Periodontology

Explains the basic curriculum of the specialty of dental diseases.

Theoretical: This course is concerned with the study of biological, mechanical and chemical effects on the health of the tissues surrounding the teeth, as well as common diseases and methods of prevention and treatment.

Practical: In the educational dental clinic, the educational endodontology clinic emphasizes the need to teach the student how to diagnose and treat the disease.

Different Learning Methods in the Department of Dentistry

A- Auditory method: This method depends on communicating information in the form of sounds that are heard by the learner for analysis and storage.

B- Visual method: in which information is communicated by displaying color images, videos or any form of visual educational aids.

C- Reading method: It is one of the methods that depend on reading information to understand and store it.

D. Interdisciplinary professional education where dental students collaborate with other healthcare professionals, to promote a holistic approach to patient care.

Different evaluation methods for students in the Department of Dentistry

Daily tests with multiple-choice questions for subjects that require practical skills.

B- Daily exams with practical questions.

C- Semester and final exams.

D- Setting grades for the assigned homework .

H- Grades of participation of questions competing for the subjects of study.

G- Daily evaluation of the student's work in scientific laboratories and educational clinics.

Learning Outcomes for Dental Courses

Using health information technology in oral and dental health care effectively.

Apply appropriate professional, ethical and legal standards in the provision of patient care in accordance with health care rules and regulations.

Providing graduates with scientific knowledge and professional skills in the fields of oral and dental surgery, dental prosthesis, dental preservation, orthodontics, pediatric dentistry, periodontal pathology and surrounding tissues, as well as radiology

Knowledge of the principles of oral and dental health and understanding of the development, prevention and treatment of related diseases

Health promotion and disease prevention to serve the community.
Integrating basic and medical sciences into healthcare practice.
Develop decision-making and problem-solving skills in healthcare.
Evaluate the state of oral and dental health and the medical condition of the patient, request the necessary diagnostic analyzes, and interpret the results of various analyzes to reach the appropriate diagnosis.
Prepare a care plan for the prevention and treatment of diseases taking into account the needs of the patient.
Demonstrate competence in performing procedures safely in all aspects of dentistry and prevent injuries arising from treatment.
Providing graduates with theoretical knowledge and laboratory and clinical skills that increase the effectiveness of diagnosis.
Preparing dental graduates and training them to become distinguished in various fields of dentistry.

Lesson name and units

Subject	***1st Semester hours/week***		***2nd Semester hours/week***		***Units***	***Code***
	Theory	*Practical*	*Theory*	*Practical*		
7. Periodontology	1	3	1	3	°	PD434

Department of periodontics

A- Basic information

1-Subject title	**Periodontics**	
2-Number of credits	Theory:2	Clinical:3
3-Number of contact hours	Theory:1h/wk	Clinical:3h/wk
4-Subject time	Fourth year	

No.	Lectures	Hours
1	Terms & definitions frequently used in periodontology	**1**
2	Anatomy of the periodontium	**1**

	Oral mucosa -Gingiva o Macroscopic features: i- Marginal gingiva ii- Attached gingiva iii- Interdental papilla o Microscopic features: i- Oral epithelium ii- Sulcular epithelium iii- Junctional epithelium iv- Epithelial connective tissue interface v- Gingival connective tissue (gingival fibers and cellular elements) o Gingival sulcus and gingival crevicular fluid o Blood Supply, Lymphatics, and Nerves o Clinical features of gingiva in health and disease: i- Color • Physiologic pigmentation ii- Size iii- Contour iv- Shape v- Consistency vi- Texture vii- Position	
3	Anatomy of the periodontium - Periodontal ligaments (PDL) o Cellular elements o Ground substance o Development of principal fibers of PDL o Functions of periodontal ligaments: i- Physical functions ii- Formative and Remodeling Function iii- Nutritional and sensory functions o Clinical consideration	**1**
4	Anatomy of the periodontium -Cementum o Definition o Function of cementum o Classification of cementum: i- Acellular afibrillar cementum ii- Acellular extrinsic fiber cementum iii- Cellular mixed stratified cementum iv- Cellular intrinsic fiber cementum o Development and mineralization of cementum o Cementoenamel junction o Cementodentinal junction o Thickness of Cementum in response to physiologic and pathologic conditions i- Normal thickness ii- Cemental aplasia	**1**

