Advanced Education in General Dentistry
A Post Graduate Two-year Diploma Course offered by Prince Abdulrahman Advanced Dental Institute to all Saudi Dentist founded in the year 2000 which aims to provide extensive multi-disciplinary training in the field of General Dentistry that focuses generally on treatment planning, patient management and comprehensive care. The program provides didactic and clinical training in proper sequencing of treatment and the delivery of comprehensive care in all aspects of modern dental procedures, using state of the art equipment and techniques in a competitive settings.
Prince Abdulrahman Advanced Dental Institute (PAADI) to become a national, regional and world-renowned leading establishment in education and research in the field of Advanced Education in General Dentistry (AEGD).

The purpose of AEGD at PAADI is to enable the residents to successfully treat patients with advanced and multidisciplinary dental diseases through evidence-based comprehensive treatment modalities. Such cases are too complex to be treated by general dentists and, therefore, are usually referred to specialists. The teaching-learning at PAADI is supervised by competent national and international specialist faculty and supported by efficient auxiliary staff and state-of-the-art instructional technology.

Values:

- Excellence
- Honesty
- Initiative
- Respect
- Responsibility
- Discipline
- Loyalty
- Communication
- Professionalism
GOALS

1. Improve the clinical skills of PAADI residents in the prevention, diagnosis, and treatment of non-surgical and surgical Endodontics, Periodontics, Restorative Dentistry, and Prosthodontics.

2. Increase the clinical awareness of the residents in preventive dentistry, orthodontics, and AEGD-related specialties.

3. Train the residents to manage comprehensive multidisciplinary care patients with advanced diseased and mutilated dentition. This objective is accomplished through comprehensive documentation and presentation to the weekly seminar attended by the Institute consultants and specialists.

4. Teach the residents to recognize their clinical skills limitations and identify patients that should be referred to the specialist.

5. Teach the biological and scientific basis of the procedures performed by the residents and make this knowledge the standard for clinical decision making and patient care protocols.

6. Develop the necessary skills for improved patient-doctor relationship.

7. Recognize the patient's social, medical, dental, and psychological needs. Observe the Islamic values in patient care and management.

8. Teach the relationship between oral and systemic health and its role in comprehensive treatment; specifically, the identification of risk factors and their management.

9. Teach the methodology of research design, literature review, and the ability to critique dental articles.

10. Inspire the residents to seek advanced specialty and continuing dental education.

11. Provide in-service training courses to the residents, dental assistants, and dental hygienists in the area of infection control and practice management.

12. Develop continuing dental education programs, conferences, courses, and workshops.

Resident admission criteria

1. English language competency

2. Full-time attendance: 2 years (Year 1: 42 credit hours; Year 2: 31 credit hours)

3. Saudi nationals / citizenship

4. Graduate of BDS from accredited Saudi university

5. Employed by a governmental agency

6. Has passed the written comprehensive examination of the Saudi Commission for Health Specialties (SCHS)

7. Should under go and passed the Oral Interview given by the PAADI Panel of Examiner.
The AEGD Curriculum Courses Contents

CLINIC ORIENTATION:

- Dental office safety.
- Four handed dentistry.
- Dental auxiliary utilization.
- Infection control.
- Dental ergonomics.
- Dentition charting and record documentation.

ORAL PATHOLOGY & MEDICAL DENTISTRY:

- Management of medically compromised patients.
- Pathophysiology of disease.
- Oral manifestation of systemic disease.
- Assess relationship between oral and systemic pathology.
- Diagnosis for pathological conditions.
- Indications and site selection for biopsies.
- Risk factors and site for oral cancer.
- Order and interpret diagnostic tests.
- Diabetes and dentistry.

RADIOLOGY:

- Evaluate radiographs (normal vs. pathological).
- Innovations in radiology.
- Align, expose, develop, and mount x-rays.
- Interpret radiographs.
- Recognize pathology.
- Be familiar with interpretation of tomography computerized tomography (CAT scan), and magnetic resonance imaging (MRI).
- Radiographic technique with or without rubber dam.
PERIODONTICS & IMPLANTOLOGY:

- Microbiology of periodontal disease.
- Biological basis of periodontal disease.
- Current concepts in periodontal therapy.
- Treat periodontal disease.
- Management of risk factors in periodontics
- Perform surgical periodontal therapy.
- Prescribe appropriate chemotherapeutic agents.
- The role of implant therapy.
- Criteria, indications and contraindications for implant therapy.
- Surgical placement and restoration of implants.
- Crown lengthening procedures.

RESTORATIVE DENTISTRY & PROSTHODONTICS:

- Current knowledge of dental biomaterials.
- Scientific basis for restorative therapy.
- Establish an appropriate treatment plan.
- Provide pulp protection methods.
- Perform provisional restoration.
- Replace missing dentition with appropriate removable and/or fixed dentures or implants.
- Esthetic Dentistry: restorations, veneers, and bleaching.
- Knowledge of laboratory procedures in fixed and removable prosthodontics.
- Cast post restoration.
PEDODONTICS & ORTHODONTICS:

- Diagnose and treat primary dentition pathology.
- Oral hygiene procedures.
- Pediatric emergency.
- Etiology and treatment of “baby bottle caries”.
- Psychology of children and their management.
- Criteria and timing of molar extraction in children.
- Recognize the time of orthodontic referral.
- Cephalometric analysis.
- Role of orthodontics in comprehensive case treatment.
- Interceptive orthodontics.
- Adult orthodontics.

PREVENTIVE DENTISTRY & PUBLIC HEALTH:

- Oral hygiene education.
- Diet analysis and counseling.
- Fluoride therapy.
- Community fluoridation vs. topical fluoridation.
- Sealants and preventive resin restorations.
- Patient’s Bill of Rights.
- Infection control procedures guidelines of CDC, ADA, OSHA, and other agencies.
- Participate in community health prevention dentistry program
- Patient Education Program
- Participate in the PAADI school based dental clinic.
ENDODONTICS:

- Diagnose and treat most common and advanced endodontic problems on anterior and posterior teeth.
- Biological knowledge of endodontics.
- Document patient history for treatment planning using the 4R Diagnostic System.
- Pulp and periapical disease.
- Prefabricated post restorations.
- Appropriate treatment sequence in multidisciplinary comprehensive care.
- Provide emergency treatment.
- Treatment complications management.
- Perform retreatment and simple surgical endodontics.
- Trauma and endodontics.
- Finalization system.

MULTIDISCIPLINARY ORAL SURGERY:

- Recognize and prepare the needs for anesthesia or IV sedation.
- Treat uncomplicated infection of dental origin.
- Recognize and refer cysts and tumors.
- Perform simple extractions and uncomplicated impacted teeth.
- Treat oral surgical complications
- Flap design.
- Apico, Retro repair.
- Hemisection and root amputation.
- Suturing materials and methods.
- Management of surgical complications.
- Pre and post patient preparation.
BASIC SCIENCE & MEDICAL DENTISTRY:

- Oral and Maxillofacial Anatomy.
- Oral and Maxillofacial Pathology.
- Oral Medicine.
- Medical Dentistry.
- Pharmacology.
- Anesthesia and Pain Control.
- Hospital Dentistry and Special Patient Care.
- Physical Evaluation and Medical Emergencies.
- Biomaterials

DIAGNOSTIC & PREVENTIVE DENTISTRY:

- Maxillofacial Radiology.
- Preventive Orthodontics and Pediatric Dentistry.
- Research Design and Methodology.
- Preventive Design and Methodology.

THERAPEUTIC & SURGICAL DENTISTRY:

- Restorative.
- Basic Endodontics.
- Advanced Endodontics.
- Surgical Endodontics.
- Basic Periodontics.
- Advanced Periodontics & Implantology.
- Prosthodontics.
- Multidisciplinary Literature Review.
- Multidisciplinary Comprehensive Case Presentation
# AEGD Curriculum – 1st Yr.

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## Advanced Education in General Dentistry RESIDENCY - 2

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**Course Description:**

1. Infection control
2. Medical – Dental Emergencies
3. Radiology Documentation
4. Rubber Dam application in Restorative and endodontic clinics
5. Oral Anesthesia method
6. Patient records documentation and data collection and case presentation
7. Basic dental auxiliary utilization in General Dental Practice
8. Expanded dental auxiliary utilization in different dental specialties.
9. Ergonomics for the dental team (Doctors and DSAs).
10. Diagnostic Wax Up Methods and understanding

**Course Objectives**

- Define ergonomics & understand importance in workplace
- Know most physical ailment risk in dentistry
- Know proper positions for back, neck, shoulders, wrists, elbows, head, & finger while performing dental procedures.
- Know & understand causes & effects of eye strain.
- Know positions for doctor, dental assistants, & patient in order to practice dentistry ergonomically.
- Know where and how to transfer instruments & materials ergonomically.
- Learn how to communicate with dental assistant during dental procedures.
- Learn the difference between working & non-working end of instruments.
- Learn proper training methods & room organization techniques needed for dental assistants.
- Learn where material & instrument should be positioned for ergonomic practice in dentistry.
- Identify the rational, regulations, recommendations & training that govern infection control in dental office
- Know how pathogens travel from person to person & how transmissions can occur in dental environment
- Learn principles of infection control, including medical history, hand washing methods, personal protective equipment, use of barriers, chemical disinfectants, ultrasonic cleaners, sterilizers, & proper instrument storage.
- Know different kind of sterilizers & their applications
- Understand different categories of disinfectant & their limitations, advantages or disadvantages.
- Learn how to minimize transmission from the dental patient to dental areas of clinic & then what method is best to remove pathogens from contacted sites.
- Learn how to evaluate quality & standard needed for masks.
- Learn universal guidelines for blood borne pathogen established by World Health Organization
- Learn how to provide safe room turn over for next patient.
- Learn different types of eye protection & importance in dentistry.
- Learn different vaccinations recommended for dental staff
- Learn when a staff member should be restricted from chairside work.
- Learn protocol for needle stick injuries & treatments.
- Learn safe method for recapping needles.
  - Learn how four handed transfers work for safe instrument transfers to avoid injuries.
- Know why rubber dam is important for most restorative dental restorations.
- Know principles & steps to quick application.
- Know when a dental assistant can apply alone & when another person needed to assist.
- Learn how to use clamps, wedjets & ligation for retention or specific procedures.
- Learn how to apply 4 handed dentistry techniques when working on patient with rubber dam.
- Learn advantages & disadvantages of rubber dam application
- Learn contraindications of rubber dam.
- Learn difference between different sizes & weight of rubber dam & how to chose correct one for procedures.
- Learn different types of clamps both winged & wingless & which are best for restorative procedures.
- Learn precautions with clamps.
- Learn proper 4 handed methods to pass rubber dam clamps & forceps.
- Learn proper removal methods of rubber dam & hazards to avoid
- Understand design & function of the Hi-Volume suction tube.
- Understand the design & function of the Low-Volume suction tube.
- Understand how to position & where to position the Hi & Low volume during dental procedures.
- Know ergonomic four handed positions important for proper suctioning.
- Understand how to maintain clear field
- Understand water flow & where suction should be.
- Learn dangers of hi & low volume suctioning.
- Know how to properly use cotton rolls during Hi Volume suctioning
- Learn difference of Hi volume for surgery & restorative procedures.
- Know of different types of suction tubes & their advantages & disadvantages.
- Understand design & function of the Hi-Volume suction tube.
- Know which hand the suction should be held in.
- Learn difference of Hi volume for surgery & restorative procedures.
  - Know of different types of suction tubes & their advantage
- Understand “TEAM” Concept and each person position for Dentistry
- Know how to choose dental equipment for ergonomic practice
- Know patient and operator positions
- Know how to transfer instruments and materials ergonomically.
- Understand “swing space” concept
- Know how to take dental radiographs with Rinn holder
- Know how to take dental radiographs with finger method
- Understand differences and uses of paralleling and bisecting angle techniques
- Understand location of all teeth from facial landmarks

- Learn how to move anatomical structure using angulations in radiographic techniques.
- Learn types of film and dosages in dental radiography
- Know how to take radiographs ergonomically
- Know how to take radiographs under rubber dam
- Learn technique for all dental anesthetic blocks
- Knows “Scoop” technique for recapping needles
- Learn difference between anesthetic and function
- Know different needle gauges and length and their application and precautions
- Know zones of anesthesia with all dental blocks
- Know different expected medical emergencies in dental office
- Know how to put emergency kit together for dental office including contents
- Learn how to recognize and diagnose medical emergency
- Learn when to initial EMS team
- Know all emergency numbers and where to post
- Understand value of medical history
- Learn CPR and Heimlich maneuver
- Learn how to use AED
- Learn importance of diagnostic wax up
- Learn how to evaluate Curve of Spee and Curve of Wilson
- Learn concepts of best cosmetics in design of anterior crown shapes
- Learn average lengths of teeth for best cosmetics
- Understand how to take alginites impressions
- Understand how to chart patient data on charting form
- Understand how to use CO2 pencil
- Understand how to classify patient in ASA classification
- Understand how to write treatment plan

Text Book and References:
Lectures, videos, clinical & bench workshops and live demonstrations

Audiovisual aids:
clinical dynamics of four handed dentistry, a total ergonomic concept by ADAA

Practical clinical course by Gordon Christensen (efficient dental assisting for composite restorations & resin bonding)

Practical clinical course by Gordon Christensen (efficient dental assisting for Amalgam restorations)

Practical clinical course by Gordon Christensen (efficient dental assisting for fixed prosthodontics)

- Audiovisual Aids:
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<td>Malamed's local anesthesia administration DVD by SF Malamed</td>
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| DENTAL PHOTOGRAPHY | DENTPHOTO 102 | (Semester and year)  
First year |

**Course Description:**

This course is teaching the students skills & knowledge required to take professional dental photographs with consistent quality. It is composed of 3 parts:

1. Lectures covering the basic knowledge of digital photography in general & different techniques of digital dental photography.

2. Hands-on on digital photography: residents are being assisted in setting up their own individual cameras & taking their first intra-oral & extra-oral photographs on each other.

3. Digital dental photography on patients where residents are taking full sets of photographs on their patients with minimal assistance.

**Course Objectives**

1> Learn basic principles of dental photography  
2> Recognize basic equipments needed for dental photography  
3> Perform different techniques of dental photography  
4> Perform basics of dental photographs editing for presentations

**Text Book and References:**

- Mastering Digital Dental Photography by Wolfgang Bengel
- Digital and Conventional Dental Photography: A Practical Clinical Manual by Irfan Ahmad

**Grading System**

| Numbers and types of exams and the grades allocated to each category | 40% Written exam  
60% practical work |
### Course Title:
**MEDICAL DENTISTRY**

### Course Code and Number:
103 MEDDENT

### Course Level:
(Semester and year)
First Year

### Course Description:
This course is designed to provide the residents with the knowledge and skill to provide safe and effective care for the medically compromised dental patients. It will also provide a study of the various medical emergencies that can occur on a dental setting and their management. Moreover this course will allow the residents to apply, clinically, the concepts of basic science especially those related to physiology, pathology, immunology and oral biology. Will also allow the clinical application of diet analysis, dietary advice and behavior modification as related to our field. Thus the residents will have the opportunity to undertake a wide variety of clinical experiences that will be of benefit to their overall training.

