

## Faculty of Oral & Dental Medicine

### Clinical Endodontics

#### Information :

**Course Code :** CONS 535

**Level :** Undergraduate

**Course Hours :** 2.00- Hours

**Department :** Faculty of Oral & Dental Medicine

#### Instructor Information :

| Title              | Name                                                      | Office hours |
|--------------------|-----------------------------------------------------------|--------------|
| Lecturer           | MARWA MOATAZ IBRAHIM ABOUSHADI                            |              |
| Assistant Lecturer | Hatem Tarek Salah eldin Ahmed Mohamed Elsayed Abu Shousha |              |
| Teaching Assistant | MOHAMED Wael MAHMOUD ELSAYED BEKHIT                       |              |

#### Area Of Study :

Part I: Science of endodontics

• Demonstrate sound clinical judgment in the diagnosis, selection of cases for treatment, and formulating a treatment plan for individual cases

Part II: Clinical and art of endodontics

• Be competent in performing root canal treatment clinically in uncomplicated single and multicaual human permanent teeth with pulpal and periradicular including necrotic pulp with or without periradicular involvement.

• Provide appropriate emergency treatment for the relief of symptoms associated with pulpal and periradicular diseases.

• Reach level of competency both diagnostically and technically with the capability to perform self-evaluation. The end result is independent thinking and action; the ultimate benefit is providing quality care the patient.

Part III: Related clinical topics

• Be aware of preventive techniques for diseases and conditions involving the pulpal and periradicular tissues in permanent and young permanent teeth.

• Provide primary management of trauma.

• Be familiar with diagnosis and technical procedures involved in endodontic surgery

• Be familiar with etiology of tooth discoloration and perform appropriate bleaching procedures

• Be familiar with interrelationship with other specialties example; periodontal, restorative, prosthodontic, and orthodontic.

• Manage uncomplicated retreatment

• Consider the possibility of referral to a specialist in complicated cases

• Be updated with new technology in endodontics.

• Develop and acquire general skills and attitude including: health safety and infection control, communication skills ( patient , staff member and with other healthcare professionals ), Life-long learning, ethical behavior and the profession's wider responsibility towards the community as a whole.

#### Description :

Understanding the Endodontic-periodontal relationship, restoring endodontically treated tooth, Surgical endodontics and Therapeutic In Endodontics. Clinical endodontic treatment of molar teeth

