Drowning.
5	1	1	Forensic Odontology and its Applications	Dental Identification, type of identification, Bite Marks, Identification, why a dentist for Identification, comparative Dental Identification, Principles and Phases of Dental Identification, Phases, Reconstructive postmortem, Dental profile(age, sex, role of skull and Mandibula, classification of Methods, race) Opinion from forensic anthropologists, other Methods of Dental Identification, Role of DNA Molecule in Identification, the DNA Molecule.
6	1	1	Dental Records and Forensic Photography	Introduction,What is a patient Record?Creation and maintenance of a Patient Record, Long term storage of Dental Record, Access to Patient Records, Forensic Uses of Patient Records, Confidentiality of Records, Forensic Photography, Need for the photography, The technical considerations, The basic optics of photographic process, Handling of photographic evidence.
7	1	1	Oral and Maxillofacial	Radiology and Forensic Sciences, Historical Perspectives, Dental Radiology and Forensic Sciences, Scope of Forensic Radiology, Oral and maxillofacial Radiology in person Identification, Radiographic anatomic landmarks of the jaws, Radiological anatomical Features and Spatial Relationship of the teeth, Radiography in mass Disaster Victim Identification, Age Estimation and Dental radiology, Limitations of Dental radiography.
		1	Age Estimation and Dental methodology	Historical perspective, Need for Age Estimation, Age

8	1			changes in oral cavity, Soft tissue changes, Dental changes, Hard tissue changes, Chronology of the human dentition, Various Methods for age Estimation, Estimation of age y skeletal means, Estimation of Age by Teeth.
9	1	1	Bite Marks	Historical aspect, Skin as registration materials for Bite Marks, Classification of various Bite Mark systems, Component injuries seen in bite marks, Location of bite Marks, The Classic appearance, Variations of the prototypical Bite Mark.
10	1	1	Bite Marks	Bite Mark Recognition, Aging/changes over time, Variable Affecting Appearance of Bite Marks, Range of Bite Mark Severity The Bite Mark, Distortion in human Bite Marks, General Principles Behind bruises, Forensic Physical Comparison of Exhibits, Biological Techniques for Bite Mark comparisons, Patterns of Child and Bite Differences in Adults, Bites, Bite Wound Infections, Prevention and Management.
11	1	1	Mass Disaster victim Identification and Dentist's Role	What is a Disaster and a Mass Fatality Incident, Kind of Disaster, Need for the Preparedness, The Way a Dentist can be of Help in case need Arises in disaster Management, How Dental Auxiliaries can Help.
12	1	1	Mass Disaster victim Identification and Dentist's Role	Role of Dentists in Mass Disaster Forensics, Evidence Protocols, Phases of Response, 1st Responder, Stabilization, Resolution, Resolution of Site to Normal, The Standard Operating Procedure
13	1	1	Mass Disaster victim Identification and Dentist's Role	Evidence Collection and Preservation, Dental Records and mass Disasters, Dental Radiography in Mass Disasters, Field Equipment for Mass Disasters, Commingled, Skeletonized, Carbonized and Mutilated Remains.
14	1	1	Child Abuse, Neglect and Domestic Violence: Role of a Dentist	Child abuse , Physical Abuse, Sexual Abuse, Emotional Abuse and Girl Child Neglecting, Bruises, Characteristic Bruises,Conditions that may be confused with abusive Bruising.
15	1	11	Forensic Toxicology	Principle of Toxicology, Forensic Toxicology, kinds of poisoning, What is poison, pharmacokinetics and toxicodynamic of poison.
16	1	1	Forensic Toxicology	Medico legal aspect of poisons, poison investigation, incidence of poison, Ethanol and crime, opiate, Morphine, heroin, Hashish, heavy Metals.

Ghalib University

Dentistry Faculty Curriculum - Syllabus

(2017)

ORAL MEDICINE

Objectives

At the end of training each student must be able :
To become familiar with oral diseases, diagnostic proceduresand healing of oral wounds.
To know about keratotic and non keratotic white lesions and how to manage them.
To understand and manage vesicular, bullous and ulcerative lesions.
To become familiar with oral facial pain and its management
To know about Examination of lesions like swellings, ulcers, erosions, sinus& fistula.
To becom familiar with oral pigmentations (Exogenous and endogenous)
To know about diseases of the tongue and lips and their management.
To understand about Infections of oral and pararal structures (Bacterial, viral and fungalinfections)
To know about temporomand ibular joint diseases: and its management.
To become familiar with salivary gland disorders and its treatment.
To know about AIDS and its oral manifestation.
To understand about oral manifestations due to blood disorders and its management.
To become familiar with oral manifestations due to endorcrinal disorders.
To know about vitamins and metabolic disorders and their oral manifestations.

Course content

Oral Medicine (syllabus 1)

Discipline		Clinical Science and Skills	
Department		Operative Dentistry & Endodontic	
Course title		Oral Medicine	
Course code		DE9 030	
Academic year		V	
Semester	9	Spring	
Credits	2	Knowledge	1
		Practical	1
		2	

weeks	Hours		Topics	Descriptions
	Knowledge	Practical		
1	1	1	Oral Diseases	An introduction.
2	1	1	Diagnostic Procedures	Case history, personal information, taking and recording history&Examination of the patients. Examination of swelling, examination of ulcer, sinus

				and fistula. Examination of cranial nerves & establishing the diagnosis.
3	1	1	Keratotic &Non Keratotic White Lesions	Normal variation, leukoedema, Fordyce granule, linea alba, non keratotic white lesions, habitual cheek or lip biting, burns, radiation mucositis, uremic stomatitis, koplik's spot and treatment of nonkeratotic white lesions.
4	1	1	Keratotic& Non Keratotic White Lesions	Condidiasis, classification, causative organisms, predisposing factors, oral candidiasis, Thrush, acute atrophic candidiasis, chronic hyperplastic candidiasis. Denture stomatitis, median rhomboid glossitis, angular cheilitis, treatment of oral candidiasis.
5	1	1	Keratotic & Non Keratotic White Lesions	Keratotic white lesions with no definite precancerous potential(stomatitis nicotina, traumatic keratosis, psoriasis and focal epithelial hyperplasia).
6	1	1	Vesicular, Bullous & Ulcerative Lesions	Introduction , formation of ulcers, classification of ulcers, ulcers associated with trauma. Ulcers associated with allergic reaction(drug allergy, contact allergy, secondary vaccinia, acrodynia & angioneurotic edema).
7	1	1	Vesicular, Bullous &Ulcerative Lesions	Diseases of unknown (ununcertain) etiology, aphthous stomatitis.
8	1	1	Vesicular, Bullous &Ulcerative Lesions	Erythema multiform& pemphigus(Types)
9	1	1	Vesicular, Bullous &Ulcerative Lesions	Bollous pemphigoid, benign mucous membrane pemphigoid, familial benign chronic pemphigus, eosinophilic ulcer of the oral mucosa, angina bullosa hemorrhagica.
10	1	1	Vesicular, Bullous &Ulcerative Lesions	Stevens- Johnson syndrome, behcet;s syndrome, Oral ulcers secondary to cancer chemotherapy, ulcers from odontogenic infection, diffuse gangrenous stomatitis.
11	1	1	Orofacial Pain '&	Definition of pain, classification of orofacial pain & different types of orofacial pain. different types of orofacial pain & therapeutic modalities of pain control.
12	1	1	Oral Pigmentation	Different types of pigments&endogenous pigmentation. Endogenous pigmentation. Exogenous pigmentation.

13	1	1	Disease of Tongue	Function of the tongue, specialized examination of the tongue, classification of the tongue diseases. Congenital & developmental disorders.
14	1	1	Diseasesof Tongue	Local tongue disorders. Depapillation of the tongue. Neurological disorders & premalignant lesions and conditions.
15	1	1	Diseases of Lips	Classification of lip disorders, developmental disorders & cheilitis. Cheilitis & miscellaneous.
16	1	1	Salivary Glands Disorders	Classification of salivary glands, saliva, examination of salivary glands, diagnostic tests of the salivary glands &disorders of salivary glands . Disorders of salivary glands.

Oral Medicine (syllabus 2)			
Discipline		Clinical Science and skills	
Department		Operative Dentistry & Endodontics	
Course title		Oral Medicine	
Course code		DE10 030	
Academic year		V	
Semester	10	Fall	
Credits	2	Knowledge	1

weeks	Hours Knowledge	Hours Practical	Topics	Descriptions
1	1	1	Systemic Infections	| Introduction , Bacterial infection (syphilis)
2	1	1	Systemic Infections	Bacterial infection(tuberculosis, actinomycosis and noma)
3	1	1	Systemic Infections	Viral infection(herpes simplex infection, measles)
4	1	1	Systemic Infections	Viral infection (varicella zoster infection, coxsackie virus infection, cytomegalovirus infection)
5	1	1	Systemic Infections	Fungal infection (histoplasmosis, blastomycosis)
6	1	1	Acquired Immunodeficiency Jsyndrome (AIDS)	AIDS, oral manifestations

7	1	1	Endocrine Disorders	Diseases of pituitary glands & thyroid glands.
8	1	1	Endocrine Disorders	Diseases of parathyroid glands & pancreatic glands , pregnancy & menopause.
9	1	1	Blood Disorders	Diseases of the red blood cells(anemia& Polycythemia and their oral manifestations)
10	1	1	Blood Disorders	White blood cell disorders & oral manifestations 1 .
11	1	1	Blood Disorders	Platelet disorders & oral manifestations.
12	1	1	Blood Disorders	Hemorrhagic disorders & oral manifestations.
13	1	1	Vitamins	Introduction, causes of vitamin deficiency & water-soluble vitamins.
14	1	1	Vitamins	Water-soluble vitamins & fat-soluble vitamins.
15	1	1	Metabolic Disorders	Disturbances in protein & lipid metabolism.
16	1	1	Metabolic Disorders	Disturbances in carbohydrate & mineral metabolism.