### Course Objectives
- Recognize the importance of a complete physical examination, psychological assessment and medical history for the dental patient.
- Assess the medical risk of dental procedures for healthy and medically compromised patients.
- Successfully manage the medically-compromised dental patient.
- Proper diagnose and manage the more commonly encountered medical emergencies that can occur in the dental office.
- List the appropriate rationale for selection of an antibiotic agent.
- List the most common oral lesions, premalignant and malignant lesions.
- develop a team approach in patient management through the use of auxiliaries and experiences with hospital administration.

### Text Book and References:
- Dental management of the medically compromised patient. By James W. Little, Donald A. Falace, Craig S. Miller, Nelson L. Rhodus
- Medical emergencies in the dental office. By Stanley F. Malamed
- Handouts given by lecturers
- Presentations prepared by the residents
Grading System
Numbers and types of exams and the grades allocated to each category

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<th>Pre-test</th>
<th>Random Quizzes (mostly weekly) 10%</th>
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<td>Final exam</td>
<td>60%</td>
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<tr>
<td>Class room-seminar practice</td>
<td>15%</td>
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<tr>
<td>Literature-research assignment</td>
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I  COURSE PHILOSOPHY

The philosophy of this course is to integrate medical science knowledge with dental knowledge, and to teach residents the intimate relationship that exists between general health, oral and dental health with specific emphasis on oral and dental manifestations of systemic diseases. Therefore, this course is designed to equip residents with the knowledge and skills to provide safer and more effective patient care, and to clinically apply the concepts of basic science in those areas related to physiology, pathology, immunology and oral biology. The course also includes a study of the various medical emergencies and their management that can occur in a dental setting, together with the clinical application of diet analysis, dietary advice and behavior modification as related to the dental profession for the improvement of patient oral health.

II  COURSE TOPICS

1. Human Behavior
2. Nutrition counseling as it relates to oral health
3. Smoking – Its effect on general and oral health
4. Bone Histology and Physiology
5. Bone Repair and Healing
6. Bone Metabolism
7. Inflammation
8. Immunology
9. The Immune System
10. Systemic conditions and dental disease: Is there a connection?
    (Dr. Sultan Al Mobarak)
11. Oral manifestations of systemic diseases
COURSE GOALS AND LEARNING OBJECTIVES

1. HUMAN BEHAVIOUR

1.1 Recognize common psychological and behavioral signs which indicate that the patient is anxious, fearful or phobic

1.2 Assess patient’s perceptions of dentistry

1.3 Identify the environmental characteristics that may increase anxiety in the fearful patient

1.4 State etiology of fear

1.5 Outline research findings regarding the most fearful aspects of dental treatment

1.6 Combine the pharmacologic and non-pharmacologic techniques to control patient anxiety

1.7 List the points of compliance and non-compliance of dental patients

1.8 List factors that cause stress in the dentist, and methods of stress reduction

1.9 Communication skills: patient’s rapport and interview:

1.9.1 Observe patient closely for unusual signs in grooming, breathing, body odor etc

1.9.2 Recognize non-verbal communication behaviors

1.9.3 Demonstrate active listening behaviors including questioning, rephrasing, clarification and empathy

1.9.4 Identify the basic components of the patient interview
NUTRITION COUNSELING AS IT RELATES TO ORAL HEALTH AND BEHAVIOR MODIFICATION:

2.1 Define nutrient and nutrition and list nutritional requirements
2.2 Define oral disease, list lifestyle and positive factors
2.3 Define calories and list requirements for average person per day
2.4 Refer to recommended dietary allowance (RDA) in USA
2.5 Explain the Mypyramid food guide
2.6 Analyze diet and list the ABCDs of nutrition assessment
2.7 Refer to the NutriGenie Pyramid Analysis for imbalanced diet
2.8 Describe the “mother of all diets”
2.9 Define malnutrition - refer to cited literature
2.10 Define Pathophysiology
2.11 List clinical signs and symptoms of PEM
2.12 List dietary assessment for patient
2.13 List causes of nutritional deficiencies
2.14 List effects of nutrient deficiencies on tooth development
2.15 List systemic diseases associated with oral manifestations and nutrient deficiencies
2.16 List nutrition, saliva, oral health and influences
2.17 List diet and dental health and describe how diet and nutrition have a direct influence on dental caries
2.18 List nutrition as a mediator in the relationship between oral and systemic health
2.19 Refer to cited studies on the effects of tooth loss on diet
2.20 Refer to cited studies on the effects of the use of prostheses on nutritional status
2.21 Counsel on diet and follow the Dietary Guidelines for Americans
2.22 List benefits of fluoridation and sources and risks
2.23 List effects of vitamin deficiency
2.24 List dietary supplementation and potential risks
2.25 Refer to the Fluoride Supplementation by the American Academy of Pediatrics (AAP)
2.26 Define obesity and overweight, list BMI categories and describe ways to correct
2.27 List oral manifestations and changes in the tongue
2.28 List effects of nutrient deficiencies on tooth development
2.29 List systemic diseases associated with oral manifestations and nutrient deficiencies
2.30 Recognize the clinical signs of good nutritional status and counsel on diet education

3. **SMOKING – ITS EFFECT ON GENERAL AND DENTAL HEALTH:**

3.1 Assess harmful constituents of cigarette smoke
3.2 Assess effects on the immune system
3.3 Assess effects on the cardiovascular system
3.4 Assess effects on the respiratory system
3.5 State how smoking can cause cancer
3.6 Assess smoking behavior modification

4. **BONE HISTOLOGY AND PHYSIOLOGY**

4.1 Define bone, types and functions
4.2 List bone marrow and cells
4.3 List osteoblasts and their origin,
4.4 List osteocytes and functions
4.5 List bone lining cells
4.6 Define osteogenesis and types
4.7 List bone physiology and appositional bone growth
4.8 List bone maintenance and stages of bone remodeling
4.9 State the nature of bone mineral and matrix
4.10 State bone biomechanics and mineralization
4.11 List the stages of bone growth
4.12 State the factors affecting bone healing and the remodeling process
4.13 Describe pathological bone resorption
4.14 Describe bone calcium homeostasis
4.15 Describe the dynamics of bone adaptation

5. **BONE REPAIR AND HEALING**

5.1 List series of mechanisms and components of repair
5.2 Define hematoma inflammation
5.3 Describe the remodeling process in the cortical bone and cancellous bone
5.4 List cutting cones
5.5 List system and local factors affecting bone healing
5.6 Refer to cited updates
5.7 List clinical implications in dentistry
5.8 List bone quantity and quality and types
5.9 List ways in which a bone graft can help repair a defect

6. **BONE METABOLISM**

6.1 List mineral homeostasis
6.2 Describe bone minerals and how they are present in two forms in the skeleton
6.3 List mineral homeostasis
6.4 List parathyroid hormone
6.5 List vitamin D
6.6 List the hormones that are necessary for normal bone growth
6.7 Describe osteoporosis, list locally produced factors medications and therapies

7. **INFLAMATION**

7.1 Define inflammation
7.2 List the damage and benefits of inflammatory reactions
7.3 List types of inflammation
7.4 State etiology of inflammation
7.5 Describe acute inflammation, types and sequence of events
7.6 List the cardinal signs of acute inflammation
7.7 Identify chemotaxis
7.8 List pathogenesis of acute inflammation
7.9 State the role of chemical mediators
7.10 List clinical features of acute inflammation and systemic features
7.11 List exudates of acute inflammation
7.12 List lesions of acute inflammation
7.13 Define abscesses
7.14 List microscopic features of acute inflammation and the outcome
7.15 List signs and symptoms of chronic inflammation
7.16 State etiology and pathogenesis
7.17 List clinical features of chronic inflammation and complications
7.18 List sub-acute inflammation
7.19 List major cellular mediators of inflammation
7.20 Define regeneration and healing and list types of cells
7.21 List sequence of events
7.22 Describe the management of wounds and list steps
7.23 List clinical factors affecting repair and aberrations of wound healing

8. **IMMUNOLOGY**

8.1 Define antigen
8.2 Define pathogen
8.3 Describe the immune system and how it eliminates pathogens
8.4 List innate immunity, host defenses, and mechanical, biological and chemical factors
8.5 List inflammatory and cellular components
8.6 List adaptive (acquired) immunity, responses and tissues of the immune system
8.7 List comparison of innate and adaptive immunity
8.8 List cells and development of the immune system
8.9 List complement system, functions and definitions
8.10 List pathways of complement activation
8.11 List components of mannose-binding lectin pathway
8.12 List lytic pathway

9. THE IMMUNE SYSTEM
9.1 Define immunoglobins and list properties, general functions and basic structure
9.2 Define antigen processing and antibody production
9.3 Define oral immunology and its immunity and periodontics
9.4 List immune disorders and reactions
9.5 List hypersensitivity reactions, types and clinical examples

10. SYSTEMIC CONDITIONS AND DENTAL DISEASE – IS THERE A CONNECTION?
10.1 Describe the oral cavity and how dental bacteria accumulates
10.2 Define gingivitis and list inflammatory responses and common and rare causes
10.3 List HIV, infections, new findings, environmental and genetic influences on periodontal infection
10.4 Assess the effects of smoking and periodontal disease, and list influences, factors and new findings
10.5 Define osteoporosis and list new findings on medications and medications associated with gingival overgrowth
10.6 List effective plaque control
10.7 List medications associated with gingival overgrowth
10.8 Define genes
10.9 Refer to cited literature on influence of obesity and hypertension on the severity of periodontitis in rats and state results

10.10 List oral inflammation associated with pregnancy and diabetes

10.11 List systemic conditions, associations, behavioral influences, medications and effects on periodontal infection

10.12 List factors that place patient at high risk

10.13 Refer to cited literature on frequency and distribution of periodontal pathogens in the atheroma of coronary arteries

10.14 List objectives

10.15 List summary results and conclusions

10.16 List infections that produce changes in lipid metabolism which may favour atherosclerosis

10.17 List new findings, other findings and list risk modification practices

10.18 Identify strong risk factors, and indicators

10.19 List background risk characteristics

10.20 Define periodontal medicine and list risk assessment and risk factor categorization

11. **ORAL MANIFESTATIONS OF SYSTEMIC DISEASES**

11.1 List systemic diseases with oral manifestations,

11.2 List manifestations, clinical presentations and drug reactions

11.3 List diagnosis and treatment

11.4 Define leukoplakia, erythroplakia and speckled leukoplakia

11.5 State etiology, site staging, histopathology and management of oral cancer

11.6 List gene therapy for prevention of oral cancer

12. **MEDICAL HISTORY AND PHYSICAL EVALUATION**

12.1 List procedures for medically compromised patients

12.2 List direct referrals
12.3 List medical history
12.4 Design a medical questionnaire
12.5 Conduct a dialogue history
12.6 List procedures for physical examination
12.7 List vital signs
12.8 List medical and laboratory tests
12.9 List complete blood count
12.10 Take liver function tests
12.11 Take a blood culture
12.12 Do radiology tests
12.13 Define biopsies
12.14 Assess determination of medical risk
12.15 List ASA physical status classification and list examples

13. MEDICINE RELEVANT TO DENTISTRY

13.1 State the pathophysiology, pharmacology and dental management of cardiovascular diseases
13.2 Identify hematological malignancies and bleeding disorders
13.3 List the oral complications of chemotherapy and radiotherapy
13.4 List renal disorders and transplants
13.5 List endocrinology: diabetes and thyroid disorders
13.6 Assess the effects of hepatitis

14. MEDICAL EMERGENCIES IN THE DENTAL CLINIC

14.1 List most common dental emergencies

15. THE DENTAL PULP

15.1 List histologic growth, development and anatomy of the dental pulp
15.2 List pulp cell types and their function
15.3 List blood vascular supply of the dental pulp
15.4 List neutral element of the pulp, functions and the pain pathways
15.5 List histopathology of pulp inflammation

16. **THERAPEUTICS**

16.1 List the appropriate rationale for selection of an antibiotic agent

17. **MEDICAL RISK ASSESSMENT (ASA CLASSIFICATION)**

17.1 State the Medical Risk assessment (ASA classification)
<table>
<thead>
<tr>
<th>Course Title:</th>
<th>Course Code and Number:</th>
<th>Course Level:</th>
</tr>
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<tbody>
<tr>
<td>DENTAL BIOMATERIAL</td>
<td>BIOMAT 107</td>
<td>first year</td>
</tr>
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**Course Description:**

This course gives basic fundamental principle knowledge which intended to bridge the gap between the obtained knowledge (material science, chemistry, physics, etc) and the dental operation. Almost every dental procedure requires the use of materials. It obvious that successful dentistry is dependent on choice of material for a given application, and ability to carry out manipulative procedure to gain the optimum properties of that material.

For better appreciation of the course, it is important to understand the fundamental principles of the biomaterials science, which provides a scientific foundation for clinical application, and manipulation of dental materials. This course covers the most widely used materials in current practice. This course is divided into:

1. **Lectures:** Will elaborate on several of the important points associated with the assigned reading. Some of the aspects will not be covered in the lectures as they are adequately covered in the assigned reading.

2. **Literature Review:** As part of the didactic component of this course, each resident will be assigned a topic and required to present a comprehensive (typewritten) paper to the course director. The resident should be familiar with the topic and must be ready to discuss it with the supervising faculty.

**Course Objectives**

- Provide the dental clinician with a basic understanding of the principles of material science.

- Present the basic properties of dental materials as they are related to clinical manipulation.

- Apply those principles to the selection, handling, and better understanding of the various materials currently used in dentistry.

- Enable the dental clinician to adapt the knowledge of the basic science and the behavior of existing materials to the new materials that are rapidly evolving.
BIOMATERIALS COURSE LECTURE OBJECTIVES

QUALITY ASSURANCE STANDARD

- Describe the different form of material.
- Discuss the time-temperature curve which represent the conversion of solid to liquid and vise versa.
- List the ideal requirements for dental material.
- ADA classification formulated for particular material, based on this, list the processing steps required for a material, from the manufacturing process until it has the seal of certification.
- Explain the ADA Specification and acceptance programs and their importance to professions and the public.

ESSENTIAL OF DENTAL MATERIALS

- Define the matter
- Describe the atom structure
- List the types of interatomic bond
- List the three forms of existing material

DENTAL AMALGAM

- Define the amalgam as a restorative material.
- List the metals and their concentrations present in the amalgam alloy.
- Classify the amalgam according to the particle shape.
- Classify the amalgam according to copper contents.
- Discuss the differences between the low-copper and high-copper alloys in terms of composition, structure. Properties and clinical performance.
- Explain the setting mechanism for both low- and high copper alloy.
- Using the chemical equation that depicts the reaction.
- Draw schematic illustrate the sequence of development of the amalgam microstructure.
Discuss the equilibrium phase diagram of silver-tin system.

ADHESION AND BONDING AGENTS:

- List the requirements for the dental adhesive.
- Discuss the difference between the cohesion and adhesion.
- Describe the primary role of the dentin adhesive material.
- Discuss the viscosity, surface energy, contact angle and wettability.
- Discuss the effect of viscosity, surface energy, contact angle and wettability on the strength of the adhesion between the bonding agents and the tooth structure.

GLASS IONOMER:

- Define Glass ionomer
- Discuss the composition of Glass Ionomer powder and liquid
- Explain the role of Acid in Glass Ionomer
- Classify the glass ionomer according to its application
- Discuss the Physical Properties for each type of Glass Ionomer
- Explain the mechanism of adhesion of glass ionomer
- Discuss the role of water in the setting reaction of a glass ionomer
- Draw schematic illustrate the final setting reaction of a glass ionomer.