	iii- Hypercementosis iv- Ankylosis v- neoplastic and nonneoplastic	
5	Anatomy of the periodontium -Alveolar process o Definition o Function of alveolar process o Parts of the alveolar process i- Alveolar bone proper ii- An external plate of cortical bone iii- Cancellous trabeculae or spongy bone o Basal bone o Anatomic division of the alveolar process i- Interproximal bone ii- Inter radicular bone iii- Radicular bone o Composition of the bone i- Cellular elements ii- Organic components iii- Inorganic components o Haversian system or Osteon o Periosteum and Endosteum o Remodeling of alveolar bone	**1**
6	Classification of periodontal diseases and conditions (2017) - Reasons for classification - Major changes from previous classification - Periodontal health and gingival diseases and conditions Periodontal health and gingival health: o Clinical gingival health on an intact periodontium o Clinical gingival health on a reduced periodontium: i- Stable periodontitis ii- Non-periodontitis patients The classification of dental biofilm induced gingivitis: o Associated with bacterial dental biofilm only o Mediated by systemic or local risk factors i- Systemic conditions ii- Oral factors enhancing plaque accumulation o Drug-influenced gingival enlargements Case definition of gingivitis: o Gingivitis on an intact periodontium o Gingivitis on a reduced periodontium Non-dental biofilm induced gingival disease: o Genetic/developmental disorders o Specific infections o Inflammatory and immune conditions and lesions o Reactive processes o Neoplasms o Endocrine, nutritional, and metabolic diseases	**1**

	o Traumatic lesions o Gingival pigmentation	
7	Classification of periodontal diseases and conditions (2017) -Periodontitis o Periodontitis (Extent, Staging, Grading, Status, Risk factors) o Necrotizing periodontal diseases: i- Necrotizing gingivitis ii- Necrotizing periodontitis iii- Necrotizing Stomatitis) o Periodontitis as a manifestation of systemic disease -Peri-implant disease and conditions: § o Peri- implant health o Peri-implant mucositis o Peri-implantitis o Peri-implant soft and hard tissues deficiency	**1**
8	Classification of periodontal diseases and conditions (2017) Other conditions affecting the periodontium -Periodontal abscess: o Periodontal abscess in periodontitis patients o Periodontal abscess in non- periodontitis patients -Endodontic periodontal lesions: o Endo-periodontal lesions associated with endodontic and periodontal infections o Endo-periodontal lesions associated with trauma and iatrogenic factors -Mucogingival deformity and conditions -Traumatic occlusal force -Tooth and prosthetic related factors	**1**
9	Etiology of periodontal disease -Periodontal disease pathogenesis o Mechanisms of pathogenicity o Histopathology of periodontal disease: i- Clinically healthy gingival tissues ii- Histopathology of gingivitis and periodontitis: • The initial lesion • The early lesion • The established lesion • The advanced lesion o Inflammatory responses in the periodontium: i- Microbial virulence factors: • Lipopolysaccharide • Bacterial enzymes • Microbial invasion • Fimbriae • Bacterial DNA ii- Host-Derived Inflammatory Mediators: • Cytokines • Prostaglandins • Matrix metalloproteinases	**1**
10	Etiology of periodontal disease and risk factors	**1**