Textbooks & reference books recommended(Iast edition)

1. Textbook Of Oral Medicine Writer
(Anil Govindraom Ghom)
2. Burkets' Oral Medicine Writer
(Greenberg, Glick, Ship)

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RADIOLOGY & MEDICAL IMAGING

Oral Radiology

Learning Objectives

After completing this course you will be able to:

1. Discuss the importance of making radiographic examinations
2. Describe the schedule of radiographic survey in children depending upon the age.
3. List various stages in the Dental development of the child.
4. Describe panoramic radiography and explain the technique.
5. Discuss advantages and disadvantages of panoramic radiography over conventional full-mouth Radiography.
6. Describe the operational procedure for panoramic radiography.
7. Describe digital Dental radiology and compare it with conventional film-based radiography.
8. List four benefits of direct digital radiographic systems.
9. Describe measures for maintaining radiation safety for the operator and the patient.
10. Explain the maximum permissible doses of whole-body radiation for a patient and for a Dental auxiliary.
11. Explain guidelines for prescribing Dental radiographs for the child, adolescent and adult.
12. Discuss when radiographic surveys should be made.
13. Determine whether a periapical radiograph is of the right or left side.
14. Describe step-by-step procedure for mounting radiographs.
15. List distinctive tooth characteristics and bone structures that make mounting of radiography easier

RADIOLOGY & MEDICAL IMAGING (Syllabus 1)					
Discipline			Clinical science and skills		
Department			Radiology & Medical imaging		
Subject			Radiology		
Course code			DE 8 031		
Class			IV		
Semester	8		Fall		
Credits	2		Knowledge	1	
			Skills	1	

weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions
1	1	1	Scope of the subject and	Introduction, Key Definitions, Discovery of X-radiation

			history of origin	Chronology of Events in the Evolution of Dental Radiology.
2	1	1	Physics of radiation	(a)Introduction (b) Nature and types of radiations (c) Source of radiations (d) Dental X-ray machine (e) Production of X-rays (X-ray Tube).
3	1	1		(f) Properties of X-rays (g) Compton effect (h) Photoelectric effect (i) Dosimetry and Radiation measuring units
4	1	1	Biological effects of radiation	Introduction , Effects of radiation(Somatic deterministic effects, Somatic stochastic effects,Genetic stochastic effects) Factors Influencing Radiation Injury.
5	1	1	Radiation safety and protection measures	Introduction, Protection of the Patient, Protection of the Operator, Protection of Other Persons.
6	1	1	Radiographic techniques: (i) Intra-Oral (ii) Extra-oral (iii) Specialised	Intra-Oral: (a) Periapical radiographs (Bisecting and parallel technics) (b) Bite wing radiographs (c) Occlusal radiographs
7	1	1		Extra-oral: (a) Lateral projections of skull and jaw bones and paranasal Sinuses (b) Cephalograms
				(c) Orthopantomograph (d) Projections of temperomandibular joint and condyle of Mandible (e) projections for Zygomatic arches
8	1	1		Specialised techniques: (a)Sialography (b) Xeroradiography (c)Tomography
9	1	1	Factors in production of Good radiographs:	a) K.V.P. and mA.of X-ray machine (b)Filters (c) Collimations (d)Intensifying screens (e)Grids (f) X-ray films (g) Exposure time (h) Techniques (i) Dark room (j) Developer and fixer solutions (k) Film processing (k) Film processing
10	1	1	Panoramic Radiography	Introduction, Purpose and Uses, Disadvantages, Fundamental Principles of Panoramic Radiography, Technique.

11	1	1	Projection Geometry	Image Sharpness and Resolution, Image Size Distortion Image Shape Distortion, Paralleling and Bisecting-Angle Techniques, Object Localization, Peripheral Eggshell Effect.
12	1	1	Specialized and Advanced Radiographs in Dental Radiology	Computed tomography (CT), Cone beam CT (CBCT), Magnetic resonance (MR).
13	1	1		
14	1	1	Normal Radiographic Anatomy and Landmarks	Introduction, Anatomic Landmarks Common to the Maxilla and the Mandible, Anatomic Landmarks in the Maxilla, Anatomic Landmarks in the Mandible.
15	1	1	Guidelines for Prescribing Dental Radiographs	Role of radiographs in disease detection, And monitoring Radiographic examinations, Intraoral radiographs, Extraoral radiographs, Guidelines for ordering radiographs, Previous radiographs, Administrative radiographs.
16	1	1	Introduction to radiological Interpretation	Clinical examination, Acquiring appropriate diagnostic images (Quality of the Diagnostic Image, Number and Type of vailable Images, Viewing Conditions), Image Analysis, Systematic radiographic examination (Intraoral images,Extraoral radiography), Analysis of the Intraosseous Lesions

ORAL RADIOLOGY (Syllabus 2)			
Discipline		Clinical science and skills	
Department		Medical Imaging and Radiological Science	
Subject		Oral Radiology	
Course code		DE 9 031	
Class		V	
Semester	9	Spring	
Credits	2	Knowledge	1
		skills	1
Hours			

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weeks	Knowledge	Skills	Topics	Descriptions
1	1	1	Dental Caries	Introduction, Clinical Examination, Radiographic Examination Classification Of Carious Lesions Based On Radiographic Appearance, Radiographic Differential Diagnosis Of Dental Caries.
2	1	1	Periodontal Diseases	Introduction, Use of Radiographs in the Diagnosis of Periodontal Disease, Limitations of Radiographs, Radiographic Features of Periodontal Disease(Early Periodontitis, Moderate Periodontitis Advanced Periodontitis), Juvenile Periodontitis.
3	1	1	Dental Anomalies	Developmental Abnormalities,Acquired Abnormalities.
4	1	1	Inflammatory Lesions of the Jaws	General clinical features, General radiographic features, Periapical inflammatory lesions, Pericoronitis, Osteomyelitis, Diagnostic imaging of soft, Tissue infections, Osteoradionecrosis.
5	1	1	Cysts and Cystlike Lesions of the Jaws	Clinical Features, Radiographic Features, Odontogenic Cysts Nonodontogenic Cysts, Cystlike Lesions.
6	1	1	Benign Tumors of the Jaws	Introduction, Clinical features, Radiographic features, Hyperplasia's, Benign tumors, Odontogenic tumors, Nonodontogenic tumors.
7	1	1	Malignant Diseases of the Jaws	Introduction, Clinical features, Radiographic features, Carcinomas Metastatic Tumors, Sarcomas, Malignancies of the Hematopoietic System, Dental Radiology for the Cancer Survivor.
8		1	Diseases of Bone Manifested in the Jaws	Bone dysplasias(Fibrous dysplasia, Cemento-osseous dysplasias Periapical cemental dysplasia, Florid osseous dysplasia), Other lesions of bone(Cemento-ossifying fibroma, Central giant cell granuloma, Aneurysmal bone cyst, Cherubism, Paget's disease Langerhans' cell histiocytosis).
9	1	1	Systemic Diseases Manifested in the Jaws	Introduction, Radiographic Features, Endocrine Disorders (Hyperparathyroidism & Hypoparathyroidism, Hyperpituitarism and Hypopituitarism, Hyperthyroidism and Hypothyroidism, Diabetes mellitus. Cushing's syndrome), Metabolic Bone Diseases (Osteoporosis, Rickets and osteomalacia, Hypophosphatasia Renal osteodystrophy, Hypophosphatemia, Osteopetrosis) Other Systemic Diseases(Progressive systemic sclerosis, Sickle cell anemia, Thalassemia).
10	1	1	Diagnostic Imaging of the Temporomandibular Joint	Introduction , Clinical Features, Radiographic Anatomy of the TMJ, Diagnostic Imaging of the TMJ, Radiographic Abnormalities of the TMJ(Developmental abnormalities, Soft tissue abnormalities, Remodeling and Arthritic Conditions Psoriatic Arthritis and Ankylosing Spondylitis, Articular Loose Bodies, Trauma,Tumors).

11	1	1	Paranasal Sinuses	Introduction , Normal Development and Variations, Diseases Associated with the Paranasal §inuses(Intrinsic diseases of the paranasal sinuses, Inflammatory disease, Neoplasms, Extrinsic diseases involving the paranasal sinuses, Inflammatory diseases Benign odontogenic cysts and tumors,Fibrous dysplasia, Dental structures displaced into the sinuses).
12	1	1	Soft Tissue Calcification and Ossification	Introduction, Clinical features, Radiographic features, Dystrophic calcification, Idiopathic calcification,Metastatic calcification.
13	1	1	Trauma to Teeth and Facial Structures ^^^^	Introduction, Applied radiology, Traumatic injuries of the teeth Fractures of the teeth, Traumatic injuries to the facial bones {Mandibular fractures, Midfacial fractures including maxillary fractures, Le fort fractures (le fort i, ii and iii)}, Monitoring the healing of fractures.
14	1	1	Developmental Disturbances of the Face and Jaws	Introduction, Common developmental abnormalities(Cleft lip and palate, Crouzon syndrome, Hemifacial microsomia, Treacher collins syndrome, Cleidocranial dysplasia, Hemifacial hyperplasia Segmental odontomaxillary dysplasia,Lingual salivary gland depression, Focal osteoporotic bone marrow.
15	1	1	Salivary Gland Radiology	Definition of salivary gland disease, Clinical signs and symptoms Differential diagnosis of salivary enlargements, Applied diagnostic imaging of the salivary glands, Image interpretation of salivary gland disorders(Obstructive and inflammatory disorders Noninflammatory disorders, Benign tumors, Malignant tumors Other malignant and metastatic tumors).
16	1	1	Dental Implants	Introduction , Diagnostic Imaging for Dental Implants, Imaging Techniques, Preoperative Planning, Intraoperative and Postoperative Assessment.

Textbooks & reference books recommended (last edition)

- Textbook of Radiology and Imaging, David Sutton.
- Diagnostic Radiology, A.Adams, A.K.Dixon.
- Radiology & Imaging for Medical Students,David Sutton.
- Medical Imaging, Signal and System, Jerry L.Prince.
- Felson's Priciples of Chest Roentgenography, Lawrence R.Goodman.
- Breast Imaging,Biren A.Shah.Sabala R .Mandava.
- Diagnostic Ultrasound,K.Kirk Shung.
- Fundamentals of Dignostic Radiology,William E.Brant.Clyed A.Helms

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Dentistry Faculty Curriculum - Syllabus

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PERIODONTICS

Goals

Periodontology is the foundation of good Dental health. The prevention, treatment, and maintenance of periodontal diseases facilitate and allows for other modalities of denial care. This is as true in a general Dental office as it is for a periodontist. The overall goals of undergraduate education within the Department of Periodontology are interconnected and integral to the success of entry level Dental professionals. Entry level general dentists must demonstrate comprehensive knowledge concerning: the pathogenesis of periodontal diseases, the biologic rationale for periodontal therapy, and the necessary clinical skills to evaluate, diagnose, and appropriately treat the most prevalent periodontal diseases as a cornerstone of comprehensive Dental care. Of primary importance in this effort is the proper identification and diagnosis of periodontal pathology, the development of a treatment plan to address periodontal pathology, the prevention of periodontal diseases and the attainment and maintenance of periodontal health.

Objectives

The students at the end of the course should be able to :

- Diagnose accurately patients with periodontal diseases, plan and deliver routine non surgical treatment as well as accurately evaluate the results of the treatment rendered.
- Students differentiate the various indications and contraindications for surgical periodontal procedures as well as the principles which govern each procedures.
- The students evaluate the different considerations of periodontal patients with systemic diseases and conditions.
- The students should be able to manage periodontal case with other Dental involvement as restorative, endodontic and orthodontic treatment