CAST METAL ALLOY:

- Define noble metal, alloy and metallic bond.
- List metal properties and requirements.
- Classify metal casting alloy according to their gold contents.
- Classify metal casting according to ADA classification and explain use of each type.
- List the composition ingredients of casting gold alloy.
- Discuss the role of each ingredients in cast gold alloy.
- Discuss [physical properties of modern noble metal alloy.

CAST METAL FRAMEWORK AND WROUGHT WIRE ALLOYS

- Define base metal and wrought wire alloys.
- Classify a base metal alloy and list the constituent of each one.
- Discuss the differences between noble metal and base metal alloys.
- Describe a metal-ceramic restoration.
- Discuss the various type of alloys used for metal-ceramic restoration and the requirements for such alloy.
- Discuss the physical properties of base metal and wrought wire alloys.
- Compare the properties of Cobalt-chromium alloys with type 4 gold alloys for partial denture framework.
• Classify the wrought wire alloy.
• Name some ways wrought wire metals are shaped.

DENTAL PORCELAIN:
• Define the dental ceramic material
• Classify the dental ceramic according to their application.
• Classify the dental ceramic according to their firing temperature.
• Discuss the basic chemical components of dental porcelain,
• Explain the function of each of dental porcelain components.
• Describe the mechanical properties of dental porcelain.
• Classify the all-ceramic system.

DENTAL IMPLANT MATERIAL:
• Name and define the three categories of dental implants.
• List the cost commonly metal and metal alloys used for dental implants.
• Discuss the mechanical properties of the pure titanium.
• Explain why the titanium alloy is commonly used for dental implant.
• Describe the materials used to coat the titanium alloy.

RESIN CEMENT AND LINER:
• Explain the meaning of luting cement
• Discuss the general composition of resin cement.
• Define film thickness and give the ADA Specification limit for film thickness.
• Explain setting reaction (polymerization) of resin cement.
**Course Title:** BASIC ENDODONTICS  
**Course Code and Number:** 201 ENDO  
**Course Level:** (Semester and year) First Year

**Course Description:**
To prepare students to conduct patient interview, identify patient problems, & perform necessary diagnostic examination & treatment necessary for management of pulpal & periapical diseases.

**Course Objectives**
1. Diagnose and treat patients with most common endodontic problems.
2. Demonstrate a biological knowledge of root canal therapy.
3. Collect and document patient history for proper diagnosis and treatment planning.
4. Perform diagnostic procedures for pulp, periapical and periodontal tissue.
5. Accomplish complete intraoral examinations.
6. Determine type and degree of pulp disease.
7. Differentiate between endodontic pathology and non-endodontic pathology.
8. Identify difficult treatment cases.
9. Know when to refer to oral surgeons, periodontists, and other specialists.
10. Determine appropriate treatment sequence in multidisciplinary cases.
11. Provide emergency treatment and relief of acute pain.
12. Identify complications and be able to refer to the staff specialist.

**Text Book and References:**
Pathway of the Pulp and other Latest Edition of International Endodontic Books

| Grading System | Pre-test  
|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Numbers and types of exams and the grades allocated to each category | Random Quizzes (mostly weekly) 10%  
| | Final exam 60%  
| | Class room-seminar practice 15%  
| | Literature-research assignment 15% |
**Course Description/Philosophy**

Basic endodontic course provides the foundations of endodontic education, philosophy and principles of clinical performance at Prince Abdulrahman Bin Abdulaziz Advanced Dental Institute. The course focuses on endodontic case selection, patient interviewing, patient problem identification and treatment planning, and treatment execution.

The biological and scientific (evidenced based) basis for each of the above items is emphasized as per the following topic listings.

**Course Topics**

1. endodontic preparation
2. Rubber dam tooth isolation
3. Endodontic access preparation
4. Root canal preparation principles
5. Endodontic measurements
6. Root canal irrigation
7. Automated endodontic instrumentation
8. Root canal filling: Materials and methods
9. Restoration of endodontically treated teeth
10. Prefabricated endodontic post technique
11. Endodontic emergency treatment principles
12. Endodontic case selection and treatment planning

**Course Specific Objectives**

1. **Pre-Endodontic Preparation**
   
   1.1 Describe restorability of the tooth in an insufficient tooth structure.
   1.2 List the pre-endodontic preparation methods for teeth with insufficient structure.
   1.3 Describe the build-up preparation method.
   1.4 List the disadvantages of traditional pre-endodontic build up methods.
   1.5 State the rationales for traditional build-up method.
   1.6 List the current concepts of traditional build-up method.
   1.7 State the guidelines of rubber dam applications.
   1.8 Discuss the removal of restoration in modern endodontics.
   1.9 List the types of pre-endodontics buildup.
   1.10 Identify the different elements of restorative index
   1.11 List the restoration evaluation guidelines.
   1.12 List the criteria for pre-endodontic restoration removal.
   1.13 List the criteria for mid-endodontic restoration removal.
   1.14 Explain the different guiding principles of tooth restorations.
   1.15 List the methods of restoration removal.
   1.16 State the recommended technique of tooth restorations removal.

2. **Rubber Dam Tooth Isolation**

   2.1 List the rationales for tooth isolation.
   2.2 Describe the value of rubber dam in protecting the staff.
   2.3 State the limitations of rubber dam use.
   2.4 The rubber dam and malpositioned teeth.
2.5 **State** the history of tooth rubber dam isolation.
2.6 **State** the history of clamp selection for a particular tooth.
2.7 **Apply** the universal clamp method of endodontic rubber dam.
2.8 **List** the criteria of rubber dam placement.
2.9 **List** rubber dam armamentarium.
2.10 **Determine** the different types of rubber dam placement techniques.
2.11 **Describe** the restorative method of rubber dam application.
2.12 **Describe** the endodontics universal method.
2.13 **Perform** the steps in placing rubber dam.
2.14 **State** the other dam application methods.
2.15 **Describe** the errors in rubber dam application.

3. **Endodontic Access Preparation**

3.1 **Define** traditional access preparations.
3.2 **Define** access preparation according to research conclusions.
3.3 **List** the factors that influence endodontic access preparation.
3.4 **Plan** access approach according to radiograph analysis.
3.5 **State** the criteria of endodontic access.
3.6 **Identify** the clinical recommendations of access preparation.
3.7 **State** the clinical guidelines in access preparation.
3.8 **Determine** the elements of radiographic analysis.
3.9 **Recognize** the elements of coronal analysis.
3.10 **Describe** the crown and root relationship.
3.11 **State** the endodontic access on different clinical situations.
3.12 **List** the guidelines in accessing intact teeth.
3.13 **Describe** the need to reduce occlusal reduction.
3.14 **List** the steps in access on carious teeth.
3.15 **State** the guidelines on access on intracoronal restoration.
3.16 **State** the location of adult maxillary and mandibular canal orifice locations.
3.17 **Recognize** an overextended access.
3.18 **State** the access guidelines on extracoronal restorations.
3.19 **List** the problems when accessing full coverage restoration.
3.20 **State** the guidelines for access through full coverage restorations.
3.21 **Perform** endodontics access on porcelain fused to metal restoration.
3.22 **Perform** endodontics access on full coverage metal restorations.
3.23 **State** the procedural errors in endodontic access preparation.
3.24 **State** endodontic access preparation.
3.25 **State** other modifications of access preparation.
3.26 **Recognize** the risks in endodontic access through existing intracoronal restoration.
3.27 **State** the guidelines of accessing teeth with calcified canals.

4. **Root Canal Preparation Principles**

4.1 **List** the past trends in root canal preparation.
4.2 **Recognize** endodontics instruments.
4.3 **State** the percentage of untouched prepared canal surface due to anatomic variation.
4.4 **Describe** the principles of curved canal preparation.
4.5 **State** how to determine curvature degree.
4.6 **State** the percentage of untouched curved canal by traditional approach.
4.7 **Describe** the size of instrument ledging curved canal.
4.8 **Describe** hourglass preparation.
4.9 **State** the incidence of ledge formation through canal curvature, tooth and canal position.
4.10 **State** the results of using instrumentation techniques in curved canals.
4.11 **Identify** the results of lacking anatomic knowledge.
4.12 **Describe** the effect of zipping of canal.
4.13 **Describe** the effect of file movements on the foramen.
4.14 **Avoid** the creation of permanent ledge by pushing through the wedging point.
4.15 **Identify** the causes of stripping or perforation of the root.
4.16 **State** the surgical philosophy of endodontics preparation.
4.17 **List** root canal preparation methods.
4.18 **Define** flared canal preparation.
4.19 **List** the biological criteria of root canal preparation.
4.20 **Apply** the design criteria of preparation.
4.21 **List** the procedural criteria of preparation.
4.22 **Describe** the non-flared design preparation.
4.23 **Define** standardized canal preparation technique.
4.24 **Define** serial preparation.
4.25 **Define** step preparation.
4.26 **List** the advantages of flared design preparation.
4.27 **List** the biological and mechanical objectives of root canal treatment.
4.28 **State** the names of different canal preparation used in endodontics literature.
4.29 **List** the apical preparation errors.
4.30 **Define** the terms ledging, foramen transportation, and stripping and patency control.
4.31 **Identify** the specific danger and safety zones of the root canal.
4.32 **Perform** the anticurvature method.
4.33 **Describe** the access preparation of the anticurvature method.
4.34 **List** the radiographic and functional considerations of the anticurvative method.
4.35 **State** the rules of anticurvature.
4.36 **Compare** the relative risks of molar root perforations by using various endodontic instrumentation techniques.
4.37 **State** the purposes of Kessler article on anticurvature.
4.38 **Compare** technique between anticurvature hand instrumentation and engine driven techniques using #4 and #2 round burs.
4.39 **Compare** technique between step back and anticurvature filling as results of reducing perforation risk in the curved canal.
4.40 **Evaluate** anticurvature filling in reducing procedural errors.
4.41 **List** the guidelines of canal preparation.
4.42 **List** the criteria of coronal preparation.
4.43 **List** the instruments used in cervical preparation.
4.44 **List** the value of cervical preparation.
4.45 **State** the specific danger zones of cervical preparation.
4.46 **Evaluate** the effectiveness of using giromatic method or hand instrumentation using peeso reamer or glidden drill.
4.47 **List** the criteria for apical preparation.
4.48 **Describe** the probability of round preparation due to presence of curve.
4.49 **Locate** apical constriction by tactile sense.
4.50 **Check** apical constriction with negotiation file.
4.51 **Determine** apical constriction.

5. **Endodontic Measurements**

5.1 **List** the complications of inaccurate measurement.
5.2 **State** the different measurement errors.
5.3 **Define** the term ledging and perforation as function of preparation.
5.4 **State** the different measurement methods.
5.5 **Use** bleeding on absorbent points as canal measurement method.
5.6 **Explain** the mathematical formulae.
5.7 **Recognize** application for mathematical formulae.
5.8 **State** the average lengths of maxillary and mandibular teeth.
5.9 **Use** the electronic root length measurement.
5.10 **Define** the concept of calibration.
5.11 **Describe** tactile sense to locate apical constriction.
5.12 **State** the criteria of endodontics measurement.
5.13 **Use** of measurements in taking radiograph.
5.14 **State** the criteria for measurement.
5.15 **List** the factors affecting canal length measurement.
5.16 **State** the different kinds of endodontic radiograph exposures.
5.17 **List** the radiographic armamentarium.
5.18 **Perform** radiographs on anterior-posterior teeth.
5.19 **Describe** the measurement of anterior teeth.
5.20 **State** the guidelines for measuring maxillary bicuspid.
5.21 **Use** Clark’s rule to identify the spatial relationship of an object.
5.22 **Determine** the series of three angulated radiographs.
5.23 **State** the guidelines of measurement of mandibular molars.
5.24 **Use** the guidelines of measurement of maxillary molars.

6. **Root Canal Irrigation**

6.1 **Describe** the bacteria found in necrotic root canal.
6.2 **Describe** the kinds of bacterial toxins.
6.3 **List** the intracanal medications.
6.4 **List** the indications for medications in canal therapy.
6.5 **Discuss** the concept of irrigation.
6.6 **List** the types of irrigant solutions through history of endodontics.
6.7 **Uses** of sodium hypochlorite (NaOCl).
6.8 **Describe** the concept of sodium hypochlorite soaking.
6.9 **List** factors that enhance the activity of sodium hypochlorite.
6.10 **Describe** the advantages of sodium hypochlorite.
6.11 **List** the component of Clorox bleach.
6.12 **Apply** endodontic irrigation.
6.13 **Perform** flush out irrigation.

7. **Automated Endodontic Instrumentation**
7.1 List the advantages and disadvantages of hand instrumentation.
7.2 Identify which hand instruments are safer to use.
7.3 Select efficient auxiliary instruments.
7.4 Evaluate carbon steel and stainless steel for efficiency.
7.5 List the ultrasonic principles.
7.6 Define the terms cavitation, acoustic streaming, and vibrating file.
7.7 List the characteristics of ultrasonics.
7.8 List the advantages of sonic instrument.
7.9 Evaluate all instruments and identify which most efficient instrument.
7.10 Identify dangerous instrument.
7.11 Describe the canal finder system.
7.12 List the characteristics of canal finder system as a safety instrument.
7.13 List the types of canal master.
7.14 Describe the 2nd generation canal master U instrument.
7.15 List the pros and cons of using CMU and light speed.
7.16 Describe the mechanical instrumentation motion.
7.17 State the actions performed in using hand instrumentation:
7.18 List the factors to consider when using mechanical instrumentation.
7.19 List the canal anatomy factors that influence instrumentation selection.
7.20 Classify endodontic instruments’ designs.
7.21 List the designs of endodontics file tip.
7.22 List the characteristics of triangular file.
7.23 List the characteristics of quadrangular file.
7.24 Describe the motions of the different file usage.
7.25 List the different numbers of instruments as per ISO standards.
7.26 List the characteristics of profile instrumentation.
7.27 List the advantages of profile instrumentation.

8. Root Canal Filling: Materials and Methods

8.1 List the endodontics filling materials used since 1900.
8.2 List the types of filling techniques.
8.3 List the materials used in impregnation technique.
8.4 List the disadvantages in using impregnation technique.
8.5 List the different steps in overfilling technique.
8.6 Describe the filling of the canal by diffusion technique.
8.7 List the components of Kloroperka filling.
8.8 Define the filling of canal by dipping technique ("dipper").
8.9 Describe the condensation filling technique.
8.10 Define the term condensation.
8.11 List the materials used in condensation method.
8.12 List the criteria of endodontics sealer.
8.13 List the criteria of filling material.
8.14 Identify the filling materials that encourage bacterial growth.
8.15 List paste filler kinds.
8.16 Describe that the N2 root canal filling material is acting disinfectant as shown in clinical, x-ray and bacteriological evidence.
8.17 List the rationales of not using N2.
8.18 List the criteria of endodontics filling material.
8.19 List the components of the various paste fillers such as: Diaket, Wach sealer, Walkoff paste, Riket paste, Reibler paste.
8.20 List the historical periods of filling material.
8.21 List the disadvantages of paste filling.
8.22 Identify the current paste being used in endodontics.
8.23 List the components of stalline super and gutta percha.
8.24 Name the accessory point used in PAADI technique.
8.25 List the components of recent pastes such as Grossman sealer, Rickert’s paste, Tubli-seal.
8.26 Define AH 26 paste.
8.27 List the properties of AH 26 paste.
8.28 List the composition of AH 26.
8.29 Describe mid treatment flare up.
8.30 Determine when to open or close a weeping canal.
8.31 List the factors that influence patient’s having one or multi-visits endodontics.
8.32 Determine the need for tugback or no tugback.
8.33 List the ways of delivering cement to the canal.
8.34 Recognize when to fill or wait.
8.35 Discuss the consequences of cement overfill or GP?