	Dental plaque biofilm and periodontal microbiology - Definitions: o Supragingival plaque o Subgingival plaque - Structure of a mature dental plaque biofilm - Accumulation of a dental plaque biofilm: o Formation of the pellicle o Initial adhesion/attachment of bacteria o Colonization and plaque maturation - Factors affecting supragingival dental plaque formation: o Topography of supragingival plaque o Surface microroughness o Individual variables that influence plaque formation o Variation within the dentition o Impact of gingival inflammation and saliva o Impact of patient's age o Spontaneous tooth cleaning - Metabolism of dental plaque bacteria - Communication between biofilm bacteria - Biofilms and antimicrobial resistance	
11	Microbiologic specificity of periodontal diseases - Traditional nonspecific plaque hypothesis - Specific plaque hypothesis - Updated nonspecific plaque hypothesis - Ecologic plaque hypothesis - Keystone Pathogen Hypothesis	**1**
12	Dental calculus - Clinical appearance and distribution (Supragingival and Subgingival Calculus) - Calculus formation: o Theories of calculus formation - Calculus composition: o Inorganic content o Organic content - Attachment to tooth surfaces and implants - Clinical significance	**1**
13	Dental stain - Color and color perception - Classification of tooth discoloration: o Intrinsic discoloration o Extrinsic discoloration o Internalized discoloration - The mechanisms of tooth discoloration - Prevention - Treatment approaches	**1**
14	Etiology of periodontal disease - Risk factors for periodontal diseases: o Definitions of risk factors	**1**

	o Systemic risk factors: i- Modifiable risk factors ii- Non-modifiable risk factors o Local predisposing factors: i- Calculus ii- Iatrogenic factors iii- Margins of restorations iv- Malocclusion v- Associated with orthodontic therapy o Local anatomic risk factors	
15	Etiology of periodontal disease - Molecular biology of host–microbe interactions o Microbe-associated molecular patterns o Toll-like receptors: i- Toll-like receptor-4–lipopolysaccharide recognition i- Toll-like receptor-2–lipoprotein/lipoteichoic acid/peptidoglycan recognition iii- Role of toll-like receptors in periodontitis o Complement system: i-Classical/Lectin/Alternative pathways ii- Role of complement in periodontitis	**1**
16	Etiology of periodontal disease and risk factors - Smoking and Periodontal Disease o Effects of smoking on the prevalence and severity of periodontal diseases: i- Gingivitis ii- Periodontitis o Effects of smoking on the etiology and pathogenesis of periodontal disease: i- Microbiology ii- Immune–inflammatory responses iii- Physiology o Effects of smoking on the response to periodontal therapy: i- Nonsurgical Therapy ii- Surgical Therapy and Implants iii- Maintenance Therapy o Effects of smoking cessation on periodontal treatment outcomes	**1**
17	Impact of periodontal infection on systemic health - Focal infection theory revisited - Subgingival environment as a reservoir for bacteria - Periodontal disease, coronary heart disease, and atherosclerosis: o Ischemic heart disease o Atherosclerosis - Periodontal disease and stroke - Periodontal disease and diabetes mellitus: o Periodontal infection associated with glycemic control in diabetes	**1**
18	Impact of periodontal infection on systemic health - Periodontal disease and asthma	**1**

	- Periodontal disease and pregnancy outcome - Periodontal disease and chronic obstructive pulmonary disease - Periodontal disease and acute respiratory infections	
19	Periodontal indices o Definition o Gingival index (Loe and Silness) o Plaque index (Silness and Loe) o Plaque index (O'leary) o Plaque index (Quigely Hein) o Probing pocket depth o Clinical attachment loss o Basic Periodontal Examination (BPE) o Modified Gingival Index o Bleeding on probing o Furcation involvement index o Calculus index o Recession index (Miller) o Recession index (Cairo)	**1**
20	The periodontal pocket - Classification - Clinical features - Pathogenesis - Histopathology: o Bacterial invasion o Microtopography of the gingival wall o Periodontal pockets as healing lesions o Pocket contents o Root surface walls	**1**
21	The periodontal pocket - Periodontal disease activity - Pulp changes associated with periodontal pockets - Relationship of attachment loss and bone loss to pocket depth - Area between base of pocket and alveolar bone - Relationship of pocket to bone - Periodontal abscess - Lateral periodontal cyst	**1**
22	Treatment plan guidelines [§] - Phase 1 (behavior change, removal of supragingival dental biofilm and risk factor control): o Self-performed supragingival biofilm control: i- Oral hygiene practices to control gingival inflammation ii- Behavioral change for oral hygiene improvement iii- Motivational interviewing and cognitive behavioral therapy o Adjunctive therapies for gingival inflammation o Professional supragingival dental biofilm control o Risk factor control: i- Local risk factor control ii- Tobacco smoking cessation interventions iii- Promotion of diabetes control interventions	**1**