PERIODONTICS (Syllabus 1)			
Discipline		Clinical science and skills	
Department		Periodontology	
Subject		Periodontics	
Course code		DE 8 032	
Class		IV	
Semester	8	Fall	
Credits	2	Knowledge	1
		skills	1

weeks	Hours: Knowledge	Hours: Skills	Topics	Descriptions

1	1	1	History and Introduction of periodontology	Early civilization, The classical world, the middle ages, the renaissance, eighteenth century, nineteenth century(NUG), twentieth ceritury(focal infection, Dental implants).
2	1	1	The normal periodontium (Gingiva)	The gingiva, clinical features, marginal gingiva, gingival sulcus, attached gingiva, interDental gingiva, microscopic features, correlation of clinical and microscopic features (color, size, comtour, shape, consistency, surface texture, position).
3	1	1	The normal periodontium (Tooith supporting tissues)	Periodontal ligament(periodontal fibers, function of periodontal ligament)Cementum(permeability of cementum, cementoenamel junction, cementodentinal junction, exposure of cementum to oral environment).
4	1	1	Defense mechanism of gingival	Sulcular fluid(methods of collection, permeability of junctional and sulcular epithelium, amount, composition, clinical significance) Saliva (Antimocrobial factor, enzymes, salivary buffers and coagulation factor, periodontal pathology).
5	1	1	Aging and the periodontium	Effect of aging on the periodontium, gingival epithelium, gingival connective tissue, periodontal ligament, cementum, alveolar bone, effect of aging on the progression periodontal disease.
6	1	1	Classification of periodontal disease	Gingival diseases, periodontitis, nerotizing periodontitis, abscess of the periodontium, periodontitis associated with endodontic lesion.
7	1	1	Gingival disease	Gingiviti, Stages of gingivitis(I,II,II,IV), clinical features of gingivitis, course and duration, Gingival bleeding on probing, gingival bleeding associated with systemic and local factors, Color change, change in
				consistency of gingiva, change in surface texture of gingiva, change in position of gingiva, changes in gingival contour.
8	1	1	Acute gingival infections	Acute necrotizing ulcerative gingivitis, Clinical features:Relation of bacteria to ANUG lesion, Diagnosis, etiology, epidemiology, Primary herpetic gingivostomatitis, Clinical features: Diagnosis, differential diagnosisPericoronitis, Clinical features, Complications.
9	1	1	Desquamative gingivitis, Gingival disease in childhood	Chronic desquamative gingivitis, diagnosis of desquamative gingivitis a systemic approach, disease clinically presenting as desquamative gingivitis, Plaque induced gingival disease, non-plaque induced gingival lesion, Periodontal disease of childhood, Aggressive periodontitis, Chronic periodontitis.
10	1	1	Gingival enlargement	Inflammatory gingival enlargement, Chronic inflammatory gingival enlargement, Acute inflammatory gingival enlargement, Drug induced gingival enlargement, General ihforma, Anticonvusant, Immunosuppressant, Calcium channel blocker, Idiopathic gingival enlargement.
11	1	1	Gingival enlargement	Enlargement associated with systemic disease, Conditioned enlargement, Systemic disease that cause gingival enlargement, Neoplastic enlargement, False enlargement.
12	1	1	Periodontal disease	periodontal pocket, Classification. Clinical feature, pathogenesis, histopathology, periodontal disease activity, pulp change associated with periodontal pocket, relationship of attachment loss and boneloss to periodontal pocket,Periodontal abscess, Lateral periodontal cyst.

13	1	1	Bone loss and patterns of bone distruction	Bone destruction caused by extension of gingival inflammation: Radious'of action, rate of bone loss, mechanism of bone distruction Bone distruction caused by trauma from occlusion, Bone distruction caused by systemic disorder, Bone distruction patterns in periodontal disease.
14	1	1	Chronic periodontitis	General characteristic, disease distribution, disease severity, symptoms, disease progression, prevalence. Rist factors for disease
15	1	1	Necrotizing ulcerative periodontitis	Clinical features, microscopic findings, FflV-AIDS patients, etiology of necrotizing ulcerative periodontitis, Microbial flora, immunocommpromised status, Psycologic stress, Malnutration.
16	1	1	Aggressive periodontitis	Aggressive periodontitis,Localized aggressive periodontitis Historical background, clinical characteristic, radiographic finding, Generalized aggressive periodontitis, clinical characteristics, radiographic findings, Risk factors for aggressive periodontitis.

PERIODONTICS (Syllabus 2)			
Discipline		Clinical science and skills	
Department		Periodontology	
Subject		Periodontics	
Course code		DE9 032	
Class		V	
Semester	9	Spring	
Credits	2	Knowledge	1
		skills	1

weeks	Hours Knowledge	Hours Skills	Topics	Descriptions
1	1	1	Etiology of periodontal disease	Oral fl3ra, Dental plaque:Composition, Formation, Description and structure of plaque, Etiological role of Dental plaque in periodontal disease.
2	1	1	Dental calculus and other predisposing factor	Introduction, definition, classification, composition, structure of Dental calculus, attachment of calculus on tooth surface, formation of calculus, theories regarding mineralization of calculus, Other predisposing factors:Iatrogenic factors, Malocclusion, Periodontal complication associated with orthodontic therapy, Habits and self inflected injuries, Smokeless tobacco.
3	1	1	Trauma from occlusion	Acute and chronic trauma, Primary and secondary trauma, Stages of tissues response to increase occlusual forces, Effect of insufficient occlusual force, Reversibility of

				traumatic lesion
4	1	1	Influence of systemic condition on the periodontium	Description, Endocrine disorders and hormonal changes, Diabetes mellitus, Female sex hormones, Hyoerparathyroidism, Hematologic disorder, Leukemia, Anemia, Thrombocytopenia.
5	1	1	Influence of systemic condition on the periodontium	Nutritional influences, Fat soluble vitamin deficiency, Water soluble vitamin deficiency, Protein deficiency, Medications, Biphosphomonates, Corticosteroids, Other systemic confitions, Osteoporosis, Congenital heart disease, Hypophosphatasia, Metal intoxication.
6	1	1	Oral malodor	Classification, Etiology, Physiology of malodor detection, Diagnosis of malodor, Treatment of malodor.
7	1	1	Pathology and management of periodontal patients with HIV infection	Classification and staging, Oral and periodontal manifestation of HIV, Oral candidiasis, Oral hairy leukoplakia, Kaposis sarcoma, Non hodgken lymphoma, Bacillary epitheloidangiomatosis, Oral hyperpigmentation, Atypical ulcer, Salivary gland disorder and xerostomia, Dental treatment compications.
8	1	1	Pathology and management of periodontal patients with HIV infection	Gingival and periodontal disease:Linear erythema, NUG, NUP Chronic periodontitis, Periodontal treatment protocol, Health status, Infection control measures,Goals of therapy,Maintenance therapy, Psychologic factors
9	1	1	Diagnosis of periodontal disease	First meeting, Overall appraisal of the patient, Medical and Dental history, Intra oral radiographic survey, Casts and photogaphs Review.
10	1	1	Diagnosis of periodontal disease	Second meeting: Oral examination, Examination of the teeth and implants, Level of attachment, Determining the level of attachment, Bleeding on probing.
11	1	1	Radiographic aids in the diagnosis of periodontal disease	Normal interDental bone, Radiographic technique, Bone destruction in periodontal disease, Radiographic appearance of periodontal disease,Additional radiographic criteria , Skeletal disturbances manifested in jaws, Digital intraoral radiography, Advance imaging.
12	1	1	Plaque control for periodontal patients	The tooth brush, power tooth brushes, dentifrices, The brushing methods, InterDental cleaning aids, Gingival irrigation.
13	1	1	Plaque control for periodontal patients	Oral rinses, Disclosing agents.
14	1	1	Anti-infective therapy Chemotherapeutic agents	Definition, systemic administration of amtibiotics, serial and combination of antibiotic therapy, local delivery agents, Analgesic in periodontal therapy, Nonsteroidanti inflammatory agents.
15	1	1	Anti-infective therapy Chemotherapeutic agents	Antimicrobial agents in periodontal therapy, chronic and aggressive periodontitis in the adults, refractory periodontitis. Skills guidelines for systemic antibiotics in periodontal diseases.
16	1	1	Treatment of periodontal emergencies	Acute gingival disease, Acute necrotizing ulcerative gingivitis Acute pericoronotis, Acute herpetic gingivostomatitis, , Treatment of periodontitis, Chronic periodontitis,Aggressive periodontitis.

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PERIODONTICS (Syllabus 2)			
Discipline		Periodontics	
Department		Periodontology	
subject		Periodontics	
Course code		DE10 032	
Class		V	
Semester	10	Fall	
Credits	2	Knowledge	1
		Clerkship	1

weeks	Knowledge	Skills	Topics	Descriptions
1	1	1	Phase II General principles of periodontal therapy(Surgical phase)	Objectives of the surgical phase, Indication for periodontal Surgery, pocket elimination verses pocket maintenance Methods of pocket therapy.
2	1	1	Splints	Introduction ,Definition , Rationale of splinting, Indication Contraindication, Basic characteristics of an ideal splint Disadvantage of splinting, Classification
3	1	1	Gingival surgical technique	Introduction , Gingival curettage, Indication, Procedure, Healingafter scaling and curettage, Clinical appearance after scaling andcurettage, Gingivectomy, Indication and contraindication,Surgical gingivectomy,Gingivoplasty,Gingivectomy by electrosurgery, Laser gingivectomy, Gingivetomy by chemosurgery,Gingivectomyfot gingival enlargement.
4	1	1	The periodontal flap	Classification, Flap design, Incisions, Horizontal, Vertical Elevation of the flap, Suturing techniques, Healing after flap surgery, Treatment of gingival enlargement Summary
5	1	1	Periodontal flap technique for pocket therapy	Technique for accesses in pocket depth, Reduction elimination incisions, Modified wideman flap undisplaced flap, Apically displaced flap, Flaps for reconstructive surgery, Distal molar surgery.
6	1	1	Osseous surgery (respective osseous surgery)	Respective osseous surgery, Selection of treatment technique Rationale, Normal alveolar bone, Factors in selection of respective osseous surgeryExamination and treatment planning Methods of respective osseous surgery, Osseous resection technique

7	1	1	Reconstructive osseous surgery	Evaluation of new attachment and periodontal reconstruction Reconstructive surgical technique, Clinical methods, Radiographic method, Surgical reentry, Histologic methods,Non bone graft associated procedure, Graft material and procedure.
8	1	1	Treatment of Furcation involvement	Etiologic factors, Diagnostic and classification of furcation defects, Local anatomic factors, Anatomy of the bony lesions Indices of furcation involvement,Treatment,Nonsurgical therapy
				Prognosis.
9	1	1	Mucogingival surgery and periodontal plastic surgery	Objectives, etiology of marginal tissue recession, factors that affect surgical outcome, technique to increase attached gingival.
10	1	1	Mucogingival surgery and periodontal plastic surgery	techniques to deepen the vestibule, techniques to remove the frenum, technique to improve esthetics
11	1	1	Microsurgery and laser therapy	The surgical microscope, advantage of microsurgery microsurgical suture, esthetic periodontal microsurgery, Laser therapy, wave length and energy absorption, laser application for periodontal procedures, periodontal esthetic and functional crown lengthening, laser in management of periodontal disease.
12	1	1	Diagnosis and management of endodontic periodontic lesion	Biologic effect of pulpal infection and periodontal tissue, Biologic effect of periodontal infection on Dental pulp, , Treatment consideration of endodontic-periodontic lesion.
13	1	1	Preparation of the periodontium for restorative dentistry	Rationale for therapy, Sequence for treatment, Control for active disease, Preprosthetic surgery, conclusion.
14	14	1	Periodontal- restorative interrelation	Biologic consideration, Esthetic tissue management Occlusal consideration in restorative therapy, Special restorative consideration.
15	1	1	Implantology	Introduction, Rationale for implant therapy, Advantages of implants, Classifications, Biological aspects of Dental implant.
16	1	1	Implantology	Clinical aspect of Dental implants, Surgical aspect of Dental implant, Periimplant disease, Advanced implant therapy.

Textbooks& reference books recommendedflast edition)

1-carranza, clinical periodontology, elsevier saunders, 2011

2-dilip g nayak, ashita uppor mahesh cp, textbook of periodontology, elsevier, 2009

3-Shantipriya, Reddy, Third edition, Essential of clinical periodontology and periodontics , 2010.