9. Restoration of Endodontically Treated Teeth

9.1 Define prefabricated post restoration.
9.2 List the advantages of prefabricated post and core.
9.3 State the guiding principles of post restoration.
9.4 State the endodontics post functions.
9.5 List the designs of post restoration.
9.6 State the disadvantage of active post.
9.7 List the procedural error incidences in using screw post.
9.8 List the properties of parallel and passively fitted post.
9.9 Describe the stressed root when placing flexi-post.
9.10 Describe the consequences of using a short post.
9.11 List the criteria of endodontics postt.
9.12 Identify post failures.
9.13 List the different modes of post failures.
9.14 List the guidelines of post cavity preparation (P.C.P.)
9.15 List the factors to consider in dealing with P.C.P.
9.16 State the types of post cavity preparation dimension.
9.17 Identify the size of drill to use for PCP horizontal dimension.
9.18 List the suggested maximum sizes of peeso reamer for horizontal dimension.
9.19 List the guidelines for preparation of diameter.
9.20 Describe the dimensional thickness of different teeth.
9.21 Identify the width or diameter criteria of minimum size 70 post.
9.22 Recognize precautions of post placement in the roots.
9.23 List the factors to consider in PCP.
9.24 List the post length traditional concepts.
9.25 List the post length current guidelines.
9.26 List the indications of post restoration.
9.27 List the contraindications of post restoration.
10. **Prefabricated Endodontic Post Technique**

10.1 List the instruments and material used.
10.2 Characterize rubber dam application in field isolation.
10.3 List the guidelines of coronal clean out.
10.4 Describe the current USC-RKH post cavity preparation standards.
10.5 Describe the USC-RKH method for removal of Gutta Percha.
10.6 Describe the procedures in pulp chamber and post cavity preparation.
10.7 Select correct size of ultrasonic tips for post cavity debridement.
10.8 Describe the procedures in post fitting.
10.9 List the types of cement media.
10.10 Review the history of materials used in post cementation.
10.11 Describe the delivery of cement into the post cavity preparation.
10.12 Use acid etch for coronal build up, intraradicular restoration and core build up.
10.13 Differentiate the use of current materials such as composite, alloy, amalgam and glass ionomers.
10.14 Describe the endodontic post technique sequence.
10.15 List the hazards of post removal.
10.16 List the post removal guiding principles.
10.17 Describe the post removal techniques.

11. **Emergency Treatment Principles**

11.1 Describe the medical versus surgical approach to emergency treatment.
11.2 State how to protect periapical tissue from future invasion by canal toxic contents.
11.3 Describe the reduction of pulp cavity and periapical tissue fluid pressure.
11.4 Describe the protection of the periapical tissue from further infection by tooth closure.
11.5 Describe the promotion of patients’ defense potentials.
11.6 State the human aspects of emergency care.
11.7 Describe the change in symptoms as a positive indication of successful treatment.
11.8 Describe how dental infections are spread.
11.9 Define the term Ludwigs Angina infection.
11.10 State other symptoms associated with bulging submandibular space.
11.11 Define the different types of space infections: masticator, buccal and canine.
11.12 Describe the treatment of canine space infection.
11.13 State the anatomy of maxillary sinus.
11.14 State the treatment of maxillary sinus infection.
11.15 List the four cardinal signs of lateral pharyngeal space infection.
11.16 List the causes of temporal space infection.
11.17 State the most important therapeutic management of infection.
11.18 Describe the trephination surgical procedure.
11.19 Describe the internal venting chamber concept.
11.20 State the concept of pulpotomy as an emergency.
12. **Endodontic Case Selection and Treatment Planning**

12.1 **List** the endodontic case selection and treatment planning considerations.
12.2 **List** the patient’s personality types in treatment.
12.3 **Define** the meaning of the acronym word: **RAM-E**.
12.4 **State** the stress reduction measures of endodontic case selection and treatment planning.
12.5 **State** the general health conditions of patients in endodontic case selection and treatment planning.
12.6 **State** the oral health conditions of endodontic case selection and treatment planning.
12.7 **State** the clinical and root canal tooth conditions in endodontic case selection and treatment planning.
12.8 **State** the canal anatomy factors.
12.9 **Describe** the overall retreatment plans for periapical pathology, root resorption, periodontic-endodontic, tooth structure crack lines, cracked tooth syndrome and pulpal calcification.
12.10 **State** the role of a dentist as a team leader in case presentation.
12.11 **State** the considerations of defensive dentistry.
12.12 **List** the doctrine of informed consent.
12.13 **Describe** endodontic treatment finalization.

12.14 **Explain** each phase of endodontic treatment finalization.
- **Phase I** – Diagnosis
- **Phase II** – Endodontic Treatment
- **Phase III** – Intracoronal Buildup
- **Phase IV** – Surgical Treatment
- **Phase V** – Final Restorations
**Course Title:**

<table>
<thead>
<tr>
<th><strong>Course Code and Number:</strong></th>
<th><strong>Course Level:</strong></th>
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<tr>
<td>204 endo</td>
<td>Second Year</td>
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**ADVANCED ENDODONTICS**

**Course Description:**

Advanced Endodontic course is designed for the management of endodontic treatment complications and failures. Special emphasis will be on the definition of the concept of success and the concept of failure. The course also emphasizes detailed clinical procedures used in the retreatment of the different endodontics materials. Additional topics are the treatment of advanced and complicated endodontic cases that are usually treated by the endodontic specialist.

**Course Objectives**

**The Endodontic Success and Failure**

1.1 State the measures of success.
1.2 List the histological criteria of success.
1.3 List the endodontic treatment success factors.
1.4 Analyze the traditional literature of success and failure.
1.5 Describe the significance of the different factors of success of failure.
1.6 Describe the role of radiology in success and failure assessment.
1.7 List the radiographic criteria for assessment.
1.8 Describe the role of recall in success and failure.
1.9 State the endodontic success rate in periodontal disease of >2mm pockets.
1.10 Recognize the success rate of removable partial denture.
1.11 List the causes of endodontic failures.
1.12 Determine the rate of failure by comparing each cause.
1.13 Explain the meaning of acronym word POOR PAST.
1.14 State the rates of retreatment reasons for each condition of POOR PAST.
1.15 Classify the endodontic failures.
1.16 Define primary endodontic failures.
1.17 List the factors that cause material failures.
1.18 List the types of method failures.
1.19 List the surgical method failures.
1.20 Define secondary endodontic failure.
1.21 Identify the concepts of “concurrent dental diseases”.
1.22 Recognize the failures involving concurrent iatrogenic procedures.
1.23 Diagnose endodontic failure.
1.24 Identify endodontic success and failure.

**Silver Points Retreatment**

4.1 State the causes of silver points success in endodontics.
4.2 State the causes of failures of silver points endodontics.
4.3 List the properties of silver points.
4.4 List the instruments used in silver points removal.
4.5 List the materials used in removing silver points.
4.6 Describe the braiding techniques procedures.
4.7 State the procedures in achieving clinical access to silver points.
4.8 Identify the materials used in restoration for removal prior to accessing silver point.
4.9 List the procedures in removing amalgam in the pulp chamber.
4.10 List the procedures in removing composite in the chamber.
4.11 State the how not to damage silver cone in the pulp chamber.
4.12 List the solvents used in removing cement in the chamber.
4.13 List the uses of endodontic extractor.
4.14 State the techniques for using the endodontic extractor instrument.
4.15 Identify the difficulties in using endodontic extractor.

**Retreatment of Endodontic Paste Fillings**

5.1 List the types of paste fillers.
5.2 Describe the philosophy behind the use of different pastes.
5.3 List the criteria to be considered when using paste as filing material.
5.4 Identify the criteria and requirement qualities of endodontic filling material.
5.5 Recognize the germ inhibitory characteristics of endodontic materials.
5.6 List the rationales of not using paste filling.
5.7 List the components of the different paste filling materials.
5.8 List the pastes used throughout dentistry history.
5.9 List the current paste fillings being used.
5.10 List the disadvantages of using paste filling.
5.11 List the current paste filling being used.
5.12 State the components of AH 26 paste cement.
5.13 State the components of Stailine Super.
5.14 State the components of Gutta Percha.
5.15 Describe the mechanisms of paste filling failure.
5.16 Describe the results of paste filling failure on the tooth.
5.17 Recognize the danger of formaldehyde of N₂.
5.18 State the precautions for retreatment of hardened pastes.
5.19 List the guidelines of retreatment of endodontic paste fillers.

**The Endodontic-Periodontic Relationship: A Critical Review**

7.1 Identify the common characteristics of pulp and periodontal.
7.2 List the ways of communication.
7.3 Describe the mechanisms of pathogenesis of endodontic disease.
7.4 Describe the mechanisms of pathogenesis of periodontal disease.
7.5 List the effects of periodontal on the pulp.
7.6 List the net effect of periodontal disease on the pulp.
7.7 List the effects of deep periodontal pockets.
7.8 List the periodontal procedures.
7.9 List the factors that increase enzymes in blood vessels endothelium.
7.10 Describe periodontal disease as cause rapid aging of the pulp.
7.11 List the effects of caries.
7.12 Describe advanced periodontal disease as a contributing factor to root calcification.
7.13 Describe pulp disease as cause periodontal defects.
7.14 State the microbial relationship.
7.15 State the differential diagnosis of periodontal and endodontic radiographically.
7.16 Classify endodontic-periodontic lesions.

8. **ENDODONTIC BLEACHING**

- 2.16 List the types of staining.
- 2.17 List the differential diagnosis of staining.
- 2.18 List the causes of systemic staining.
- 2.19 List the local causes of staining.
- 2.20 List the causes of endodontic staining.
- 2.21 Describe the mechanisms of tooth discoloration.
- 2.22 List the internal bleaching techniques.
- 2.23 Define thermal bleaching.
- 2.24 List the sources of thermocatalytic bleaching.
- 2.25 Define non-thermal bleaching.
- 2.26 List the endodontic considerations for non-thermal bleaching.
- 2.27 List the factors influencing pre-bleaching evaluation.
- 2.28 List the factors influencing coronal evaluation.
- 2.29 List the coronal preparations.
- 2.30 Discuss the need for retreatment in terms bleaching.
- 2.31 Use of cavities as an intrinsic restoration.
- 2.32 Use of cavities as a post bleaching restoration.
- 2.33 List the materials used for translucency.
- 2.34 List the factors to consider in evaluating post bleaching results.
- 2.35 State the dangers of using superoxol solution.
- 2.36 List the instruments used in bleaching.
- 2.37 Describe the theory of superoxol solution initiating inflammatory response through the patent dentinal tubules.
- 2.38 State the relationship between bleaching and root resorption.

9. **TREATMENT OF WIDE OPEN APEX ENDODONTIC**

- 9.1 List the wide-open endodontic management techniques.
  - Vital pulp therapy
  - Apexification
  - Immediate endodontic with apical barrier
  - Mid-surgery endodontic
- 9.2 Describe the different types of apex: wide-open, blunderbuss, immature, underdeveloped, incompletely formed and incompletely developed.
- 9.3 Define the term apexification.
- 9.4 List the materials used in apexification therapy.
- 9.5 List the canal preparation in apexification therapy.
- 9.6 List the canal medications used in apexification therapy.
- 9.7 List the procedure of obturation in apexification therapy.
- 9.8 State the limitations of evaluating apexification success radiographically.
- 9.9 List the natures of apical closure.
- 9.10 List the possible disadvantages of apexification.
- 9.11 Apply the 4Rs system in apexification diagnosis.
- 9.13 Observe a demonstration for a case of apexification using immediate barrier and surgery.
- 9.15 Observe a demonstration of wide open apex endodontics using immediate barrier technique.
Advanced Endodontic course is designed for the management of endodontic treatment complications and failures. Special emphasis will be on the definition of the concept of success and the concept of failure. The course also emphasizes detailed clinical procedures used in the retreatment of the different endodontics materials. Additional topics are the treatment of advanced and complicated endodontic cases that are usually treated by the endodontic specialist.

**COURSE TOPICS**

1. The endodontic success and failure
2. Endodontic finalization, Part 1 (Some clinical and scientific observations)
3. Endodontic finalization, Part 2 (The system)
4. Treatment of silver points retreatment
5. Retreatment of endodontics paste fillings
   Retreatment of Gutta Percha fillings
6. Endodontic procedural errors
7. Endodontic bleaching
8. Treatment of wide open apex endodontics
10. Dental Trauma

**SPECIFIC OBJECTIVES**

1. **The Endodontic Success and Failure**
   1.25 **List** the measures of success.
1.26 **List** the histological criteria of success.
1.27 **List** the endodontic treatment success factors.
1.28 **Analyze** the traditional literature of success and failure.
1.29 **Describe** the significance of the different factors of success of failure.
1.30 **Describe** the limitations of radiology in success and failure assessment.
1.31 **List** the radiographic criteria for assessment.
1.32 **Describe** the role of recall in success and failure.
1.33 **State** the endodontic success rate in periodontal disease of >2mm pockets.
1.34 **State** the success rate of removable partial denture.
1.35 **List** the causes of endodontic failures.
1.36 **List** the rate of failure by cause.
1.37 **Explain** the meaning of acronym word POOR PAST.
1.38 **State** the rates of retreatment for each condition of POOR PAST.
1.39 **Classify** the endodontic failures.
1.40 **Define** primary endodontic failures.
1.41 **List** the factors that cause material failures.
1.42 **List** the factors that cause method failures.
1.43 **List** surgical method failures.
1.44 **Define** secondary endodontic failure.
1.45 **Identify** the concept of “concurrent dental diseases”.
1.46 **Recognize** the failures involving concurrent iatrogenic procedures.
1.47 **Diagnose** endodontic failure.
1.48 **Identify** endodontic success and failure by using 4R system.

2. **The Endodontic Finalization, Part 1 (Some Clinical and Scientific Observations)**

2.1 **List** the clinical and scientific basis in endodontic finalization.
2.2 **Describe** the role of radiographs in clinical and scientific diagnosis.
2.3 **State** the limitations of dental radiography of the maxillary sinus.
2.4 **State** the anatomy of maxillo-facial.
2.5 **List** the pathways of infection.
2.6 **State** the clinicians’ limitations in interpreting radiographs.
2.7 **Describe** the histology of periapical lesions.
2.8 **List** the microbiology of periapical lesion.
2.9 **Interpret** radiograph readings whether healing scar or apical lesion.
2.10 **State** the relationship of symptoms in pathology.
2.11 **Describe** the endodontic disease processes.
2.12 **State** the role of patient’s health endodontics.
2.13 **State** the role of canal retreatment in management of endodontic failures.
2.14 **List** the role of retreatment in surgical endodontics.
2.15 **State** the role of surgery in the endodontics failures management.
2.16 **Explain** some philosophy of “wait and see” endodontics.
2.17 **List** the complications of “wait and see” endodontics.
2.18 **Describe** the periapical complications.