23	Treatment plan guidelines - Phase 2 (cause-related therapy) o Subgingival instrumentation: Scaling Root planing o Removal of plaque-retentive factors o Use of adjunctive systemically administered antibiotics to subgingival instrumentation o Re-evaluation of the cause-related therapy o Decision to refer for specialist	**1**
24	Treatment plan guidelines - Phase 3 (corrective/surgical phase) o Objectives of surgical therapy o Periodontal access surgery: i- Resective ii- Regenerative o Extraction of hopeless teeth o Periodontal plastic surgery: i- Mucogingival surgery ii- Aesthetic crown lengthening o Pre-prosthetic surgery: i- Crown lengthening ii- Implant site preparation	**1**
25	Treatment plan guidelines - Phase 4 (maintenance therapy) o Clinical recommendations o Self-performed supragingival dental biofilm control o Adjunctive therapies for gingival inflammation o Professional supragingival dental biofilm control o Risk factor control	**1**
26	Plaque biofilm control for the periodontal patient - The toothbrush: o Toothbrush design - Powered toothbrushes - Dentifrices - Toothbrushing methods - Interdental cleaning aids: o Dental floss o Interdental brushes o Other interdental cleaning devices - Oral irrigation: o Supragingival irrigation o Subgingival irrigation - Caries control	**1**
27	Plaque biofilm control for the periodontal patient - Chemical plaque biofilm control with oral rinses o Chlorhexidine digluconate: i- Mode of action ii- Clinical use	**1**

	iii- Side-effects o Nonprescription essential oil rinse o Other products - Disclosing agents - Patient motivation and education: o Motivation for effective plaque biofilm control o Education and scoring systems: i- Plaque biofilm control record (O'Leary Index) ii- Bleeding points index o Instruction and demonstration	
28	Periodontal instruments and sharpening - Types of periodontal instruments: i- Diagnostic instruments ii- Scaling, root planing, and curettage instruments • Plastic and Titanium Instruments for Implants iii- Cleansing and polishing instruments iv- Surgical instruments - Instrument stabilization: i- Instrument Grasping ii- Finger Rest - Condition of the instruments and resharpening	**1**
29	Breath Malodor (Halitosis) - Definitions - Epidemiology - Classification - Etiology: o Intraoral Causes: i- Tongue and tongue coating ii- Periodontal infections iii- Dental disorders iv- Dry mouth o Extraoral Causes o Pseudo-halitosis or Halitophobia - Diagnosis of malodor - Prevention and management: o Mechanical reduction of intraoral nutrients and microorganisms o Chemical reduction of oral microbial load: i- Chlorhexidine ii- Essential oils iii- Chlorine dioxide iv- Two-phase oil-water rinse v- Triclosan vi- Hydrogen Peroxide vii- Amine Fluoride or Stannous Fluoride o Conversion of volatile sulfur compounds: i- Metal Salt Solutions o Masking the Malodor	**1**
30	Systemic anti-infective therapy for periodontal diseases [§] - Definitions	**1**

	- Common antibiotic regimens used to treat periodontal diseases - Tetracyclines: o Specific agents: i- Tetracycline ii- Minocycline iii- Doxycycline o Metronidazole o Penicillin derivatives: i- Amoxicillin ii- Amoxicillin–Clavulanate Potassium o Cephalosporins o Clindamycin o Ciprofloxacin o Macrolides - Single vs combination antibiotic therapy o Clinical implications	
Total		**30**

Clinical and preclinical requirement

Credit hours required	Requirement details
3 h/week (90 h/year)	**Preclinical:** - Training on ergonomic aspects of grasping and use of the instruments and their maintenance i.e. resharpening **Clinical:** - Recording medical and dental history - Patient's education and motivation - Oral hygiene instructions (OHI) - Recording periodontal indices - Diagnosis according to classification of periodontal disease and conditions (2017) - Non-surgical periodontal therapy (manual scaling + polishing)