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Dentistry Faculty Curriculum - Syllabus

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ORTHODONTICS

GOAL

Undergraduate programme in Orthodontics is designed to introduce the undergraduate student's to the principles of orthodontic treatment and give them a broad prespective about the diagnosis, analysis and treatment of common orthodontic problems by preventive, interceptive and corrective orthodontic procedures.

b) SCHEME OF STUDY

The undergraduate study of orthodontics spans over third, fourth year and fifth year. In third year the emphasis is given for basic and preclinical wire bending exercises and appliance fabrication. In fourth year the student has to undergo clinical postings where patient care and appliance management is emphasized. In fifth year of study the candidate will be allotted with long cases for detailed discussion treatment plan formulation appliance construction, insertion and management.'

c) SKILLS

i. To diagnose a case of malocclusion and formulate a treatment plan
ii. To make a good alginate impression
iii. To fabricate a good study model
iv. To perform various model analysis and cephalometric analysis
v. To construct routine removable and myofunctional appliances using cure acrylic
vi. Insertion and management of appliance

ORTHODONTICS (Syllabus 1)			
Discipline		Clinical Science and Skills	
Department		Orthodontics and Dental Orthopedics	
Subject		Orthodontics	
Course code		DE8 033	
Class		IV	
Semester	8	Fall	
Credits	2	Knowledge	1
		Clerkship	1

weeks	Hours Skills	Skills	Topics	Descriptions
1	1	1	Introduction to	Definition, Scope, Objective and History and importance of Orhodontics.
2	1	1	Terminology in Orthodontics	Introduction and definitions of specific terms used in Orthodontics.
3	1	1	Concepts of Growth and	Definition, Growth spurts and Differential growth, Factors

			Development	influencing growth and development, Cephalocaudal gradient of growth.
4	1	1	Concepts of Growth and Development	Growth theories (Genetics , Sicher's, Scott's, Mosses, Petrovics), Genetic and Epigenetic factors in growth.
5	1	1	Morphologic Development of Craniofacial Structures	Methods of bone growth, Prenatal growth of cranium, facial and oral structures.
6	1	1	Morphologic Development of Craniofacial Structures	Post natal growth and development of craniofacial complex comprising of cranial base, Maxilla, Mandible.
7	1	1	Morphologic Development of Craniofacial Structures	Growth of Dental arches; and occlusion (Primary, Mixed and permanent dentition).
8	1	1	Malocclusion- In general	Concepts of normal occlusion, Definition of malocclusion, Description of different types of Dental , skeletal and functional malocclusion.
9	1	1	Classification of malocclusion	Principle, description, advantages, disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.
10	1	1	Etiology of Malocclusion	Definition, Causes, Importance, Classification, Local etiologic factors.
11	1	1	Etiology of Malocclusion	General etiological factors: Hereditary, congenital factors, predisposing metabolic climate and disease, Dietary problems and abnormal pressure habits and functional aberrations.
12	1	1	Etiology of Malocclusion	Etiology of different types of malocclusion: Midline diastema, spacing, crowding, crossbite (anterior and posterior), Class III malocclusion, Class II malocclusion, Deep bite, Open bite
13	1	1	Diagnosis and Diagnostic Aids	Definition: importance and classification of diagnostic aids, Importance of case history.
14	1	1	Clinical examination in Orthodontics	Intraoral and extraoral examination of the patients and photograph in Orthodontics.
15	1	1	Diagnosis and Diagnostic Aids	Study model, Importance of intraoral X-rays, Panoramic radiographs (Principles, Advantages, Disadvantages and uses) Cephalometrics (Definition, Description, and use of cephalostat).
16	1	1	Diagnosis and Diagnostic Aids	Description and uses of anatomical landmarks, lines and angles in cephalometrics.

CLINICAL TRAINING DURING FIRST SEMESTER

- Making upper alginate impression
- Making lower alginate impression
- Fabrication of study model
- Trimming and polishing Study model
- Introduction of the Orthodontic instruments
- Review of specific Orthodontic terminology

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Dentistry Faculty Curriculum - Syllabus

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ORTHODONTICS (Syllabus 2)			
Discipline		Clinical Science and Skills	
Department		Orthodontics and Dental Orthopedics	
Subject		Orthodontics	
Course code		DE 9 033	
Class		IV	
Semester	9	Fall	
Credits	2	Knowledge	1
		Clerkship	1

weeks	Hours Skills	Skills	Topics	Descriptions
1	1	1	Preventive Orthodontics	Intorduction, Definition, Preventive Measures Undertaken and their limitation,
2	1	1	Interceptive Orthodontics	Definition, Different procedures undertaken in Interceptive Orthodontics.
3	1	1	Interceptive Orthodontics	Space supervision and Serial extractions: Definition, Indication, Contra-indication, Techniques, Advantages and disadvantages
4	1	1	Treatment planning	General Principles in Orthodontic treatment planning of different types of malocclusion.
5	1	1	Anchorage in Orthodontics	Introduction, Definition, Sources of anchorage, Classification and types of anchorage.
6		1	I Anchorage in j Orthodontics	Stability and Importance of anchorage, Intra-oral and Extra-oral anchorage and classification of anchorage requirements.
7	1	1	Biomechanical principles	Force, Center of resistance, different types of tooth movement and types of forces.
8	1	1	Biology of tooth movement	Tissue response to orthodontic force application, Blood flow theory, Piezoelectric theory, Hydrodynamic theory.
9	1	1	Model Analysis	Korkhaus Analysis, Pont's Analysis, Linder Harth Analysis, Carey's Analysis and Ashley Howe's Analysis.
10	1	1	Methods of gaining space	Proximal stripping (Devices used in proximal stripping), Extractions of teeth and their indications.
11	J 1	1	Methods of gaining space	S Expansions, Distalization, Proclination of anteriors and de-rotation 1 of posteriors.
12	1	1	Orthodontic Appliances	j Introduction, Classification, advantages, disadvantages and Ideal [requirements of Orthodontic appliances.
13	1	1	Removable Appliances	Introduction, Components of removable appliances, Advantages, Disadvantages, and different components.
14	1	1	Removable Appliances	Different types of clasps, labial bows, and springs and their uses.

15	1	1	Removable Appliances	Anterior and Posterior Bite planes and their uses in different type of treatment of malocclusion.
16	1	1	Fixed Orthodontic appliances	Definition, Indications and contraindications, Component parts and their uses.

CLINICAL TRAINING DURING SECOND SEMESTER
1-Making alginate impression and cast
2-Wire bending practice on study models prepared by students, Bending of a rectangle, square, circle
3-Construction of clasps, Adam's clasp, Canine retractor, Z' spring, Labial bow
4-Introduction to model Analysis.

ORTHODONTICS (Syllabus 3)			
Discipline		Clinical Science and Skills	
Department		Orthodontics and Dental Orthopedics	
Subject		Orthodontics	
Course code		DE10 033	
Class		IV	
Semester	10	Fall	
Credits	2	Knowledge	1
		Clerkship	1

weeks	Hours Skills	Skills	Topics	Descriptions
1	1	1	Orthopedic Appliances	Introduction to Headgear, Chin cap and reverse pull headgear and 1 their uses.
2	1	1	Retention and Relapse	Definitions of retention and relapse, Needs for retention, Causes of relapse.
3	1	1	Retention and Relapse	Types of retention devices, Duration of retention, Methods of retention.
4	1	1	Principle, Diagnosis and treatment methods	Midline diastema (Definition, Etiology, Intra-oral and Extra-oral | Features, Treatment and Retention techniques).
5	1	1	Principle, Diagnosis and treatment methods	Crossbites (Definition, Classifications, Introduction of different Type of Crossbites, Etiology of anterior and posterior crossbites)
6	1	1	Management of cross bite	Intra-oral ad Extra-oral features of Anterior and posterior cross Bites, Treatment of both types of crossbites.

7	1	1	Principle, Diagnosis and Treatment methods	Open Bite: Definition, classification, Etology, Intra and Extra Oral features, Management and treatment.
8	1	1	Principle, Diagnosis and Treatment methods	Deep Bite: Definition, Classification, Etiology, Itra and Extra Oral features, management and treatment.
9	1	1	Principle, Diagnosis and Treatment methods	Introduction, Definition, Sources of anchorage, Classification and types of anchorage.
10		1	Principle, Diagnosis and Treatment methods	Stability and Importance of anchorage, Intra-oral and Extra-oral anchorage and classification of anchorage requirements.
11	1	1	Principle, Diagnosis and Treatment methods	Force, Center of resistance, different types of tooth movement and types of forces.
12	1	1	Principle, Diagnosis and Treatment methods	Tissue response to orthodontic force application, Blood flow theory, Piezoelectric theory, Hydrodynamic theory.
13	1	1	Principle, Diagnosis and Treatment methods	Korkhaus Analysis, Pont's Analysis, Linder Harth Analysis, Carey's Analysis and Ashley Howe's Analysis.
14	1	1	Principle, Diagnosis and Treatment methods	Proximal stripping (Devices used in proximal stripping), Extractions of teeth and their indications.
15	1	1	Principle, Diagnosis and Treatment methods	Expansions, Distalization, Proclination of anteriors and de-rotation 1 of posteriors.
16	1	1	Orthodontic Management	Cleft lip and palate: Definition, Classification, Etiology, Intra and Extra oral features, Management and Orthodontic Treatment.

CLINICAL TRAINING DURING THIRD SEMESTER

1. Making alginate impression and cast
2. Making an observation
3. Treatment planning under the supervision of an instructor
4. Howley retainer fabrication and insertion.

5. Orthodontic Model Analysis, Pont's Analysis, Korkhaus Analysis, Ashley Howe's Analysis Carey's Analysis

Textbooks& reference books recoramended(iast.-.edition)

1. Profit, William. (2012). Contemporary Orthodontics. Canada: Elsevier.
2. Singh, Gurkeerat. (2007). Textbook of Orthodontics. New Delhi (Inida): Jierndar P Vij.

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INFECTIOUS D1SEASES& TUBERCULOSIS

At the end of Infectious diseases course student must be able to:

- □ understanding of host defense mechanisms and immune responses in relation to infectious diseases;
- □ understanding of the etiology, pathogenesis, diagnosis, and therapy of patients with the infectious diseases;
- □ Interpret and draw appropriate conclusions from laboratory results;
- □ Analyze and distinguish therapeutic treatments for microbial infections, and distinguish when a vaccine, antibiotic, or other therapy is likely to be the most appropriate response;
- □ Specify the role of ecology and evolution in the spread of infectious diseases, comparing the role of transmission, population size and susceptibility, and virulence in endemic disease, epidemic disease, emerging diseases, and bioterrorism;
- □ Develop the ability to work both independently and with others in teams and study groups;
- □ Develop an information base for making personal health decisions in regard to infectious diseases.