3. **The Endodontic Finalization, Part II (The System)**

3.1 **Describe** the five phases of endodontic finalization.
   - Phase 1 – Diagnosis
   - Phase 2 – Endodontic treatment
   - Phase 3 – Intracoronal buildup placement
• Phase 4 – Surgical treatment and periodontics
• Phase 5 – Final restoration

3.2 Perform a comprehensive diagnosis.
3.3 List the criteria for pre-endodontic restoration removal.
3.4 List the criteria for mid-endodontic restoration removal.
3.5 List the types of endodontic treatments.
3.6 State the indications of endodontic surgery.
3.7 State the importance of treating unaccessible canals prior to endodontics surgery.
3.8 Determine the endodontic treatment.
3.9 Determine whether post build-up or cast post and core is indicated.
3.10 List the types of posting/intra-coronal build-up.
3.11 Describe the different surgical indications.
3.12 List the diagnostic indications of surgery.
3.13 List the corrective indications of surgery.
3.14 List the reparative indications of surgery.
3.15 List the therapeutic indications of surgery.
3.16 List the periodontic indications of surgery.
3.17 State the clinician’s main goals in endodontic treatment.
3.18 State the limiting factors in surgical endodontics.

4. Silver Points Retreatment

4.16 State the period of silver points use in endodontics.
4.17 State the causes of failures of silver points endodontics.
4.18 List the properties of silver points.
4.19 List the disadvantages of silver point endodontics.
4.20 List the precautions used in removing silver points.
4.21 Describe the braiding techniques procedures.
4.22 State the procedures in achieving clinical access to silver points
4.23 Identify the materials used in association for removal silver point.
4.24 List the procedures in removing amalgam in the pulp chamber in silver point retreatment.
4.25 List the procedures in removing composite in the chamber in silver point retreatment.
4.26 State the reasons for not damaging the silver cone in the pulp chamber.
4.27 List the solvents used in removing cement in the chamber.
4.28 List the uses of endodontic extractor.
4.29 State the techniques for using the endodontic extractor instrument.
4.30 Identify the difficulties in using endodontic extractor.

5. Retreatment of Endodontic Paste Fillings

5.20 List the causes of paste fillers.
5.21 Describe the philosophy behind the use of different pastes as endodontics fillings.
5.22 List the criteria when to use paste as filling material.
5.23 Identify the criteria and requirement qualities of endodontic filling material.
5.24 Recognize the germ inhibitory characteristics of endodontic materials.
5.25 List the articles (authors) showing paste failures.
5.26 List the components of the different paste filling materials.
5.27 List the pastes used in dentistry from 1900 to present.
5.28 List the current paste fillings being used.
5.29 List the disadvantages of paste filling.
5.30 List the current paste filling being used.
5.31 State the components of AH 26 paste cement.
5.32 State the components of Stainline Super
5.33 State the components of Gutta Percha.
5.34 Describe the mechanisms of paste filling failure.
5.35 Describe the results of paste filling failure on the tooth.
5.36 Describe the danger of formaldehyde of N₂.
5.37 State the precautions for retreatment of hardened pastes.
5.38 List the guidelines of retreatment of endodontic paste fillers.

6. **Endodontic Procedural Errors**

6.1 List the types of procedural errors.
6.2 State the incidences of ledging procedural errors.
6.3 List the management of ledges.
6.4 List the ledging prevention factors.
6.5 Describe apical canal transportation type of procedural errors.
6.6 List the techniques to reduce transportation type of procedural errors.
6.7 Identify the least procedural errors by comparing the four instrumentation techniques on apical canal transporation.
6.8 List the procedural errors of each instrumentation techniques namely: Crown-down technique, step-back technique, MM1500 sonic instrumentation and Nittimatic system.
6.9 List the specific danger and safety zones of anticurvature method in reducing procedural errors.
6.10 Use radiograph in anticurvative method to identify the danger and safety zones.
6.11 State the rules in anticurvature method.
6.12 Define perforation as procedural errors.
6.13 Describe stripping versus perforation.
6.14 List the causes of perforation.
6.15 Define perforation pathology as a function of time
6.16 List the effects of perforation in the periodontium.
6.17 List the common types of perforations.
6.18 List the perforation incidences of each perforation types: furcation, cervical, mid-root, apical curvature and apical foramen.
6.19 Describe the prognosis of cervical perforations.
6.20 State precaution of post cavity preparation perforations.
6.21 List the incidences of post cavity preparation perforations.
6.22 List perforation diagnosis steps.
6.23 Use paper points in perforation diagnosis when and how.
6.24 List perforation management guiding principles.
6.25 Describe the importance of immediate obturation.
6.26 List perforation repair materials.
6.27 Identify the ideal perforation repair, material and method.
6.28 Describe the use of decalcified freeze dried bone as matrix system.
6.29 Evaluate the each material used in perforation repairs: Amalgam and Gutta Percha and MTA.
6.30 Identify the best sealing ability of materials used in perforations repair.
7. **Endodontic Bleaching**

- **8.1** List the types of discoloration.
- **8.2** List the differential diagnosis of discoloration.
- **8.3** List the causes of systemic discoloration.
- **8.4** List the local causes of discoloration.
- **8.5** List the causes of endodontic discoloration.
- **8.6** Describe the mechanisms of tooth discoloration.
- **8.7** List the internal bleaching techniques.
- **8.8** Define thermal bleaching.
- **8.9** List the sources of thermocatalytic bleaching.
- **8.10** Define non-thermal bleaching.
- **8.11** List the endodontic considerations for non-thermal bleaching.
- **8.12** List the factors influencing pre-bleaching evaluation.
- **8.13** List the factors influencing coronal evaluation.
- **8.14** List the coronal preparations.
- **8.15** Discuss the need for retreatment in terms of bleaching.
- **8.16** Use of cavit as an intrinsic restoration.
- **8.17** Use of cavit as a post bleaching restoration.
- **8.18** List the materials used for post bleaching restoration.
- **8.19** List the factors to consider in evaluating post bleaching results.
- **8.20** State the dangers of using superoxol solution.
- **8.21** List the instruments used in bleaching.
- **8.22** Describe the theory of superoxol solution initiating inflammatory response through the patent dentinal tubules.
- **8.23** State the relationship between bleaching and root resorption.

9. **Treatment of Wide Open Apex Endodontic**

- **9.16** List the wide-open endodontic management techniques.
  - Vital pulp therapy
  - Apexification
  - Immediate endodontic with apical barrier
  - Mid-surgery endodontic
- **9.17** Describe the different terminology: wide-open, blunderbuss, immature, underdeveloped, incompletely formed and incompletely developed.
- **9.18** Define the term apexification.
- **9.19** List the materials used in apexification therapy.
- **9.20** List the canal preparation in apexification therapy.
- **9.21** List the canal medications used in apexification therapy.
- **9.22** List the procedure of obturation in apexification therapy.
- **9.23** State the limitations of evaluating apexification success radiographically.
- **9.24** List the natures of apical closure.
- **9.25** List the possible disadvantages of apexification.
- **9.26** Apply the 4Rs system in apexification diagnosis.
- **9.27** Observe a demonstration for a case of apexification using standard GP filling.
- **9.28** Observe a demonstration for a case of apexification using immediate barrier and surgery.
- **9.29** Observe a demonstration of surgical treatment.
Observe a demonstration of wide open apex endodontics using immediate barrier technique.

10. **AUTOMATION: MECHANICAL ENDODONTIC INSTRUMENTATION DIFFERENTIAL**

**DIAGNOSIS**

10.1 **Describe** the role of hand instrumentation.
10.2 **State** the disadvantages of hand instrumentation.
10.3 **List** the methods of hand instrumentation.
10.4 **Identify** the reasons for complete removal of pulp tissue.
10.5 **Discuss** the issue of satisfying endodontic instrumentation.
10.6 **Discuss** the history of mechanical endodontic instrumentation.
10.7 **Identify** the concept of auxiliary rotary instrument.
10.8 **List** the mechanical endodontic instrumentation technique.
10.9 **List** the ultrasonic principles.
10.10 **Define** the terms: cavitation, acoustic streaming and vibrating file.
10.11 **List** the advantages of ultrasonics technique.
10.12 **List** the advantages of sonics technique.
10.13 **List** the treatment procedures where ultrasonics is efficient.
10.14 **List** the dangers of using rotatry instruments.
10.15 **Determine** the safest system of automation to use.
10.16 **Describe** file design.
10.17 **Describe** quadrangular and triangular K-files, and H-files.
10.18 **Describe** the profile instrumentation method.
10.19 **List** the advantages of profile instrumentation.
10.20 **Define** the taper of endodontics instrument.
10.21 **Describe** mechanical instrumentation motions.
10.22 **List** the hand instrumentation motions.
10.23 **List** the factors to be considered in mechanical canal instrumentation.
10.24 **Define** the canal finder system (CFS) instruments.
10.25 **List** the disadvantages of using canal master U (CMU) instrument.
10.26 **List** the disadvantages of using CMU and light speed instruments.
10.27 **List** the disadvantages of using CMU and light speed instruments.

11. **ROOT FRACTURES TRAUMA**

10.1 **List** of terminology of root fracture trauma.
10.2 **List** the causes of dental trauma and endodontics.
10.3 **List** the etiology and incidence of dental trauma.
10.4 **List** the extra oral examinations of trauma cases.
10.5 **Describe** the kinds of root fractures: apical, mid-root, cervical and crown.
10.6 **Describe** the different tests for dental trauma diagnosis.
10.7 **Describe** root fracture repair.
10.8 **Describe** the concept of vital apical fragment.
10.9 **Describe** the treatment of canal root fracture (C-R-F).
10.10 **Define** tooth replantation.
10.11 **List** the clinical and biologic considerations of avulsion management.
10.12 **List** suggested methods of case selection and prognosis.
10.13 **List** the clinical success criteria for avulsed tooth replantation.
10.14 **Describe** the current method for splinting.
10.15 **Describe** the root resorption replantation treatment.
Course Title: SURGICAL ENDODONTICS

Course Code and Number: 206 ENDO

Course Level: Second Year

Course Description:

The philosophy of this course is to develop surgical orientation in each resident demonstrating benefits of surgical exploration, intervention, & surgical therapeutic intervention for reluctant cases that does not heal by non-surgical therapy & to develop the philosophy that surgical endodontics is intimately related to periodontal surgery & oral surgery. The course include patient case presentation & preparation, surgical access, root-end procedures, periodontal surgery procedures, post operative care & management of complications.

Course Objectives

- State the traditional indications of surgical endodontics.
- State the current indications of surgical endodontics.
- State the current contraindications of surgical endodontics.
  - Define the treatment finalization concept.
  - State the treatment finalization phases.
  - State the rationals for treatment finalization.
  - State the advantages of treatment finalization.
  - State the relationship and difference between Fx finalization and surgical indications.
- State the factors of proper and improper surgical endodontic case selection and patient interview.
- State and define the ASA status classification of patients medical status.
- State and define the PAADI AEGD classification of patient's mental or personality status.
  - Define the concept treatment modification.
  - Be able to prepare the patient for surgery.
  - List all endodontic surgery instruments and describe the use of each instrument.
  - List the uses of surgical microscope and importance of magnification.
- State the types of local anesthetics, their use effects, use modification
Text Book and References:
Pathway of the Pulp and other Latest Edition of International Endodontic Books

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<tr>
<td>Course Title:</td>
<td>PEDODONTICS</td>
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Course Description:

The Pedodontic Course is designed to provide dentists with basic and advanced knowledge in the following areas:

The guidance of child behavior in the clinic, diagnostic, preventive, restorative, endodontic procedures in a developing child in the primary through mixed and on to immature permanent dentitions.

Course Objectives

- perform a comprehensive treatment plan for every child.
- Manage the common oral diseases found in children, this will include the management of dental caries, pulp therapy, trauma.
- Learn & understand the required steps and procedures in behavior management.
- Recognize the restorative dental procedure in primary mixed and permanent dentition stages of a child.
- Identify the need of Space Management
- Learn & apply Preventive dental health care at individual and community level.
- Understand hospital dentistry

Text Book and References:

Pedodontics: Clinical Approach by Goran Koch, Thomas Modeer, Sven Poulsen, and Per Rasmussen

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Pedodontics Course Lectures for AEGD Residents of PAADI

I- INTRODUCTION TO PEDIATRIC DENTISTRY

• What is pediatric dentistry?
• Patient assessment
• Examination
• Diagnosis
• Treatment plan

II- CHILD DEVELOPMENT AND BEHAVIOUR MANAGEMENT
• Child behaviour and development
• Behaviour management techniques
• Pharmacological behaviour management

III- PAIN CONTROL
• Analgesics
• Local anesthesia

IV- DENTAL CARIES
• Factors influencing dental caries
• The caries process
• Preventing dental caries
• Early childhood caries

V- RESTORATIVE PEDIATRIC DENTISTRY
• Amalgam
• Glass ionomer cements
• Composite resins
• Compomers
• Stainless-steel crowns
• Fissure sealants
• Preventive resin restoration
• Restoring the primary rendition

VI- PULP THERAPY FOR PRIMARY AND YOUNG PERMANENT TEETH
• Clinical and radiographic assessment of pulp status
• Factors in treatment planning
• Vital pulp therapy for primary teeth
• Non-vital pulp therapy for primary teeth
• Vital pulp therapy for young permanent teeth
• Non-vital pulp therapy for young permanent teeth

VII- TRAUMA MANAGEMENT
• Guidelines for management of dental injuries
• Luxations in the primary dentition
• Fractures of the primary incisors
• Crown and root fractures of permanent incisors
• Luxations in the permanent incisors
• Avulsion of the permanent incisors
• Soft tissue injuries

VIII- DENTAL DEVELOPMENT AND DENTAL ANOMALIES
• Eruption of the primary dentition
• Eruption of the permanent dentition
• Anomalies of number
• Anomalies of size
• Anomalies of shape
• Conjoined anomalies
• Anomalies of structure
• Anomalies of eruption

IX- MANAGEMENT OF THE DEVELOPING OCCLUSION
• Clinical evaluation of the primary dentition
• Space management of the primary dentition
• Clinical evaluation of the mixed dentition
• Space management of the mixed dentition
• Deleterious oral habits

X- MEDICALLY COMPROMISED CHILDREN
• Cardiovascular diseases
• Hematologic disorders
• Childhood cancer
• Nephrology
• Allergic and immune disorders
• Endocrine disorders
• Infectious diseases

XI- CHILDREN WITH SPECIAL NEEDS

• ADHD
• Autism spectrum disorder
• Intellectual and developmental disabilities
• Seizure disorders
• Cerebral palsy
## Course Title:
**PROSTHODONTICS**

## Course Code and Number:
501 PROSTHO

## Course Level:
(Semester and year)
First year

## Course Description:
To enable the students to perform the proper way of handling the patient such as identifying their main concern, needs and problems and to perform the necessary diagnostic examination needed based on the data gathered to be able to arrive at the maximum potential treatment of choice to comply with patient satisfaction with regards to prosthodontic cases.

## Course Objectives

1. Define Prosthodontics. Describe: (a) sequelae of tooth loss; (b) treatment needs; (c) Prosthodontic trends and (d) overall principles.
2. Describe and discuss clinical evidence-based studies of conventional and cantilevered FPDs. Define “failure” and describe patient, biological mechanical/technical factors related to FPD survival and the economic considerations.
3. Describe diagnosis and treatment planning. How each area (chief complaint, personal, medical and dental history and examinations) leading to the diagnosis relates to the Prosthodontic case. Describe the role of Prosthodontics in the overall treatment plan and its interaction with the various phases. Define Prosthodontic aims and sequence.
4. Define occlusion and concepts and describe its considerations in Prosthodontic treatment. Describe: (a) occlusal analysis; (b) occlusion and function and parafunction; (c) tooth wear and its influence in treatment; (d) Prosthodontic occlusion and procedures involved.
5. Describe: (a) principles of tooth preparation—biologic, mechanical and esthetic factors; (b) tooth preparation guidelines; (c) various types of preparation for conventional and resin-bonded FPDs.
6. Describe (a) fluid control; (b) soft tissue management including retraction cords and electro surgery for FPD impression procedure; (c) clinical application of various impression materials and methods.
7. Describe (a) interocclusal registration materials and (b) methods in different clinical situations.
8. Describe PFM FPDs with reference to framework design: strength, function, fit contour and esthetics.
9. Describe the different types and techniques of Provisional restorations.
10. Understand the contemporary concepts of restoring pulpless teeth and the ability to apply these principles to clinical practice.
11. Describe try-in and cementation of FPDs and luting agents involved.

Describe and discuss the color in dentistry.
Text Book and References
Stephen F. Rosenstiel and other Latest Edition of International Pedodontic Books

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<td>ORTHODONTICS</td>
<td>ORTHO 701</td>
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**Course Description:**

At certain level general practitioner should participate in orthodontic treatment. This is true, especially for interceptive orthodontic treatment. Therefore primary care dentist should have the knowledge and education to be able to distinguish moderate from severe orthodontic problems. Because this process determines which patients are referred to a specialist.

Early orthodontic treatment for some patient may minimize the need for extensive treatment in the future. Therefore, activation of the general practitioners knowledge regarding interceptive orthodontics is a subject of prime importance during education.

**Course Objectives**

2. Distinguish moderate from severe orthodontic problems.
3. Determine which patients are referred to a specialist.
4. Evaluate the general health of the patient and actual clinical findings related to the mouth area through good records and a thorough treatment planning.
5. Analyze introral roentgenraphic
6. Describe the position of the dentition in relation to the cranium
7. Evaluate physical maturity of the patient
8. Recognize any etiological factors that may have contribution to the malocclusion.

**Text Book and References:**

Contemporary Orthodontics by William R. Proffit, Henry W. Fields, and David M. Sarver

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I  COURSE PHILOSOPHY

The Orthodontics course is designed to train residents in how to carry out practical clinical analysis on simple appliances and the diagnostic procedure used in orthodontics to enable them to participate in interdisciplinary approach to treatment planning that involves all sections of dentistry. The course is also designed to equip resident doctors with the basic skill necessary for management of orthodontic patients.

II  COURSE TOPICS

1. An introduction to orthodontics
2. Classification of malocclusion
3. Etiology of malocclusion
4. Orthodontic assessment & diagnosis
5. Interceptive orthodontic treatment
6. Removable orthodontic appliances
7. Functional orthodontic appliances
8. Fixed orthodontic appliances
9. Adjunctive orthodontic treatment

III  GOALS & LEARNING OBJECTIVES

1. AN INTRODUCTION TO ORTHODONTICS

1.1 Define orthodontics – refer to cited literature
1.2 Define cephalometric radiography – refer to cited literature
1.3 State goals of modern orthodontics – refer to cited literature
1.4 List the major responsibilities in orthodontic practice and ideal results
1.5 Define malocclusion and list most common form

1.6 State epidemiology - Refer to cited literature

1.7 State etiology – refer to cited literature

1.8 List methods of classifying malocclusion and the most popular –Refer to cited literature

1.9 List angle classification of malocclusion

1.10 List facial profile

1.11 Define growth & development

1.12 Classify malocclusion

1.13 List orthodontic assessment and diagnosis

1.14 List applied cephalometrics

1.15 List interceptive orthodontics

1.16 List oral habits and their management

1.17 List space management

1.18 List removable orthodontic appliances

1.19 List fixed orthodontic appliances

1.20 List interdisciplinary treatment

1.21 List orthognathic surgery

1.22 List cleft lip and palate and their managements

2. **CLASSIFICATION OF MALOCCLUSION**

2.1 Define dental malocclusion and list most common forms – refer to cited literature

2.2 List methods of classifying malocclusion

2.3 State the etiology of angle class 1 molar relation and list occlusal features
2.4 **State** etiology of angle class II div.1 and list occlusal features

2.5 **State** etiology of angle class II div 2 and list occlusal features

2.6 **State** etiology of angle class III dental and list occlusal features

2.7 **State** etiology of angle class III skeletal

2.8 **Describe** the conditions of over-bite, its effects and how it can be orthodontically corrected and why

2.9 **List** cases before and after

2.10 **Describe** openbite and how it can be orthodontically corrected

2.11 **Describe** overjet, causes, effects, and how it can be orthodontically corrected,

2.12 **List** variations in overjet, effects and how it can be orthodontically corrected

2.13 **Describe** crossbite

2.14 **State** etiology of crossbite, its effects and how it can be can be orthodontically corrected

2.15 **Describe** underbite (reverse OJ), its causes, effects, reasons why it should be corrected, and how it can be orthodontically corrected

2.16 **Describe** impacted teeth, implications, effects and how it can be orthodontically corrected

2.17 **List** the causes and effects of missing teeth and how it can be orthodontically corrected

2.18 **Describe** crowding of teeth, causes, effects and methods of correction

2.19 **Describe** spacing of teeth, causes, effects and methods of correction

2.20 **Classify** facial profile and treatment methods

2.21 **Classify** skeletal malocclusion

3. **ETIOLOGY OF MALOCCLUSION**

3.1 **Refer** to cited literature in defining normal and ideal occlusion

3.2 **List** the six keys of occlusion

3.3 **Refer** to cited literature for definition of the term malocclusion and list summary

3.4 **Refer** to cited literature on etiology of orthodontic problems and main etiological factors
3.5 Refer to cited literature on the role of genetic and environmental factors

3.6 List specific etiological factors

3.7 List and describe primary etiological sites

3.8 Describe the role genetic factors plan on the neuromuscular systems

3.9 List genetic factors of abnormalities of tooth size, number of teeth and, abnormalities of tooth morphology

3.10 List genetic factors of abnormalities of tooth structures

3.11 List genetic factors of mineralization of teeth

3.12 List genetic factors of bones and their size

3.13 List genetic factors of soft tissues

3.14 List environmental factors of trauma, physical factors and bad habits

3.15 List systemic and local diseases that are affected by environmental factors

4. **ORTHODONTIC ASSESSMENT & DIAGNOSIS**

4.1 State the purpose and aims of orthodontic assessment

4.2 List equipment required in orthodontic assessment, and state importance of study models

4.3 List important factors and considerations in presenting complaint

4.4 List diagnostic procedures

4.5 List case history in the diagnostic procedure

4.6 List clinical examination and what it involves in the diagnostic procedure

4.7 List most important aspects of functional analysis in the diagnostic procedure

4.8 List examination of orofacial dysfunctions in the diagnostic procedure

4.9 Recognize the importance of radiographic examination in orthodontic diagnosis and list routinely required radiographs

4.10 Recognize the importance of photographic analysis and list procedures

4.11 List the standard intraoral and extra-oral photographs in photographic analysis as recommended by ABO
4.12 Describe cephalometric analysis and list indications, patterns and classifications

4.13 List the importance of cephalometric analysis

4.14 Describe study cast analysis, its requirements and list information utilized from the study casts

4.15 Describe procedures for clinical examination of the face and categorize facial features

4.16 Describe functional analysis and list most important aspects of this analysis

4.17 State etiology of tongue thrusting

4.18 State etiology of dysfunctions

4.19 List lip postures, adenoid faces and occlusion

5. INTERCEPTIVE ORTHODONTICS TREATMENT

5.1 Part I – Serial Extraction

5.1.1 Refer to cited literature on concept of serial extraction

5.1.2 Refer to cited literature in serial extraction approach

5.1.3 Describe the purpose of serial extraction, and list advantages

5.1.4 List patient selection criteria, advantages and disadvantages

5.1.5 List steps for serial extraction procedures and re-evaluation – refer to cited literature

5.2 Part II – Early orthodontic intervention

5.2.1 State the purposes of early orthodontic intervention

5.2.2 List limitations and exceptions to early orthodontic intervention

5.2.3 List indications of early orthodontic intervention

5.2.4 Refer to cited literature on reasons why the late mixed dentition offers the best time for intervention

5.2.5 Recognize the urgency of having definite time constraints and therapeutic goals for first-phase patients
5.2.6 **Recognize** the importance of the need to form specific treatment objectives and having a rational understanding with the patient or patient’s family before initiating treatment

5.2.7 **List** conclusion

**5.3 Part III- Appliances**

5.3.1 **Define** anterior cross-bite and state risks

5.3.2 **List** types of treatments and appliances for anterior cross-bite and state reasons and risks

5.3.3 **Describe** posterior cross-bite

5.3.4 **Learn** how to differentiate between skeletal and dentoalveolar cross-bite

5.3.5 **Describe** the treatments and therapy of unilateral dentoalveolar cross-bite with lateral force bit, and describe appliance used

5.3.6 **Describe** quadhelix

5.3.7 **Describe** appliances used for treatment of skeletal type and list causes, effects and treatment

5.3.8 **List** types, causes and appliance to be used in open-bite

5.3.9 **Define** median diastema, list types, causes and appliances most suitable for use

5.3.10 **Define** the ugly duckling stage and how it should be treated

5.3.11 **Define** space maintainer

5.3.12 **Describe** types of appliances in space maintainer, and state advantages and disadvantages

5.3.13 **Define** space regainer and list types of appliances

**6. REMOVABLE ORTHODONTIC APPLIANCES**

6.1 **Learn** the principles of orthodontic appliances

6.2 **Define** removable appliance, list categories and what they are designed to achieve
6.3 List indications, advantages and disadvantages of the removable appliance
6.4 List components, active component and factors of the removable appliance
6.5 Describe retentive component and list how retention is usually provided
6.6 Describe base plate and list commonly use components
6.7 Fixed orthodontic appliances
6.8 Define fixed appliance
6.9 List components of fixed appliance
6.10 List indications of fixed appliances, advantages, disadvantages
6.11 Describe different treatment stages
6.12 List appliance management
6.13 Define anchorage control and list methods by which anchorage can be reinforced in fixed appliance patients
6.14 List appliance types

7. FUNCTIONAL ORTHODONTIC APPLIANCES

7.1 Define functional appliance
7.2 Refer to cited literature on classification of categories of functional appliance
7.3 Describe the categories of function appliance
7.4 List functional, active and miscellaneous components of functional appliances and mechanism of action
7.5 List practical management, indications, skeletal and dental effects

8. FIXED ORTHODONTIC APPLIANCES

8.1 Define fixed appliances
8.2 List components of fixed appliances
8.3 List indications of fixed appliances, advantages and disadvantages
8.4 Describe different treatment stages
8.5 List appliance management
8.6 Define anchorage control and list methods by which anchorage can be reinforced in the fixed appliance patient
8.7 List appliance types

9. **PERIODONTAL ORTHODONTIC INTERRELATIONSHIP**

(Adjunctive orthodontic treatment)

9.1 List factors and considerations of periodontal orthodontic interrelationship
9.2 List prosthetic objectives and preparation
9.3 List management of molar with furcation involvement
9.4 List mucogingival considerations
9.5 List diagnostic considerations for grafting before treatment
9.6 Assess whether to treat recession or not, and list benefits of early diagnosis
9.7 Refer to quotes from cited literature
9.8 List gingival recession
9.9 List frenectomy, factors to be considered, associations and when to carry it out
9.10 List gingival retention and management
9.11 Refer to cited literature on gingival retention
9.12 Define fiberotom circumferential, supracrestal fiberotomy (CSF) and List esthetic considerations and procedures
9.13 List management of periodontally involved cases and considerations
9.14 List procedures for infection control
9.15 Describe how to reduce or minimize occlusal trauma and refer to before and after cases
9.16 Describe orthodontic treatment at different ages
9.17 **List** after periodontal treatment and monitoring

9.18 **Describe** the use of implants as anchorage

9.19 **Describe** completed premolar extraction

9.20 **Describe** ectopically positioned and unerupted teeth

9.21 **Describe** the approaches of impacted canines

9.22 **Define** forced eruption and **List** indications

9.23 **Describe** forced eruption with repeated fibrotomy

9.24 **Define** molar uprighting and **List** considerations

### 10. MANAGEMENT OF THE DEVELOPING DENTITION

(Adjunctive orthodontic treatment)

10.1 **List** origin of teeth

10.2 **List** the influences that affect tooth development

10.3 **List** primary dentition and describe procedures, relationship and sequence of eruption

10.4 **List** permanent dentition

10.5 **Describe** inter-canine teeth and the ugly duckling stage

10.6 **Describe** abnormalities of eruption and exfoliation

10.7 **List** local factors that affect the exchange of teeth

10.8 **Assess** site of extraction

10.9 **List** causes of median diastema and treatment

### 11. GROWTH AND DEVELOPMENT

(Adjunctive orthodontic treatment)

11.1 **Define** growth and development
11.2 List theories of growth control
11.3 List principles of bone growth
11.4 Define mandibular growth
11.5 Define facial growth
11.6 List growth mechanisms
11.7 Describe endosteal and periosteal bone growth
11.8 Describe cortical drift
11.9 Describe relocation and remodeling
11.10 Describe the ”V” principle
11.11 Describe surface principle
11.12 List growth fields
11.13 Describe displacement
11.14 List growth equivalents
11.15 List treatments that may have a bearing on growth pattern of the jaw and development

12. **POST-NATAL CRANIOFACIAL GROWTH AND DEVELOPMENT**
(Adjunctive orthodontic treatment)

12.1 Define post-natal craniofacial growth and development
12.2 Define development
12.3 Describe skull and jaws at birth and relative sizes of face and cranium
12.4 List changes in overall body proportions
12.5 List rates of growth of cranium and face from birth to adulthood
12.6 Describe bone formation
12.7 List treatment that growth pattern of the jaws and development of occlusion have a bearing on
12.8 Refer to growth studies
12.9 List principles of bone growth, mechanism and areas of growth

12.10 Refer to cited literature on theories of growth control and list growth sites versus growth centres

12.11 List conclusions
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**Course Description:**

Evidence based dental Book Chapters is a weekly seminar for the First Residents of PAADI. The course emphasizes the principles of scientific design and methodology. The goal of the course is to increase the resident’s awareness on how to book review on the different AEGD courses (Endodontics, Periodontics, Implantology, Prosthodontics, Restorative) and how to perform a critical analysis of the chapter reviewed.

The course has been traditionally presented by all the faculty members/instructors of PAADI in different specialty headed by Dr. Saad Al Saif.

**Course Objectives**

- Scientific Book Analysis
- Research Design Principles
- Statement of Research Problem.
- Sample Selection
- Data Collection
- Results Analysis
- Statistical Analysis
- Discussion Guidelines
- Meta Analysis

**Text Book and References:**

Latest Edition of International Dentistry Books and other Basic Dental Science References

**Grading System**

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## PERIODONTICS

### Course Title:
PERIODONTICS

### Course Code and Number:
PERIO 301

### Course Level:
Second year

#### Course Description:
This course is divided into two parts

1. **Didactic:**
   Lectures in this course will elaborate on several of the important points associated with the assigned readings. The purpose of the lecture is to ease your understanding and to complement your assigned reading.

2. **Clinical component:**
   This course gives an introduction to the surgical approaches to the management of periodontal disease and expose the residents to the surgical therapeutic techniques, and development of skill in clinical practice.