Learning objectives

At the end of (TB) course the student should be able to:

- □ Discuss about tuberculosis elimination in Afghanistan;
- □ Identify TB disease trends in the Afghanistan;
- □ List the racial and ethnic groups that are disproportionately affected by TB disease in the
- □ Afghanistan;
- □ Discuss about management of pulmonary TB with DOT approach;
- □ Discuss about multidrug resistant pulmonary TB and its management;
- □ Discuss about specific cases like pregnant with pulmonary TB;
- □ Discuss about prevention of pulmonary TB and vaccination;
  - Identify ways in which tuberculosis (TB) is spread
  - Describe the pathogenesis of TB
  - Identify conditions that increase the risk of TB infection progressing to TB disease.
  - Define drug resistance TB
  - Describe the TB classification system
  - Describe why high-risk groups should be tested for M. tuberculosis infection
- □ Identify appropriate testing methods for M. tuberculosis infection;
- □ Identify special considerations when using tuberculin skin tests (TSTs);
- □ Discuss general recommendations for the use of Interferon-Gamma Release Assays (IGRAs);
- □ Describe the five components of a TB medical evaluation;
- □ Identify the major components of TB diagnostic microbiology;
- □ List at least five symptoms of pulmonary TB disease;
- □ Explain the purpose and significance of acid-fast bacilli (AFB);
- □ Explain the purpose and significance of the culture;
- □ Explain the purpose and significance of genotyping.;

- □ List the high-risk groups who should be given priority for latent tuberculosis infection (LTBI) treatment;
- □ Describe LTBI treatment regiment:
- □ Describe LTBI treatment regimens for specific situations;
- □ Identify components of patient monitoring at baseline and during treatment of LTBI;
- □ Describe tuberculosis (TB) disease treatment adherence strategies;
- □ Identify anti-TB drugs;

Describe treatment regimens for TB disease;

- □ Describe patient monitoring;
- □ List common adverse drug reactions to TB medications

INFECTIOUS DISEASES & TUBERCULOSIS					
Discipline			Clinical Science and Skills		
Department			Infectious Diseases & Tuberculosis		
Subject			Infectious Diseases & Tuberculosis		
Course code			DE 8 034		
Class			IV		
Semester		8	Fall		
Credits		2	Knowledge	1	
			Clerkship	1	
Hours					
weeks	Skills	Skills	Topics	Descriptions	
1	1	1	Amebiasis	Definition, Etiology, Epidemiology, Pathogenesis and pathology, Clinical manifestations, Laboratory investigations, Differential diagnosis, Complications, Treatment and prevention.	
2	1	1	Acute viral hepatitis	Definition, Virology and etiology, Pathogenesis, Extra hepatic manifestations, Pathology Complications and sequelae, Differential diagnosis, Treatment, Prophylaxis.	
3	1	1	Diphtheria	Definition, Etiology, Epidemiology, Pathogenesis and pathology, Clinical manifestations, Laboratory investigations, Differential diagnosis, Complications, Treatment and prevention.	
4	1	1	Infectious Mononucleosis	Definition, Etiology, Epidemiology, Complications, Treatment and prevention.	
5	1	1	Acute Bacterial Meningitis	Definition, Epidemiology, Etiology, Pathophysiology, Clinical presentation, Diagnosis, Differential diagnosis, Complications,	

				Treatment, prognosis.
6	1	1	Anthrax	Definition, Etiology, Epidemiology, Pathogenesis and pathology, Clinical manifestations, Laboratory investigations, Differential diagnosis, Complications, Treatment and prevention.
7		1	Tetanus	Definition, Etiology, Epidemiology, Pathogenesis and pathology, Clinical manifestations, Laboratory investigations, Differential diagnosis, Complications, Treatment, prevention and prognosis..
8	1	1	Human immunodeficiency virus infection and the human acquired immunodeficiency syndrome (HIV/AIDS)	Definition, Etiology, Epidemiology, Pathogenesis and pathology, Clinical manifestations, Laboratory investigations, Differential diagnosis, Complications, Treatment and prevention
9	1	1	Introduction (Brief history of Tuberculosis) Etiology and pathogenesis	Brief history of TB in Afghanistan and world, scientific progresses and views during the different socializations. Agent and characteristics typical and atypical mycobacterium, isolation of BK, method of eradication, TB pathogenesis, routes of spread, development of the disease, course of infection in the organism.
10	1	1	TB Classification& TB Diagnosis	Four types of classification: pathological, epidemiological, bacteriological, and complete clinical. Describe the five components of a TB medical evaluation (Medical history, Physical examination, Test for M. tuberculosis infection, Chest radiograph, Bacteriologic examination of clinical specimens), Identify the major components of TB diagnostic microbiology, List at least five symptoms of pulmonary TB disease, Explain the purpose and significance of direct sputum examination for acid-fast bacilli (AFB).
11	1	1	Primary TB forms Secondary clinical forms of TB (Acute Disseminated Pulmonary TB(Miliary TB)	Primary complex of TB (Definitions, pathogenesis, clinical features, Diagnosis, course and complications, prognosis, and treatment). Essential of differential diagnosis between primary and secondary forms of TB, Disseminated Pulmonary TB. AcuteDisseminated Pulmonary TB(Miliary TB):- Definitions, pathogenesis, predisposing factors, clinical forms and features, Diagnosis, D/Dx, complications, prognosis, treatment
12	1	1	Sub acute disseminated pulmonary TB and Chronic disseminated	Sub acute disseminated pulmonary TB: Definitions, clinical features, Differential Diagnosis, prognosis, treatment. Chronic disseminated pulmonary TB: - Definitions, pathogenesis, clinical features, Diagnosis, Differential

			pulmonary TB	Diagnosis, course and prognosis, treatment.
13	1	1	Infiltrative TB and Fibro cavernous TB	Definitions, pathogenesis and routes of spread, structure of lymph nodes and pathologic changes, clinical forms, clinical features, Diagnosis, Differential Diagnosis, treatment
14	1	1	TB of pharynx, Oral, and Larynx	Definitions, pathogenesis and clinical forms, structure of lymph nodes and pathologic changes, clinical features, Diagnosis, Differential Diagnosis, treatment.
15	1	1	Prevention of TB general Treatment of TB	BCG vaccination (what is BCG? pre administration preparations, administration and stages of prophylaxis, complications, contra indications,), chemoprophylaxis:- Definition, primary and secondary chemoprophylaxis, Qualified groups, period and method, Epidemiologic sanitary achievements). Principals of treatmentfor TB patients, objectives, specific or anti bacterial treatments. Non specific treatment.
16	1	1	DOTS program &Epidemiology of TB	DOTS methods for TB treatment. Epidemiology of TB and Epidemiological parameters, National campaign in the country. Roles and responsibilities of the public health sector providers.

b-Clinical Skills

- □ Use critical thinking (problem solving);
- □ Use learning resources including mentorseffectively;
- □ Qrder and interpret appropriate laboratory and diagnostic studies;
- □ Integrate history, physical examination and laboratory results;
- □ Can select appropriate management at the right time;
- □ Work effectively with others on the healthcare team.

Textbooks & Reference books RecommendedflLast edition)

- □ Essentials of Clinical Infectious diseases,William F.Wright.
- □ Harrison's Infectious Diseases,Denniel L.Kasper.
- □ Infectious Diseases,A Clinical Approach,Allen Yung,Denis Spelman.
- D Clinical Infectious Diseases,Rickbard K. Root.
- □ Emergency management of Infectous diseases,Rackel L.Chinn.
- D Netter's Infectious diseasesJElien C.Jong.
- □ Clinical Tuberculosis,P.D.O.Davies.
- □ Tuberculosis Surrendra k.Sharma.
- □ Tuberculosis,A Comprehensive Clinical references,H.simmon Sichaal.

OPHTHALMOLOGY

The broad goals of the teaching of students in ophthalmology are to provide such knowledge ,and skills to the student that shall enable him/her to practice as a primary eyecare physician,and also to function effectively as a community health leader to assist in the ..implementation of national program for the prevention of blindness and rehabilitation ofthe visually impaired.

A:KNOLEDGE

At the end of the course, the student will have knowledge of:

- Symptomatology in ocular disorders and their pathogenesis;
- Ocular involvement in systemic diseases;
- Disorders of the lid;
- Disorders of the lacrimal apparatus;
- Conjunctivitis;
- Ophthalmia neonatorum;
- Trachoma &other chronic conjunctivitis;
- Keratitis and corneal ulcers;
- Scleritis &Episcleritis; \
- Refractive errors &method of correction;
- Presbyopia;
- Accommodation convergence;
- Cataract (Congenital cataract, Senile cataract, Metabolic & complicated cataract);
- Glaucoma(Primary closed angle glaucoma, Congenital glaucoma, Primary Open angle glaucoma, Secondary glaucoma);
- Uveitis(anterior uveitis, posterior uveitis)
- Blindness prevalence, prevention & rehabilitation;
- Retinopathies(Hypertensive, Toxemia & Pregnancy, Diabetic Retinopathy);

0 Retinal Detachment, types, symptoms & predisposing factors;

- Endocrine ophthalmology;
- Retinal vascular disorders;

D Retinoblastoma & other ocular neoplasms;

- Binocular vision amblyopia & concomitant squint;
- Nutritional disorders;
- Incomitant strabism (paralytic strabism);
- Visual acuity, pupillary path ways & cranial nerve palsies
- Optic nerve lesions;
- Ocular emergencies (Traumatic);
- Ocular emergencies (Non-traumatic);
- Minor ophthalmic surgery;
- National program for control of blindness;
- Comprehensive eye care in rural set-up;
- Ethics in ophthalmology;
- Trachoma;
- Entropion / ectropion;
- Pterygium;

- □ Nasal lacrimal duct block / Dacryocystitis;
- □ Conjunctivitis / allergic / acute;
- □ Corneal ulcer;
- □ Keratitis;
- □ Iridocyditis;
- □ Angle closure glaucoma;
- □ Scleritis / episcleritis;
- □ Dark room;
- □ Refractive errors & presbyopia:
- □ Cataract-senile:
  - Complicated Post-operative
  - Complications
  - Intraocular lenses
- □ Xerophthalmia;
- □ Corneal opacities;
- □ Ocular injuries(Perforating / concussional injuries);
- □ Amaurosis fugax;
- □ Indirect ophthalmoscopy;
- 0 Orthoptics (study and treatment of defective binocular vision);
- □ Surgical Instruments;
- □ Magnitude of blindness in Afghanistan and its main causes;
- □ Principles of management of major ophthalmic emergencies; Course content

OPHTHALMOLOGY				
Discipline			Clinical Science and Skills	
Department			Ophthalmology	
Subject			Eye diseases	
Course code			DE 9 035	
Class			V	
Semester		9	Fall	
Credits		2	Knowledge	1
			Clerkship	1