#### Course Objectives
- Know basic sciences of periodontology
- Perform clinical periodontology
- Diagnose, formulate treatment planning of periodontal diseases
- Perform basic surgical procedures such as gingivectomy, flap procedure and crown lengthening.
- Assess and evaluate the results of the performed therapy
- Recommend and supervise the maintenance phase therapy

#### Text Book and References:
Handouts, required textbooks (Michael G. Newman, Henry H. Takei, Fermin A. Carranza

*Clinical Periodontology, 9th edition*

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I - COURSE PHILOSOPHY

Periodontics is a major component of Advanced Education in General Dentistry Program at PAADI. Proper Endodontics and Periodontics Treatment in the foundation for Restorative and Prostodontics treatment.

The Periodontics course is designed to update PAADI residents with the changes in periodontics disease, classifications, the microbial nature, the patient defence. The diagnostics and the therapeutic procedures in the managing of periodontic disease, surgically and not surgically.

II – COURSE OUTLINE

1. Classifications of Periodontal Disease
2. Periodontal Examinations, Diagnosis and Treatment Planning
3. Pathogenesis of Periodontal Disease
4. Microbiology of Periodontal Disease
5. Host Defence in Periodontal Disease
6. Periodontal Surgery
7. Mucogingival Surgery
8. Periodontal Suturing

III – COURSE OF SPECIFICS OBJECTIVES

1. CLASSIFICATION OF PERIODONTAL DISEASE

1.1 Outline the different classifications of periodontal diseases
1.2 Describe the terms used in classification of periodontal diseases
1.3 Describe the early onset of Periodontitis (EOP)
1.4 List the syndromic criteria in the early onset of periodontitis
1.5 Describe Localized prepuberbal periodontitis
1.6 Differentiate between localized and generalized prepubertal periodontitis
1.7 Differentiate between localized juvenile and generalized Juvenile periodontitis
1.8 State the recommendation of antibiotics in localized juvenile periodontitis
1.9 List the characteristics of disease similar to rapidly progressive periodontitis
1.10 Identify refractory periodontitis to rapidly progressive periodontitis
1.12 Describe necrotizing ulcerative periodontitis
1.13 State the predisposing factors of necrotizing ulcerative periodontitis
1.14 List the type of periodontitis associated with systemic diseases
1.15 Describe the changes in the classification system of periodontal Diseases
1.16 State the common features in replacement of EOP with aggressive periodontitis
1.17 State the new classifications system of periodontal diseases
1.18 State the categories in addition to incidental attachment loss
1.19 **Describe** in dental attachment loss
1.20 **List** the new classification system of periodontal disease
1.21 **List** the factors of plaque induced in gingival diseases
1.22 **State** the type of non-plaque induced in gingival diseases
1.23 **State** the systemic conditions of gingival diseases
1.24 **State** the different type of necrotizing periodontal disease
1.25 **List** the type of abscesses of the periodontium
1.26 **State** the categories of mucongingival deformities in new classification system of periodontal
1.27 **List** the type of occlusal trauma

2. **PERIODONAL EXAMINATION, DIAGNOSIS AND TREATMENT PLANNING**

2.1 **Define** the terms of Inflammatory Periodontal disease: Gingivitis, Periodontitis and attachment loss.

2.2 **State** the Clinical manifestation of gingivitis

2.3 **List** of Periodontal examinations

- Plaque accumulation
- Bleeding on probing
- Probing pocket depths
- Gingival recession
- Furcation involvement
- Tooth mobility
- Alveolar bone
- Contributing factors

2.5 **Describe** each types of periodontal examinations

2.6 **State** the clinical indications of periodontitis

2.7 **List** the common signs with a combination of gingivitis of periodontitis

**Identify** plaque score use

2.8 **Explain** the calculation of bleeding score

2.9 **Explain** the oral hygiene measurements

2.10 **Identify** bleeding score use

2.11 **List** the other causes of tooth mobility in periodontal examination

2.12 **State** the symptoms of tooth mobility

2.13 **Identify** alveolar bone in periodontal examination

2.14 **Interpret** radiographic analysis of alveolar bone

2.15 **State** the local factors of mechanical plaque traps in periodontal examination

2.16 **List** of systemic contributing factors

2.17 **State** the different types of individual tooth prognosis

2.18 **List** the different types of treatment planning

2.19 **Describe** each type of periodontic treatment planning

2.20 **State** the following measures to eliminate or control plaque infection (cause – related to initial therapy)
3. PATHOGENESIS OF PERIODONTAL DISEASES

3.1 Identify periodontal disease initiation and progression
3.2 Describe the mechanisms of pathogenicity
3.3 Explain the host defence in the oral cavity
3.4 Describe the inflammatory responses in periodontal disease
3.5 Identify the different types of fluid components of the inflammatory response
3.6 List the cellular components of the inflammatory response
   - Neutrophils (PMN)
   - Macrophages (Mac)
3.7 Explain the functions of macrophages
3.8 Describe the types of soluble effectors of the inflammatory response
   - Complement
   - Mediators of vascular permeability
3.9 Describe the chemical mediators of the inflammatory response
3.10 Define Cytokines
3.11 Differentiate between Interleukin – 1 (IL-1) and TNF
3.12 Describe the role of IL-1 and TNF in host defence against bacterial plaque
3.13 Identify other types Cytokines
3.14 Describe Immunological response in periodontal disease
3.15 Describe the different types of Immunological Mechanisms in periodontal disease :- Clonal expansion, Humoral response and Cell-mediated response
3.16 Differentiate between humoral response and cell-mediated response of immunological mechanisms
3.17 Explain Humoral immune response in periodontal disease
3.18 Explain cell-mediated immune response in periodontal disease
3.19 Describe the different interaction between bacteria and their products and inflammation and immunity
3.20 Describe the clinical and histopathological features of periodontal disease initiation and progression
3.21 Identify the different risk factors for periodontal disease progression

4. MICROBIOLOGY OF PERIODONTAL DISEASES

4.1 Define periodontal disease
4.2 List the primary etiologies of periodontal diseases:
   a. Microbial plaque
   b. Host immune response
4.3 Describe microbial plaque challenge
4.4 Define the different types of infectious pathogens with disease:

- Kock’s postulates
- Specific plaque hypothesis
- Specific plaque hypothesis

4.5 Explain the ecological plaque hypothesis

4.6 Describe the evidence for primary role of bacteria in the aetiologies of periodontal disease

4.7 Define dental plaque

4.8 Describe dental plaque as a biofilm

4.8 Define biofilm formation

4.9 Identify types of bacteria in the biofilm

4.10 List of biofilm development on a clean enamel surface

4.11 Identify the different factors affecting biofilm formation

4.12 List the objectives for defining periodontal pathogens

4.13 List the current suspected pathogens in gingivitis

4.14 List the objectives for defining periodontal pathogens

4.15 List the current suspected pathogens in periodontitis

4.16 Identify other periodontal pathogens with moderate evidence for disease

4.17 Describe microbiological diagnostic tests

4.18 Identify the effect of periodontal therapy on plaque microbata

5. **HOST DEFENCE IN PERIODONTAL DISEASE**

5.1 List the different types of microorganisms of periodontal disease

5.2 Describe the pathogenic bacterial products

5.3 Identify the host defense in the oral cavity

5.4 Explain the salivary peroxidase system

5.5 Describe the different types of inflammatory response in periodontal disease

5.6 Describe the fluid components of the inflammatory response periodontal disease

5.7 List the cellular components of the inflammatory response in periodontal disease

5.8 Identify the soluble effectors in the inflammatory response

5.9 Differentiate between the classical pathway and alternative pathway

5.10 Describe the different types of cytokines in chemical mediators of the inflammatory response

5.11 Identify the role of IL-1 and TNF in host defense against bacterial plaque

5.12 List other types of Cytokines

5.13 Determine the different cells emigration and chemotaxis

5.14 List different types of chemotaxins

5.15 Describe the immunological response in periodontal disease

5.16 List the different types of immunological mechanisms

5.17 Explain the mechanisms of humoral immune response

5.18 Explain the immunological mechanisms of cell-mediated immune response

5.19 Determine the interactions between bacteria and their products and inflammatory and immunity.
6. **PERIODONTAL SURGERY**

6.1 Identify the rationale for periodontal surgery

6.2 Identify the rationale for periodontal surgery

6.3 Learn the design of surgical versus non-surgical therapy

6.4 State the characteristics of surgical non-surgical therapy

6.5 List and examine the parameters of surgical versus non-surgical therapy

6.6 Determine the results of surgical versus non-surgical

6.7 Describe the objectives of periodontal surgery

6.8 List the indications and contraindications for periodontal surgery

6.9 Describe the types of periodontal surgery

6.10 Describe different types of pocket reduction surgeries

6.11 Outline and apply various periodontal flap designs

6.12 List the different types of incision design

6.13 List the different types of flap reflection:

   - Full thickness flap
   - Partial – split thickness flap
   - Combination flap

6.14 Define Gingivectomy

6.15 State the guidelines and technique of gingivectomy

6.16 Describe the indications and contraindication of gingivectomies

6.17 Describe the advantages and disadvantages of gingivectomy

6.18 Define reposition flaps

6.19 Describe the different type of reposition flaps

6.20 List the objectives of subgingival curettage perform with a surgical

6.21 State the techniques of (ENAP)

6.22 List the indications and contraindications of anterior curtain procedure in reposition flaps

6.23 State the techniques of anterior curtain procedure in reposition flaps

6.24 Describe modified widman flap

6.25 List the indications and contraindications in modified widman flap

6.26 State the technique in modified widman flap

6.27 Differentiate between open flap debridement and access flap

6.28 Differentiate between buccal and palatal incision in modified widman flap
6.30 **Describe** the advantages and disadvantages of anterior curtain procedure in reposition flap

6.31 **Explain** the procedure indicated in internal beveled gingivectomy
6.32 **State** the advantages and disadvantages in internal beveled Gingivectomy
6.33 **Describe** distal wedge procedure in reposition flaps
6.34 **State** the indications and contraindications of distal wedge procedure
6.35 **List** the technique of distal wedge procedure in reposition flaps
6.36 **State** the advantages and disadvantages of distal wedge procedure
6.37 **Recognize** the appropriate integration of crown lengthening procedures in restorative treatment plan
6.38 **List** the various surgical techniques of crown lengthening
6.39 **Identify** the different type of excisional new attachment procedure (ENAP) in reposition flaps
6.40 **Identify** apically position flap
6.41 **List** the objectives of apically position flap
6.42 **Describe** the indications and contraindications of APF without osseous resection
6.43 **List** the techniques of apically position flap
6.44 **Describe** the anterior curtain procedure in reposition flaps
6.45 **List** the objectives of anterior curtain procedure in reposition flaps
6.46 **Define** and apply osseous resective surgical techniques
6.47 **List** the technique of apically position flap without osseous resection

7. **MUCOGINGIVAL SURGERY**

7.1 **Describe** the etiologies of gingival recession
7.2 **Define** the rationale for mucogingival surgery
7.3 **State** the problem of mucogingival recession
7.4 **Identify** the treatment of gingival recession
7.5 **Describe** the general principles of mucogingival surgery
7.6 **List** of pedicle soft tissue grafts of mucogingival surgery
7.7 **State** the indications of pedicle soft tissue graft
7.8 **List** the advantages and disadvantages of pedicle soft tissue grafts
7.9 **Describe** the indications of free gingival graft
7.10 **List** the advantages and disadvantages of free gingival graft
7.11 **Describe** the indications of subepithelial connective tissue graft
7.12 **Identify** the advantages and disadvantages of subepithelial connectives tissue graft
7.13 **Describe** the indications of guided tissue regeneration
7.14 **Identify** the advantages and disadvantages of guided tissue regeneration
7.15 **List** of post surgical consideration

8. **PERIODONTAL SUTURING**

8.1 **List** the suturing materials used in periodontal surgery
8.2 **Apply** the various suturing techniques
8.3 **List** the different types of suturing techniques
• Flap surgeries
• Regeneration
• Mucogingival grafting
• Edentulous ridge/implant

8.4 List the indications and contraindications of periodontal regeneration
8.5 List State the indications for each suturing technique
8.6 Outline the advantages of each suturing techniques
<table>
<thead>
<tr>
<th>Course Title: DENTAL IMPLANT</th>
<th>Course Code and Number: IMPLDENT 900</th>
<th>Course Level: (Semester and year) 2nd year</th>
</tr>
</thead>
</table>

**Course Description:**

This course is divided into two parts

**A. Didactic (lecture)**

Lectures in this course will elaborate on several of the important points associated with the assigned readings. The purpose of the lecture is to ease your understanding and to complement your assigned reading. The assigned readings will consist of

- a. handouts
- b. required textbooks

2. Principles and Practice of Implant Dentistry by Weiss and Weiss

**B. Clinical component**

This course gives an introduction to the surgical approaches to the implant placement and exposed the residents to the surgical techniques, and development of skill in clinical practice.

**Course Objectives**

At the completion of this course the residents will be expected the demonstrate:

- Knowledge of basic sciences of implantology
- Knowledge of clinical implantology
- Clinical expertise in the diagnosis, formulate treatment planning for dental implant patient
- Perform basic surgical implant procedures
Assess and evaluate the results of the performed therapy
Recommend and supervised

I. HISTORY OF DENTAL IMPLANTOLOGY

1. Describe the first types of dental implants used
2. Describe the evolution in dental implant designs that appeared during the "modern implantology"
3. Define subperiosteal implants with their advantages and disadvantages.
4. Define fibro-osseointegration with their advantages and disadvantages.
5. Define osseointegrated implants with their advantages and disadvantages.
6. Describe where dental implantology is today
8. Describe the possible etiologies (i.e., local and systemic) of implant failure.

II. BIOLOGIC ASPECTS OF DENTAL IMPLANTS: THE IMPLANT-BONE INTERFACE AND MECHANICAL ASPECTS OF DENTAL IMPLANTS

1. Describe the basic knowledge in bone biology and its importance to implant dentistry.
2. Describe the aspects of the interface between dental implants and the alveolar bone.
3. Describe the basic concepts of implant biomechanics
4. Describe the clinical prosthetic aspects of endosseous implant use for edentulous and partially edentulous cases.
5. Describe the factors to consider in relation to immediate or early loading of dental implant.
6. Describe factors to be aware of when considering single tooth implants in the posterior and anterior sextants.

III. BIOLOGIC ASPECTS OF DENTAL IMPLANTS: THE IMPLANT-SOFT TISSUE INTERFACE AND OTHER CLINICAL ASPECTS OF DENTAL IMPLANTOLOGY
1. List the various biologically compatible materials used for manufacturing dental implants.

2. Describe the clinical and histological aspects of the periimplant mucosa.

   1> 3. Contrast and compare the Periimplant mucosa with the normal periodontium both clinically and histological

4. List the requirements to achieve osseointegration with a high degree of predictability.

5. List the indications and contraindications for the replacement of missing teeth with dental implants. Include systemic and local factors that may influence the treatment outcome.

6. Describe the process of case selection and the diagnostic tools (i.e., clinical exam, diagnostic casts, and imaging) to be used by the team that will treat the implant patient.

7. Describe the benefits of implant dentistry for the fully edentulous and for the partially edentulous patients.

8. Describe the types of complications to be expected

9. Describe the importance of the long term maintenance of dental implants.

10. Describe the steps in evaluating the health and stability of a dental implant.

IV. SURGICAL ASPECTS OF DENTAL IMPLANTS

1. Compare and contrast the general characteristics of “one-stage” versus “two-stage” implant surgical approach.

2. Describe the details of a “Two-Stage Endosseous Implant Surgery Technique.” First stage: flap design and incision, flap elevation, implant placement steps, closure of the flap, and postoperative care. Second stage: Objectives, flap design and incisions, flap elevation and apical displacement, postoperative care.