Hours				
weeks	Skills	Skills	Topics	Descriptions
1	1	1	Optical system of the eye	General approach to Anatomo-physiology of the Eye, Eye Optical system, Vision, Growth & Development of the Eye, refractive errors, Hyperopia , Myopia & Astigmatism.
2	1	1	Optical system of the eyeand Diseases of the	Anesometropia, anisekonia, presbyopia &convergence, Anatomo-physiology of eyelids, congenital anomalies of,

			eyelids	Acquired diseases.
3	1	1	Disorder of eyelids	skin diseases of, Neuro-muscular diseases of, marginal diseases of, Gland diseases of positional disorder of free margin of &tumor.
4		1	Disorders of conjunctiva	Anatomo-physiology of conj, congenital anomalies of, conjunctival inflammations of, non-infectious conjunctivitis, Bacterial,neonatal, viral, Chlamydia trachoma and inclusion conj.
5	1	1	Disorders of conjunctiva& Disorders Lacrimal apparatus	Allergic, Autoimmune , tumrs & degenrations and trauma. Anatomo- physiology of lacrimal system, Lacrimation, dry eye, acute and acute, chronic dacryoadenitis &Lacrimal Gland tumors .
6	1	1	Disorders Lacrimal apparatus & Disorder of extra ocular muscles	Epiphora,acute Canaliculars, acute & chronic dacryocystitis, tumors of drainage passages, trauma ofAnatomophysiology of extra ocular muse Is, definition of squint classification of strabismus.
7	1	1	Disorders of extra ocular muscles & Disorders of orbita, vessels and nerves m	Differential diagnosis of types of squint, motive & sensory changes in squint, squint patient examination, treatment of squint, Anatomo-physiology orbit, diseases of, traumas of, Anatomophysiology of vessels & nerves.
8	1	1	Disorders of vessels , nerves &Disorders of cornea	Disorders of blood vessels & nerves of the eye Anatomo-physiology of cornea, congenital anomalies of, corneal inflammations, classification of Keratitis, superficial Keratitis &non infectious Keratitis.
9	1	1	Disorders of cornea	Bacterial, chlamydial, viral, fungi, filamentry keratitis, keratomalacia and vernal keratitis, Peripheral Keratitis (marginal, rosacea , mooren),interstacial, Keratitis, disciform keratitismiscellaneous, exposure Keratitis, corneal degenerations, tumors of, Injuries of &principles of Keratoplasty.
10	1	1	Disorders of sclera & disorders of uvea	Anatomophysiology of sclera , congenital anomalies of &scleritis, Anatomo-physiology of uveal truct, congenital anomalies of uveal truct, classification, clinical aspect of uveitis ,tumor of uvea.
11	1	1	Disorders of retina	Anatomophysiology of retina ,retinal artery occlusion, Retinal Vein ocolusion, eales diseases, retinitis pegmentosa.
12	1	1	Disorders of retina	Diabetic retinopathy .hypertensive retinopathy, retinopathy of | blood disorders, retinopathy of prematurity retinopathy
				ofgravidaum.
13	1	1	Disorders of retina and Glaucoma	Toxic retinopathy, Senile Macular degeneration, retinal detachment & tumors, Related anatomophysiology of glaucoma &congenital glaucoma.
	1	1	Glaucoma & Disorders of lens	Primary and secondary glaucoma (open angle and closed angle), Anatomophysiology of lens, congenital anomalies,

14				cours and stage of cataract, clinical aspect related to ege.
15	1	1	Disorders of lens, disorders of vitreous &disorders of visual pathway	Complication & treatment of cataract, Anatomophysiology of vitreous, congenital anomalies of, acquired changes & vitreitis, Anatomophysiology of (optic nerve, chiasma optic,tract,radiation optic and visual cortex, Congenital anomalies of optic nerve.
16	1	1	Disorders of visual pathway	Papilledema &Papillitis, Retrobulber neuritis, optic atrophy Tumors of the optic nerve and disorders of chiasma optic Disorders of the optic tract& optic radiation, Nystagmus &Migraine ophthalmic.

National program for prevention of blindness and its implementation at various levels,

0 Eye care education for prevention of eye problems
□ Role of Primary Health Center -PHC
□ Organization of primary health care and the functioning of the ophthalmic assistant.
□ Integration of the national program for control of blindness with the other national health programs

b-Skills

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

□ Elicit a history pertinent to general health and ocular status;
□ Perform diagnostic procedures such as visual acuity testing, examination of the eye, tonometry, staining for corneal pathology, confrontation perimetry (visual field determination), and subjective refraction including correction for presbyopia and aphakia (absence of lens),
0 Diagnose and treat common problems affecting the eye;
□ Interpret ophthalmic signs in relation to common systemic disorders;
□ Provide first aid in major ophthalmic emergencies;
□ Organize community surveys for visual health;
□ Organize primary eye care services through Primary Health Centers.

Textbooks and Reference Books Recommended (Last editions

□ Ophthalmology,Myron Yanoff.
□ Textbook of Ophthalmology, HV. Nema.
□ Priciples and Practice in Ophthalmology, Alberts Jacobieks.
□ Illastrated Tutorial in Clinical Ophthalmology, Jack J.Kanski.
□ A textbook Atlas of Ophthalmlogy,G.Lang.
Jack J .Kanski Brad Bowling,Clinical Ophthalmology,Ken Niscal &Andrew Pearson

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Facial Plastic Surgery

Facial Plastic Surgery is responsible for the care of patients with a wide range of congenital and acquired defects requiring reconstruction. In addition, there are patients undergoing cosmetic procedures for a variety of indications. Plastic Surgery is divided into several categories. There are the areas of: (I) Core Knowledge /General Plastic Surgical Principles and Techniques which includes wound repair, integument, flaps and grafts, microsurgery. Plastic Surgery Principles and Techniques are in the domains of:

- Facial Cosmetic/Aesthetic
- Burns
- Head and neck/Craniofacial Trauma
- Reconstruction of:
  - Upper extremity
  - Trunk
  - Head and Neck Oncology
- Pediatric surgery

Learning objectives:

- Learn the physiology of wound healing, and be able to manage complex wounds with a variety of techniques to achieve complete healing and maximum aesthetic benefit.
- Learn the physiology of the skin and be able to manage a variety of skin conditions surgically and non-surgically.
- Learn the physiology of flaps and grafts, be familiar with facial surgery in all types of flaps and grafts, and use flaps effectively for reconstruction in the full spectrum of facial plastic surgery.

Course content

PLASTIC & RECONSTRUCTIVE SURGERY					
Discipline			Clinical Science and Skills		
Department			Plastic and Reconstructive Surgery		
Subject			Plastic and Reconstructive Surgery		
Course code			DE10 037		
Class			V		
Semester		10	Fall		
Credits		2	Knowledge	1	
			Clerkship	1	
Hours					
weeks	Knowledge	Skills	Topic	Descriptions	
1	1	1	**PRINCIPLES IN PLASTIC SURGERY:**		1

			– Fine line scare – Closure of the skin wounds	
2	1	1	**Suturing techniques :** – Simple interrupted suture – Mattresses sutures – Subcuticular suture – Continuous over and over suture **D-** Skin taps, adhesive , tapes	2
3	1	1	**Skin incisions:** – Elliptical excision – Circular excision – Wedge excision **H-** Serial excision	3
4	1	1	**Skin grafting :** – Sing graft types – Requirement for survival of skin graft – Skin graft adherence – Skin graft donor site – Post-operative care of skin graft – Biologic dressing	4
5	1	1	**Wound healing :** – Response to injury – Scare formation versus tissue regeneration – Phases of normal wound healing – Abnormal wound healing	5
6	1	1	**Muscle flaps and their blood supply :** – Flap history – Flap blood supply – Flap modifications	6
7	1	1	**Principles of burn reconstruction :** – General concepts – Timing of reconstructive surgery – Reconstructive plan – Contracture – Tension – Release and grafting	7

			– Z plasty – Graft and flaps	
8	1	1	**Cleft lip and palate :** – Epidemiology and etiopathogenasis – Surgical evaluation and classification – Unilateral cleft lip – Complete bilateral cleft lip	8
9	1	1	**Cleft palate:** – Cleft lip and palate – Isolated cleft palate – Primary unilateral cleft lip repair – Primary bilateral cleft lip repair – Primary cleft palate repair	9
10	1	1	**Treatment of alveolar clefts:** – Secondary cleft repair and nose surgery – Unilateral cleft lip – Bilateral cleft lip – Secondary cleft lip nasal repair	10
11	1	1	**Craniosynostosis syndromes:** – Crouzon syndrome – Apert's syndrome – Pfeifer syndrome – Carpenter syndrome – Treacher collin's syndrome	11
12	1	1	**Orthognatic surgery:** – Basic dental terminology – Diagnosis , history and physical examination – Cephalometric analysis	12
13	1	1	**Orthognatic surgery treatment plan:** – Basic approach to commonly encountered problems – Apertognathia – Vertical maxillary excess – Short lower face	13
14	1	1	**Surgical procedures for Orthognatic surgery:** – General principles	14

			– Lefort I osteotomy – Surgical assisted repair palatal expansion – Intra oral vertical ramus osteotomy – Tow jaw surgery – Complications	
15	1	1	**Reconstruction of the lips :** – Anatomy – Lip defects – Vermillion – Upper lip reconstruction – Lower lip reconstruction	15
16	1	1	**Facelift:** – Facelift anatomy – Facelift technique – SMAS Dissection • Rejuvenation of the neck	16

Textbooks and Reference Book Recommended (Last edition)

- Asthetic Sugery Of Conginetal Facial Cleft
- Writer (L.A. Kozin)
- Plastic Reconstructive & Asthetic Sugery
- Writer (A.E. Belousov)
- Schwart's Principles Of Surgery (Chapter Plastic & Recostructive Surgery)
- Writer (Brunicardi) Translater Dr. Hadi Ahrnadi Amli)
- Grabb & Smith's Plastic Surgery, Charles H. Thorne, 6th/e, Lippincott Williams & Wilkins, George Town University Medical Center, USA
- Handbook of Plastic Surgery, Steven EGreer, Prosper Benhaim, 2004, Marcel Dekker, New York, USA

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COMMUNITY & PREVENTIVE DENTISTRY

Learning objectives:

At the end of this training the students must be able :

- To prevent and control oral diseases and promote oral health through organized community efforts .
- At the conclusion of the course the student shall have knowledge of the basis of preventive dentistry, public health problems, Nutrition, epidemiological methods.

Course Contents

Preventive and community dentistry

Discipline			Behavioral and social sience and Medical Ethics	
Department			Preventive and community dentistry	
Subject			Preventive dentistry	
Course code			DE 10 038	
Class			V	
Semester		10	Fall	
Credits		2	Knowledge	1
			Skills	1
Hours		Topic	Descriptions	
	Skills	Skills		
1	1	1	Introduction to Dental Public Health	Introduction, History of Dentistry, Definition of Practice of Dentistry, Scope of Dental Care, function of public health dentist-
2	1	1	Epidemiology of Dental caries	Introduction, History of Dentistry, Definition of Practice of Dentistry, Scope of Dental Care, function of public health dentist Introduction, Epidemiological studies, Global scenario and current trends in caries incidence, Epidemiological factors of Dental caries, Host factors, Agent factors, Environmental factors..
3	1	1	Epidemiology of periodontal diseases	Introduction, Global scenario of oral cancer, Age distribution Gender distribution, Ethnic basis , Etiology and risk factors, Classification of oral cancer of oral mucosa, Prevention and control oral cancer, role of dentist in detecting and preventing
4		1	Oral health education	Introduction, Considerations in oral health education, Nature of learning, Educational Process, One to one communication, General Educational theories, Basic concepts of oral health education, Approaches in oral health education in health promotion.

5	1	1	Nutrition and Oral health	Introduction, Nutrition, Classification of nutrients , Assessments of patient's nutritional status, Dietary history and evaluation, iet counselling and dietary advice.
6	1	1	Surveying and Oral Health surveys	Surveying (introduction, steps in surveys) Oralhealth surveys Pathfinder surveys, subgroups, index ages and age groups, Number of subjects, organizing the survey, reliability and validity of data, survey form
7	1	1	Oral hygiene aids	Introduction, Manual tooth brush, Powered toothbrushes, Dental floss, interproximal and unitufted brushesh, wooden or plastic triangular sticks.
8	1	1	Oral hygiene aids	Tongue cleaners, Rinsing, Irrigation devices,* Dentifrices and Mouth rinses.
9	1	1	Prevention of Dental caries	Introduction, preventive methods and means, Dietary measures, Oral hygiene measures, antimicrobial agents and treatments, salivary stimulation, General recommendations for prevention of Dental caries with respect to use of sugars.
10	1	1	Prevention of periodontal diseases	Introduction, Implications for preventions, Factors predisposing to plaque accumulation, Oral hygiene aids, Chemical plaque control
11	1	1	Prevention of Malocclusion	Introduction, Implications for preventions, Factors predisposing to plaque accumulation, Oral hygiene aids, Chemical plaque control.
12	1	1	Treatment of Maxillofacial tumors	Introduction, etiology of malocclusion, preventive measures, interceptive measures, scopes and limitations of interceptive orthodontics.
14	1	1	Prevention of Dental trauma	Introduction, primary protection, Secondary prevention, Tertiary prevention.
15	1	1	Occupational Hazards in Dentistry	Inttoduction, Occupational hazards, Recommendations, Hospital waste management in Dental care setting.
16	1	1	Infection control in Dental care setting	Introduction, infection control procedures, Disinfection and Dental laboratory.

Textbooks and Reference Books Recommended (Last editions)

1- Preventive & Community Dentistry Writer: SS Hiremath

Ghalib University

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INTERNSHIP (HOUSE JOB)

Internship is a phase of training wherein an undergraduate is expected to learn methods and modalities for actual practice of Dental Medicine and health care and acquire skills under supervision so that he/she may
become capable of functioning independently.

Definitions:

Internship: A period of compulsory training after graduation
form a medical faculty which is required to be done.
Intern: Is a doctor who is undergoing the training period in the internship.
Internship supervisor: The senior member of staff who co-ordinates the internship in each department and hospital, ensuring there is a proper setting for each intern without overloading a single department.
Internship certificate: Is the certificate granted by the internship department to the intern after finishing the full period of the internship.

Learning objectives of the GU & CME (Continuous Medical Education) program

To integrate the medical dentistry knowledge obtained by the undergraduate Dental students during their five-year education studies with the clinical Dental practice taking place in the hospitals and clinics constitutes the integral aim of the GU-CME Dental Internship program. This will consolidate what they have learned and help them in enhancing and improving their clinical skills necessary to Medical Dentistry practice and finally cater standard Dental care for Dental patients. Thus, ensure and guarantee the improvement and maintaining of the international standards of Medical Dentistry knowledge and skills in Afghanistan.

This program, consists of three sections as

1. GU policies related to Dental Medicine Internship Program
2. An introduction to Dental Medicine Internship Program.
3. Procedures of Dental Medicine Internship Program.

Section 1 : GU Policies related to Dentistry Intcrship Program

There are Underlying policies of GU support the interns to complete Dental Medicine Internship Program and achieve the certificate:

1. Vaccination:

- BCG, HBV and Tetanus vaccinations are mandatory
- Heamophiluslnfluenzaevaccineis optional

3. Needle prick:If an intern gets a needle prick this is the procedure that should be taken:

□ The needle should be sent to the laboratory in a closed and sterile container to check for HIV and

□ The prick site has to be cleaned and dressed.

□ A blood sample at zero time to be taken from the intern to check for HIV and HBV and should be documented in the intern file in the department as well as with the GU-CME department.

□ A second blood sample to be taken after 30 days of the needle prick to check for HIV and HBV and should be documented in the intern file in the department as well as with the GU-CME department.

- A third sample to be taken after 6 months of the needle prick to check for HIV and HBV and should be documented in the intern file in the department as well as with the GU-CME department.
- If at any time the intern shows signs of infection with HIV or HBV he/she should undergo immediate treatment and his training will be suspended till proven free of disease.
- If the needle was found to have traces of HIV or HBV in it (after step one) then the intern's training will be suspended till proven free of disease.
- If the intern does not show any sign of infection after the needle prick, the internship program can be resumed with a condition to keep him under observation for signs of illness. And if in case the intern has to change the department as part of the training program the information of the needle prick should be handed over to the respected head of department.

II. Dress code:

0 All interns must be dressed with white coat during all time
- All interns must have their badges-on during all time
- Not allowed any clothes with exposed body parts or unacceptable prints at any time
- Not allowedsandals at any time only front closed safe shoes are permitted
- Personal hygiene should always be followed.

III.Behavior:

- All interns should conduct in a professional matter.
- Patients' rights must always be dealt with confidentiality.
- All interns must treat the patients and their superiors with respect. Any violation of this will be dealt with immediately from the head of department and then to inform both the hospital CME committee and the GU-CME to consider immediate termination from the program.
- Patient safety must be intern's priority and if any discovered violation will cause immediate termination.
- Personal safety of the intern should be always considered especially when dealing with bodily fluids or communicable diseases and if any violation of this is discovered this will be taken as grounds for immediate termination.
- Any violation of the above will be dealt with immediately from the head of department and then to inform both the hospital CME committee and the GU-CME to consider immediate termination from the program.
- All decisions of the head of department, the hospital CME committee and the GU-CME should be respected, and the decision of the GU-CME will be final.
- Violation warning
    - o First violation will have a verbal warning, o Second violation will have a written warning,
    - o Third violation will be reported to hospital. CME committee which in turn will submit a report regard these repeated violations to the GU-CME department which in turn will consider the termination of the intern from the program.

IV. Attendance:

- Daily attendance; as per the GU law is from 8:30ani
- Daily signature are compulsory as proof of attendance
- It is strictly forbidden to sign in for other people
- Violation Warning:
    - First violation will have an oral warning
    - Second violation, will have a written warning

- The third violation will be seen in the hospital CME committee which in turn will send a report about these repeated violations to the GU-CME department which will consider the termination of the intern from the program

V. on-call duties

- On call duties will be provided in the beginning of each rotation to the intern by the head of department
- The on call duty rotations will be given by the head of department as per the normal process of that particular department
- An on call room will be dedicated for the on call interns taking in considerations having separate rooms for males and females. Meals will be provided for them for that on call duty
- Refusal to do duties or delaying in starting the duties or leaving the duty without a previous approval from the head of department will be considered as a violation
- Violation Warning
  - First violation will have an oral warning o
    Second violation will have a written warning
    o The third violation will be seen in the hospital CME committee which in turn will send a report about these repeated violations to the GU-CME department which will consider the termination of the intern from the program

VI. Leaves

All laws of the GU in this regards should be followed concerning all leaves; annual leave, sick' leave,

maternity leaveetc.

A. Annual leaves"

- The intern is allowed for 21 working days in total as per GU law
- The intern should be in the program for a minimum period of 3 months before requesting any leave.
- Any leave should be substituted in the rotation in which the leave was taken.
- Annual leave has to be submitted to the head of the department before2 weeks of the required date and the approved request must be kept in the intern's file after the approval of the hospital's CME committee.
- NoSMS,E.mail or phone calls on the day of absence, will be accepted as a request for leave.

B. Hours leaves

If permitted by the head of department, the intern is allowed for 2 hours leave in 2 working days in each Month

C. Absence leaves

- Any day the intern does not appear for work will be considered as absence from work
- If the intern appears at work then a written letter explaining the reason of the absence with documented proof and he/she is to be issued a warning.
- If the intern does not appear for 10 consecutive days, the head of department should inform the hospital CME committee who in turn will which will consider the immediate termination of the intern from the program.
- Any unapproved absence days will be deducted from the total leave days allowed to the intern, but if the unapproved absences was repeated 3 times or more then the head of department should inform the

hospital CME committee who in turn will inform the GU-CME which will consider the immediate termination of the intern from the program.

D. Sick Leaves:

- A sick leave certificate must be submitted to the internship supervisor
- A sick leave certificate must be followed by the attestation rules and regulation applied by GU human resource
- Any sick leave more or equal to 10 days has to be reviewed and accepted by a special committee.

VII. Certificate Achievement:

- All interns must finish 52 full weeks with a fixed list of rotations.
- Changes to the rotations are not allowed.
- All interns must apply the whole approved program in the accepted Hospitals/ clinics of GU.
- If intern accomplished less than 52 weeks of training, he/she will not deserve taking the certificate.
- D If the intern does not complete one-year internship program satisfactory, then the weak rotations will be repeated, but if the intern still shows weakness then he/she will be terminated from the program.

VIII. Complaints

A. Against the intern:

a. Will be dealt with by the head of department.
b. If the head of department did not succeed in solving the complaint then the matter should be referred
to the hospital CME committee.
c. If the hospital CME committee does not succeed in solving the complaint then the matter should be referred to the GU-CME where a final decision will be taken.

B. From the intern:

a. Will be dealt with by the head of department.
b. If the head of department does not succeed in solving the complaint then the matter should be referred to the hospital CME committee.
c. If the hospital CME committee does not succeed in solving the complaint then the issue should be referred to the GU-CME where a final decision will be taken.

IX. Credit hours

D All interns are required to have a minimum of 20 hours of credit hours.

- The credit hours can be covered by internal activities in the GU healthcare establishments with attendance certificates.
- All credit hours certificates should be given in with the application for thelnterriship for the internship certificate.
- No internship certificate will be issued if the credit hours requirement has not been fulfilled.

X. Certificate Collection

- In case of completion of the internship program in the GU a request from the intern for issuing him/her a completion of internship should go to the internship supervisor who will check the

requirements and will issue a letter to the hospital CME committee specifying if the intern has completed the program in a satisfactory way or not and then the committee will forward their recommendations to. the GU-CME committee for issuing a certificate of completion of internship or not.

- In case of not completing the internship program a request from the intern for issuing him/her a training certificate should go to the internship supervisor with a detailed letter from the intern in which reasons for not completing the training has to be given. The internship supervisor will check the training feedback with the logbook of the intern and will issue a letter to the hospital CME committee specifying if the intern has completed the training period in a satisfactory way or not and then the committee will forward their recommendations to the GU-CME committee for issuing a certificate of completion of training or not.

Section 2: Introducing Dental Medicine internship program

This Section introduces the Dental Medicine Internship Program for the new undergraduate Dental students who are recently introduced for Dental Medicine Internship Program in the medical facilities of Ghalib University.

What is Dental Medicine Internship Program?

Based on the aim of the Dental Medicine Internship Program approved by the Department of Continuous Medical Education of GU, undergraduate student of Dental medicine is considered intern when he /she successfully completes the approved training activities in a collection of specialties and to the standard of performance expected in the specialties.

How does Intern become a Junior /Beginner Doctor?

The intern becomes a Junior /Beginner doctor after he/she completes the recommended training duration and is assessed against the recommended specialty skill of GU official Dental medicine internship program (see Table 1)

No	Recommended specialty	Duration (No. of Weeks)	Comments
1	Oral & Maxillofacial surgery	9	
2	Operative Dentistry & Endodontic	9	
3	Pediatric & preventive Dentistry	8	
4	Periodontology	6	
5	Prosthodontics	8	
6	Oral medicine	4	
7	Orthodontics	5	
8	Reconstructive & plastic surgery	2	

9	Rational medicine use & Prescription Writing methods	1	
	Total weeks	52	

What is Skill Standard?

In order the intern to be certified as junior /beginner doctor, he/she is judged against established standards. These standards have been developed by the department of continuous medical education of GU and are called skill standard. Skill standard is the professionally and scientifically approved performance of activity that ensures the accomplishment of a patient care.

What is Evidence collection?

Skill Assessment involves collecting evidence and the hospital CME coordinator is the person who collects the evidence and makes a judgment about whether the intern accomplished the skill recommended. The GU -Department of CME approved evidence includes:

- □ Observation of the intern performance to the specialty skill standards.
- □ Internship supervisor verifications.