3. Describe the details of a “One-Stage Endosseous Implant Surgery Technique:” flap design and incisions, placement of implant, closure of the flap, postoperative care.

V. ADVANCED IMPLANT SURGERY AND BONE GRAFTING TECHNIQUES

1. Define Guided Bone Regeneration (GBR).

2. List the requirements for bone regeneration.
3. Define Barrier Membranes. List the ideal properties of a barrier membrane.

4. List the materials (nonresorbable and resorbable barrier membranes) used in GBR.

5. Define: Osteoconduction, Osteoinduction, and Osteogenesis.


7. Describe the technique named “Distraction Osteogenesis.”

8. Describe the technique named “Sinus Elevation.”

VI. DIAGNOSIS AND TREATMENT OF PERIIMPLANT COMPLICATIONS

1. Describe the incidence of periimplant disease.

2. Describe the two main etiologic factors leading to loss of bone around implants.

3. Describe the microbiota associated with healthy and diseased implants.

4. Define peri-implantitis.

5. Compare and contrast the main characteristics of: Periodontitis, Peri-implantitis.

6. Describe the technical implant failures that may lead to implant fractures.

7. Describe the possible esthetic complications that may happen when working in the esthetic zone.

8. Describe how to diagnose the peri-implant.

9. Describe the treatment modalities.

VII. IMPLANT MAINTENANCE THERAPY

1. Describe the clinical features of a successful implant.

2. Describe the routine radiographic analysis used for implants.

3. Describe methods used to evaluate mobility of implants.

4. Describe the appropriate implant maintenance techniques for instrumentation of component surfaces.

5. List the several oral hygiene devices appropriate for home care of the dental implant.
Text Book and References:
Latest Edition of International Dentistry Books in Dental Implant and other Basic Dental Implant Science References

Grading System
Numbers and types of exams and the grades allocated to each category

A. Didactic component (60%)
A final examination will consist of multiple choices and/or short assays questions covering the entire course

B. Clinical component (40%)
By the end of the program each resident should complete the requirements

1. assist in 2 cases single anterior implant surgical placement
2. assist in 2 cases posterior implant placement
3. assist in 4 cases stage 2 (healing abutment placement)surgical procedure
**Course Title:** BASIC COMPREHENSIVE PATIENT CARE  
**Course Code and Number:** COMPcare 105  
**Course Level:** 1st year

**Course Description:**  
Comprehensive Dental Treatment Case Presentation Seminar is a weekly seminar for all R1 and R2 Residents enrolled at PAADI and the Chairmen of the different PAADI Academic Department. The course is designed to teach the principles of comprehensive dental care, comprehensive preventive care, comprehensive case documentation, treatment planning principles, comprehensive examination, and comprehensive diagnosis.  
The course attempts to integrate all the dental specialties into the patient care to improve the treatment quality and reduce overlapping, complications and treatment errors.

**Course Objectives**
- Principles of comprehensive treatment planning
- The examination and diagnosis system
- Operational diagnosis
- Principles of case documentation
- Preventive Phase
- Provisionalization Phase
- Restorative and Endodontic Phase
- Prosthodontic Phase
- Surgical Intervention Phase
- Recall and Follow Up Phase

**Text Book and References:**
Latest Edition of International Dentistry Books and other Basic Dental Science References, Journals and Articles as Scientific Evidences.

**Grading System**
Numbers and types of exams and the grades allocated to each category
- Quality of Clinical productivity 60%
- Oral Exam 40%
<table>
<thead>
<tr>
<th>Course Title:</th>
<th>CLINICAL RESTORATIVE DENTISTRY</th>
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<tbody>
<tr>
<td>Course Code and Number:</td>
<td>CLINRESTO 603</td>
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<tr>
<td>Course Level:</td>
<td>(Semester and year)</td>
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<td>Second year</td>
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</table>

Course Description:
This course is mainly clinical. The goal of this course is to give a good practice to the advanced esthetic and restorative technique.

Course Objectives

1. Perform excellent clinical work with excellent theoretical knowledge.
2. Improve clinical skills especially with a new technique and materials.

Text Book and References:

Grading System
Numbers and types of exams and the grades allocated to each category

| Quality of Clinical productivity 60% |
| Oral Exam 40% |


**Course Title:** CLINICAL PROSTHODONTICS

**Course Code and Number:**
- 503 PROSTHO

**Course Level:**
- (Semester and year)
- Second year

**Course Description:**
Mainly clinical course. The goal is to give a good practice in clinical prosthodontic dentistry.

**Course Objectives**

2. Diagnose and treatment plan simple to complex multidisciplinary comprehensive cases.
3. Manage and complete Prosthodontic treatment from simple units to full treatment with FPDs. Provide coronal-radicular restoration of endodontically treated teeth.
4. Manage and complete the implant Prosthodontic treatment.

**Text Book and References:**


**Grading System**

Numbers and types of exams and the grades allocated to each category

- Quality of Clinical productivity 60%
- Oral and clinical Exam 40%
<table>
<thead>
<tr>
<th>Course Title:</th>
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<th>Course Level:</th>
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<tr>
<td>CLINICAL ENDO</td>
<td>503 PROSTHO</td>
<td>(Semester and year) Second year</td>
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</table>

Course Description:

Mainly clinical course. The goal is to give a good practice in clinical prosthodontic dentistry

Course Objectives

5. Diagnose and treatment plan simple to complex multidisciplinary comprehensive cases.
6. Manage and complete Prosthodontic treatment from simple units to full treatment with FPDs. Provide coronal-radicular restoration of endodontically treated teeth.
7. Manage and complete the implant Prosthodontic treatment.

Text Book and References:

1. Contemporary Fixed Prosthodontics by Stephen F. Rosenstiel
2. Fundamentals of Fixed Prosthodontics by Herbert T. Shillingburg

Grading System

<table>
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<tr>
<th>Numbers and types of exams and the grades allocated to each category</th>
<th>Quality of Clinical productivity 60%</th>
<th>Oral and clinical Exam 40%</th>
</tr>
</thead>
</table>
**Course Title:** CLINICAL PEDO

**Course Code and Number:** 503 PROSTHO

**Course Level:**
(Semester and year)
Second year

**Course Description:**

The Pedodontic Course is designed to provide dentists with basic and advanced knowledge in the following areas:

The guidance of child behavior in the clinic, diagnostic, preventive, restorative, endodontic procedures in a developing child in the primary through mixed and on to immature permanent dentitions.

**Course Objectives**

1. perform a comprehensive treatment plan for every child.
2. Manage the common oral diseases found in children, this will include the management of dental caries, pulp therapy, trauma.
3. Learn & understand the required steps and procedures in behavior management.
4. Recognize the restorative dental procedure in primary mixed and permanent dentition stages of a child.
5. Identify the need of Space Management
6. Learn & apply Preventive dental health care at individual and community level.
7. Understand hospital dentistry

**Text Book and References:**

Pedodontics: Clinical Approach by Goran Koch, Thomas Modeer, Sven Poulsen, and Per Rasmussen

Latest Edition of International Dentistry Books in Pedodontics and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**

Numbers and types of exams and the grades allocated to each category

- Quality of Clinical productivity 60%
- Oral and clinical Exam 40%
**Course Title:** CLINICAL MED. DENT  
**Course Code and Number:** 503 PROSTHO  
**Course Level:** (Semester and year) Second year

**Course Description:**

This course is designed to provide the residents with the knowledge and skill to provide safe and effective care for the medically compromised dental patients. It will also provide a study of the various medical emergencies that can occur on a dental setting and their management. Moreover this course will allow the residents to apply, clinically, the concepts of basic science especially those related to physiology, pathology, immunology and oral biology. Will also allow the clinical application of diet analysis, dietary advice and behavior modification as related to our field. Thus the residents will have the opportunity to undertake a wide variety of clinical experiences that will be of benefit to their overall training.

**Course Objectives**

- Recognize the importance of a complete physical examination, psychological assessment and medical history for the dental patient.

- Assess the medical risk of dental procedures for healthy and medically compromised patients.

- Successfully manage the medically-compromised dental patient.

- Proper diagnose and manage the more commonly encountered medical emergencies that can occur in the dental office.

- List the appropriate rationale for selection of an antibiotic agent.

- List the most common oral lesions, premalignant and malignant lesions.

  1. develop a team approach in patient management through the use of auxiliaries and experiences with hospital administration.

**Text Book and References:**

- Dental management of the medically compromised patient. By James W. Little, Donald A. Falace, Craig S. Miller, Nelson L. Rhodus
- Medical emergencies in the dental office. By Stanley F. Malamed
- Handouts given by lecturers
- Presentations prepared by the residents
<table>
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<tr>
<th>Grading System</th>
<th>Quality of Clinical productivity 60%</th>
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<td>Numbers and types of exams and the grades allocated to each category</td>
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<tr>
<td>Course Title: CLINICAL PERIO</td>
<td>Course Code and Number: 503 PROSTHO</td>
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**Course Description:**

This course is divided into two parts

- Clinical component:

This course gives an introduction to the surgical approaches to the management of periodontal disease and expose the residents to the surgical therapeutic techniques, and development of skill in clinical practice.

**Course Objectives**

2. Know basic sciences of periodontology
3. Perform clinical periodontology
4. Diagnose, formulate treatment planning of periodontal diseases
5. Perform basic surgical procedures such as gingivectomy, flap procedure and crown lengthening.
6. Assess and evaluate the results of the performed therapy
7. Recommend and supervise the maintenance phase therapy

**Text Book and References:**

Handouts, required textbooks (Michael G. Newman, Henry H. Takei, Fermin A. Carranza

Clinical Periodontology, 9th edition)

Latest Edition of International Dentistry Books in Periodontology and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**

<p>| Quality of Clinical productivity 60% |
| Oral and clinical Exam 40% |</p>
<table>
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<tr>
<th>Course Title:</th>
<th>Course Code and Number:</th>
<th>Course Level:</th>
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<tr>
<td>CLINICAL IMPLANT</td>
<td>503 PROSTHO</td>
<td>(Semester and year) Second year</td>
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</table>

**Course Description:**

A. Clinical component

This course gives an introduction to the surgical approaches to the implant placement and exposed the residents to the surgical techniques, and development of skill in clinical practice.

**Course Objectives**

At the completion of this course the residents will be expected to demonstrate:

- Knowledge of basic sciences of implantology
- Knowledge of clinical implantology
- Clinical expertise in the diagnosis, formulate treatment planning for dental implant patient
- Perform basic surgical implant procedures
- Assess and evaluate the results of the performed therapy
- Recommend and supervised

**Text Book and References:**

Latest Edition of International Dentistry Books in Implantology and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**

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<th>Numbers and types of exams and the grades allocated to each category</th>
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<tbody>
<tr>
<td>Oral and clinical Exam 40%</td>
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</tbody>
</table>
**Course Title:** CLINICAL SURGERY

**Course Code and Number:** 503 PROSTHO

**Course Level:** (Semester and year) Second year

**Course Description:**

Mainly clinical course. The goal is to give a good practice in Clinical Surgery

**Course Objectives**

1. Diagnose and treatment plan simple to complex for dental clinical surgery cases.
2. Manage and complete Surgical treatment from simple units to full treatment.

**Text Book and References:**


**Grading System**

| Numbers and types of exams and the grades allocated to each category | Quality of Clinical productivity 60% | Oral and clinical Exam 40% |
**Course Title:**

INTENSIVE CADCAM LEARNING

<table>
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<th>Course Code and Number:</th>
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<tr>
<td>(Semester and year)</td>
<td>1st year</td>
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</table>

**Course Description:**

This course is mainly clinical. The goal of this course is to give a good practice to the advanced esthetic and restorative technique.

**Course Objectives**

1. Perform excellent clinical work with excellent theoretical knowledge.
2. Improve clinical skills especially with a new technique and materials.
3. To achieve a high level of proficiency effectively by taking the beginner’s CAD/CAM courses. Acquire a broad range of restorative skills to apply it into daily clinical practice.
4. Understand the clinical applications, benefits and limitations of the CAD/CAM systems
5. Understand the design and fabrication of different restorations
6. Learn the technical skills required to use CAD/CAM technology
7. Acquire and implement proper techniques for tooth preparation in multiple restorations

**Text Book and References:**

Restorative Dentistry by A. Damien Walmsley.

Latest Edition of International Dentistry Books in CADCAM and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**

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<thead>
<tr>
<th>Numbers and types of exams and the grades allocated to each category</th>
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<td>Oral Exam 40%</td>
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</table>
**Course Title:** ADVANCED COMPREHENSIVE PATIENT CARE  
**Course Code and Number:** COMPCARE 108  
**Course Level:** (Semester and year) 2nd year

### Course Description:

Comprehensive Dental Treatment Case Presentation Seminar is a weekly seminar for all R1 and R2 Residents enrolled at PAADI and the Chairmen of the different PAADI Academic Department. The course is designed to teach the principles of comprehensive dental care, comprehensive preventive care, and comprehensive case documentation, treatment planning principles, comprehensive examination, and comprehensive diagnosis.

The course attempts to integrate all the dental specialties into the patient care to improve the treatment quality and reduce overlapping, complications and treatment errors.

### Course Objectives

- Principles of comprehensive treatment planning
- The examination and diagnosis system
- Operational diagnosis
- Principles of case documentation
- Preventive Phase
- Provisionalization Phase
- Restorative and Endodontic Phase
- Prosthodontic Phase
- Surgical Intervention Phase
- Recall and Follow Up Phase

### Text Book and References:

Latest Edition of International Dentistry Books and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

### Grading System

- Quality of Clinical productivity 60%
- Oral Exam 40%
<table>
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<th>Course Title:</th>
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<tr>
<td>BASIC RESEARCH</td>
<td>RESEARCH</td>
<td>2nd year</td>
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</tbody>
</table>

**Course Description:**

This course is mainly research. The course will provide residents to establish and advanced their understanding of research through critical dental research.

**Course Objectives**

- Principles of Research and planning
- Understanding research terminology
- Ethical principle of research
- Identify components of Literature Reviews
- Critical analyze published research

**Text Book and References:**

Latest Edition of International Dentistry Books in Prosthodontics and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**

<table>
<thead>
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<th>Numbers and types of exams and the grades allocated to each category</th>
<th>Quality of Research</th>
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<tbody>
<tr>
<td>Quality of Research 60%</td>
<td>Oral Exam 40%</td>
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</table>
# CLINICAL PREVENTIVE

**Course Title:** CLINICAL PREVENTIVE  
**Course Code and Number:** CLIN. PREV  
**Course Level:** 2nd year

**Course Description:**
Mainly clinical course. The goal is to give a good practice in Clinical Preventive in Dental Treatment.

The course attempts to integrate all the dental specialties into the patient care to improve the treatment quality and reduce overlapping, complications and treatment errors.

**Course Objectives**
- Principles of comprehensive treatment planning
- The examination and diagnosis system
- Operational diagnosis
- Principles of case documentation
- Preventive Phase
- Provisionalization Phase
- Restorative and Endodontic Phase
- Prosthodontic Phase
- Surgical Intervention Phase
- Recall and Follow Up Phase

**Text Book and References:**
Latest Edition of International Dentistry Books and other Basic Dental Science References, Journals and Articles as Scientific Evidences Related.

**Grading System**
Numbers and types of exams and the grades allocated to each category:
- Quality of Clinical productivity 60%
- Oral Exam 40%