A) Intern role

1. All interns are expected to follow all the rules and regulations of the GU and related health facilities as long as they are part of the internship program.
2. All interns are expected to take part in the morning reports of the department they are assigned in, take part in the daily morning rounds and the discussions regarding the Dental cases in that department.
3. To cover the entire intern's logbook with daily documentation as per the requirements.
4. Each intern has to be under direct supervision of a GU Dental Medicine Doctor/Instructor.
5. Seek help if the intern feels a certain weakness in a clinical area.
6. The intern is expected to avoid the following:
   a. It is strictly not allowed for any intern to meet, treat, advice or discharge a patient without direct supervision of a working senior staff doctor who is responsible for this with a counter signature from him.
   b. Interns are not allowed to do any invasive procedures unless there is a qualified supervisor present at the bedside of the patient.
7. After the completion of the internship program, the intern has to give a request for the internship certificate to the Internship supervisor who will check the following:
   a. Completion of the program and the required periods.
   b. Completion of the intern's log book.
   c. Completion of the feedback of the intern by every respected head of department
   d. All the above has to be to the satisfaction of the CME committee.
   e. The Internship supervisor will inform the hospital committee which in turn will inform the GU-CME if there is a need for repeating any rotations or reviewing an intern's case.
8. In the case where it is discovered that there is a violation from the above-mentioned points, this will cause the intern immediate terminated.

B) Role o f the head o f department

a. To respond to the educational needs of the interns and facilitate learning.
b. To aid the intern in acquiring skills in communication, interpretation of clinical data as well as in the performance of diagnostic and therapeutic procedures, all under the direct supervision of an •allocated senior staff with suitable qualifications.
c. To ensure that skills in documentation of clinical data and the methods for their retrieval and analysis are learnt and understood by the intern.
d. To ensure that the intern is able to present appropriate observations in pair groups, clinical meetings and CME Programs.
e. To provide opportunities for the intern to have patient contact both in the ambulatory and inpatient settings.
f. To help the intern learn the importance of getting informed consent for diagnostic/ therapeutic procedures and the appropriate methodology to achieve.
g. To identify areas where the intern may not have acquired the requisite competency and suggest corrective measures. Such information should be communicated to the intern and brought to the attention of the internship supervisor and the hospital committee as soon as possible, ensuring enough time for corrective measures to be initiated.
h. To ensure that patient safety is paramount during procedures such as prescription of drugs and any invasive interventions when they are carried out by the intern which should be always under supervision.
i. To ensure that common precautions observed in the hospital are learnt and followed by the intern to ensure safety of the intern, patients and present staff and aid them in doing so.
j. To assist the intern in learning the importance of ethical procedures such as patient confidentiality.
k.To present the intern with opportunities to acquire interdisciplinary communication skills with all of the associated hospital staff.
l. To conduct an investigation as a first line authority for or against any Intern if any professional misconduct complaint arouse, and facilitates proceedings required.

C) The internship supervisor role:

a. To have an introductory meeting with all the interns in the beginning of their program in which the rules and regulations are explained and where any queries about the training is addressed.
b. To allocate the intern with specific place of specialty.
c. To ensure that the interns are provided with necessary educational support during their entire training period in the department.
d. To help the interns to gain access to learning resources in the hospital such as the medical records room or the library etc.
e. To collaborate with the hospital committee at regular intervals to ensure satisfactory progress of the interns.
f. To develop learning programs consistent with the fulfillment of the learning objectives for the internship program.
g. To guide the Interns in the realization of their learning objectives. The Supervisor must give each intern individual attention.
h. To ensure that the interns fulfill the training requirements in terms of attendance and acquisition of competencies. The Supervisor should monitor the progress of the intern at regular intervals and should allocate such time to discuss this with him/her.

i. To identify areas where the intern may not have acquired the requisite competency and suggest corrective measures.

j. To ensure that patient safety is paramount during procedures such as prescription of drugs and surgical interventions when they are carried out by" the intern which should be always under supervision.

k. To ensure that common precautions observed in the hospital are learnt and followed by the intern, to ensure safety of self, patients and present staff and aid them in doing so. 1. To validate the Internship logbook at regular intervals and ensure documentation of the competencies are complete,

m. To ensure that the intern have the requisite skills to access hospital services like the Medical Records, Hospital Library and IT Department in completing their learning requirements.

D) The GU-CME role

To present to the GU- CME department details of the progress of the intern, and to complete the feedback and assessment reports about each intern at the end of the training period and compile a final evaluation report.

a. Provide educational support measures for the HOD/ hospital for the facilities at different hospitals of the GU which is part of his hospital as requested or required, for example to arrange rotations unavailable in that particular hospital but is found in other hospitals.

b. To coordinate any arrangements the hospital has made for training the interns.

c. To ensure that patient safety is paramount during procedures such as prescription of medicine and surgical interventions when they are carried out by the intern which should be always under supervision.

d. To ensure that common precautions observed in the hospital are learnt and followed by the intern to ensure safety of self, patients and present staff and aid them in doing so.

e. To conduct an investigation as a second line authority with the internship supervisor if the HOD failed to reach to a decision for or against any Intern if any professional misconduct complaint arouse, and facilitates proceedings required.

Section 3: Procedures of Dental Medicine Internship Program

All interns will be given a start date which they have to adhere to.

a. On the first day of work the interns will be oriented by their internship supervisor for the ru regulations and what is expected from them.

b. All interns will be allocated to the specific places and they are strictly forbidden from chang place of work or specialty they have been assigned to by their internship supervisor.

c. The intern will proceed to start in the specified rotation and will meet with the head department and will start immediately with the tasks allocated by the HOD.

d. When the hospital CME see any voilatin by the intern, it will send a report to the GU CME so that it decides to terminate the intern.

B.Log-book for Medical Internship Program in GU, faculty of Dental Medicine

Rotation 1

Name of Intern: _____

Department: Oral & Maxillofacial Surgery

Obligatory requirement

1- 35 cases of Simple Tooth Extraction

Patient s file no	5 Observation	5 Assisting	25 Independent operation	Date	Signature of Supervisor
1					

Table 1

2-5 cases Assisting and observing transalveolar surgery

Patient s file no	5 Observation	5 Assisting	25 Independent operation	Date	Signature of Supervisor
1					

Table 1

3-2 cases of Assisting and Observing incision and drainage of Dentoalveola Abscess

Patient s file no	5 Observation	5 Assisting	25 Independent operation	Date	Signature of Supervisor
1					

Table 1

4-2 cases Assisting and Observing management of Dentoalveolar trauma

Patient s file no	1 Observation	1 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table 4

5-1 case observing management of facial fracture

Patient s file no	1 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table 5

6-presenting a conference / Case presentation assigned by the Department.

Rotation II

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Name of Intern_____

Department: Periodontics

Obligatory requirements

1-Preparation of patient s file and Diagnosis of periodontal Diseases (3 patients)

Patient s file no	1 Observation	1 Assisting	1 Independent operation	Date	Signature of Supervisor
1					

Table 6

2-Scaling – Root planning by handle and ulra-sonic instruments (10 patients)

Patient s file no	1 Observation	2 Assisting	7 Independent operation	Date	Signature of Supervisor
1					

Table 7

3-Demonstration of periodontal surgery equipments and principles

4-Assisssting and Observing periodontal surgical procedures in flap designing and crown elongation

(2 patients)

Patient s file no	1 Observation	1 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table 8

5-Presenting a conference/ Case presentation assigned by the department

Rotation III

Name of Intern_____

Department: Pediatric and Preventive Dentistry

Obligatory requirements:

1-Principles of identification primary teeth & Permanent teeth and principles of diagnosis

Patient s file no	1 Observation	1 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table9

2-Demonstration of Fluoride therapy & Sealant therapy on patients or models

Patient s file no	2 Observation	2 Assisting	1 Independent operation	Date	Signature of Supervisor

1					

Table 10

3-15 Extraction of Primary teeth

Patient s file no	2 Observation	3 Assisting	10 Independent operation	Date	Signature of Supervisor
1					

Table 11

4-Restoration of Primary & Young Permanent teeth

Patient s file no	2 Observation	2 Assisting	5 Independent operation	Date	Signature of Supervisor
1					

Table 12

5-10 Pulp therapy of Primary & Young Permanent teeth (Pulp capping, Pulpotomy, Apexogenesis)

Patient s file no	4 Observation	3 Assisting	3 Independent operation	Date	Signature of Supervisor
1					

Table 13

6-Root canal therapy primary & Young permanent teeth (Apixofication)

Patient s file no	3 Observation	2 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table 14

7-Management of Anterior teeth trauma

Patient s File no	2 Observation	3 Assisting	10 Independent operation	Date	Signature of Supervisor

Table 15

8- Demonstration of management of early loss of Primary teeth (Space maintenance & space regainer)

Patient s file no	1 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table 16

10- Management of gingival & Periodontal disease in children

Patient s file no	2 Observation	2 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table 17

11- Presenting a conference/ Case presentation Assigned by the department

Rotation IV

Name of Intern_____

Department: Orthodontics

Obligatory requirements:

1-Removable Appliance of orthodontics (Retainer, Forming Adams clasp, labial arch, Z spring, Canine retractor)

Patient s file no	2 Observation	2 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table 18

2-Placement of Brackets and molar bands along with their auxiliaries

Patient s file no	2 Observation	2 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table 19

Rotation V

Name of Intern_____

Department: Prosthodontics

Obligatory requirements:

Patient s file no	1 Observation	0 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table 26

5- Access Cavity Preparation & Cleaning and Shaping (5 Patients)

Patient s file no	2 Observation	1 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table27

6- Canal Obscuration (4 patients)

Patient s file no	1 Observation	1 Assisting	2 Independent operation	Date	Signature of Supervisor
1					

Table28

7- Vital Pulp therapy (4 Patients)

Patient s file no	1 Observation	0 Assisting	3 Independent operation	Date	Signature of Supervisor
1					

Table29

8- Presenting a CONFERENCE / Case Presentation assigned by the department.

Rotation VII

Name of Intern_____

Department: Oral Medicine

Obligatory requirements:

1- Management of Oral Candidacies

Patient s file no	2 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table30

2- Management of Viral infections in oral mucosa and facial skin (4 patients)

Patient s file no	2 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

3- Table30

3-management of Aphthous stomatitis (2 Patients)

Patient s file no	2 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
1					

Table30

Patient s file no	2 Observation	0 Assisting	0 Independent operation	Date	Signature of Supervisor
			operation		Supervisor
1					

Table 33

5-Managemnt of chronic ulcer in oral mucosa (2)

Patient s file no	2 Observation	0 Assisting	0 Independent task	Date	Signature of Supervisor
1					

Table34

6-Presenting a conference / case presentation assigned by the Department.

Rotation VIII

Name of Intern_____

Department: Pharmacology

Obligatory requirements:

1- Rational Drugs uses and Prescription Writing methods

Patient s file no	2 Observation	0 Assisting	5 Independent task	Date	Signature of Supervisor
1					

Table35

Rotation IX

Name of Intern_____

Department: Reconstructive & Plastic Surgery

Observation requirements:

1- Observation & Physical Examination of Patients in OPD

Patient s file no	5 Observation	0 Assisting	0 Independent task	Date	Signature of Supervisor
1					

Table36

2- Document introduction & Document entry of the patient

Patient s file no	5Observation	0 Assisting	0Independent task	Date	Signature of Supervisor
1					

Table35

2- Dressing and followup the patients

Patient s file no	2 Observation	0 Assisting	5 Independent task	Date	Signature of Supervisor
1					

1- Table35

3-Different types of suturing procedures

Patient s file no	2Observation	0 Assisting	0Independent task	Date	Signature of Supervisor
1					

Table38

3- Participatition in operation room

Patient s file no	1Observation	0 Assisting	0Independent task	Date	Signature of Supervisor
1					

4- Table39

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