#### Course outcomes :

### a. Knowledge and Understanding: :

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| 1 -  | - Concerning endodontic examination and diagnosis, by the end of the course students should be able to<br>a)- Define subjective symptoms and objective findings b)- State the reasons and procedures for reviewing the chief complaint, medical, dental histories and present illness.<br>c)- Identify the aspect of pain most important in diagnosis d)- Discuss the purpose of and procedures for extraoral and intraoral examination of soft and hard tissues including clinical pulp and teste, percussion, palpation test cavity, selective anesthesia, and transillumination tests. e)- Describe radiographic finding that may indicate pulpal or periapical pathosis. f)- State the pulpal and periapical diagnosis, using appropriate terminology according to the diagnostic findings.                                                                   |
| 2 -  | - Concerning case selection, by the end of the course students should be able to a)- Describe conditions for which root canal treatment is indicated and contraindicated b)- Recognize when it is appropriate to plan adjunctive endodontic treatment such as vital pulp therapy, bleaching root amputation, hemisection, endodontic surgery, apexification, orthodontic extrusion, and retreatment c)- Identify problems that require treatment modifications such as : operative complications cracked tooth, periodontal problems, isolation difficulties, restorability, strategic value, patient management, medical complications, abnormal root or pulp anatomy, impact trauma, and restricted opening. d)- Identify factors that might require referral for consultation with a physician or dental specialist. e)- State consideration                   |
| 3 -  | - Concerning plan of treatment and endodontic timetable, by the end of the course students should be able to a)- Make it clear to the patient the steps involved in root canal treatment, the number of appointments, potential postoperative discomfort and the number of appointments, potential postoperative discomfort and alternative to endodontic treatment b)- Identify the difference intreatment plan between different pulp and periapical conditions and diseases c)- Develop a treatment plan consisting of appropriate endodontic and pharmacologic strategies for managing pain, anxiety, and infections. d)- Recognize the importance of follow up visits                                                                                                                                                                                        |
| 4 -  | Concerning endodontic radiography, by the end of the course students should be able to                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5 -  | Discuss special applications of radiography to endodontics, and how to differentiate between endodontics and non-endodontic lesions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6 -  | Describe the reasons and the procedure of varying the horizontal and vertical cone angulations to create image shift ( SLOB rule )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 7 -  | Describe how to detect the presence and to locate undiscovered canals on angled working radiographs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 8 -  | Describe specific details of film placement and cone alignment for each tooth on working radiographs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 9 -  | - Concerning emergency treatment in endodontics, by the end of the course students should be able to a)- Identify causes of emergencies as they occur before treatment, between appointments ( interappointment flare-up ), and after obturation. b)- Describe the emotional status of emergency patient and explain how this complicates diagnosis and treatment c)- Describe factors that affect pain perception and pain reaction and how these are managed. d)- Describe and outline a sequential approach to different endodontic emergencies. e)- Outline a system of subjective and objective examinations and radiographic finding to identify the source of emergency pain and the pulpal or periradicular diagnosis. f)- Detail the pharmacologic supportive therapy ( analgesics, antibiotics, and anti-inflammatory agents                            |
| 10 - | - Concerning traumatic injuries to permanent teeth, by the end of the course students should be able to a)- Describe the clinical and radiographic features of the following:enamel fractures, crown fractures without pulp exposures, crown fracture with pulp exposure, crown root fracture, root fracture, tooth luxation, ( concussion, subluxation, lateral luxation, extrusive luxation, intrusive luxation ) avulsion b)- Describe possible short-and long-term responses of pulp, periradicular tissues, and hard tissues to anamel fractures, crown fractures without pulp exposures, crown fracture with pulp exposure, crown root fracture,root fracture, tooth luxation, ( Concussion, subluxation, lateral luxation, extrusive luxation, intrusive luxation ) avulsion c)- Describe the subjective and objective examination of patients with dental |

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| 11 -                             | - Concerning relationship with other dental specialties, by the end of the course students should be able to<br>a)- State the anatomic pathways of communication between the dental pulp and the periodontium<br>b)- Describe the effects of pulpal disease and endodontic procedures on the periodontium<br>c)- Describe the effects of periodontal disease and procedures on the pulp<br>d)-recognize the potential adverse effects of bleaching and discuss means of prevention                                                                                |
| 12 -                             | - Concerning restoration of endodontically treated teeth, by the end of the course students should be able to<br>a)- Describe the role of the restoration in the longevity of endodontically treated teeth and the structural importance of remaining tooth structure.<br>b)- Describe requirements of an adequate restoration and how it protects and seals coronally.<br>c)- Identify restorative options before commencing root canal treatment<br>d)-List the principle temporary filling materials and describe techniques for their placement and removal.  |
| 13 -                             | - Concerning preventive endodontics, by the end of the course students should be able to<br>a)- Describe the indications, prognosis and procedures for vital pulp therapy<br>b)- Identify situations in which a tooth with an open apex requires vital pulp therapy or root end closure and root canal therapy<br>c)- Explain why nonsurgical root canal treatment and periapical surgery are technically difficult in a tooth with open apex.<br>d)- Describe how to perform root-end closure and recognize the success or failure of treatment of an open apex  |
| 14 -                             | - Concerning restoration of endodontically treated teeth, by the end of the course students should be able to<br>a)- Describe the role of the restoration in the longevity of endodontically treated teeth and the structural importance of remaining tooth structure.<br>b)- Describe requirements of an adequate restoration and how it protects and seals coronally.<br>c)- Identify restorative options before commencing root canal treatment<br>d)- List the principle temporary filling materials and describe techniques for their placement and removal. |
| 15 -                             | - Concerning preventive endodontics, by the end of the course students should be able to<br>a)- Describe the indications, prognosis and procedures for vital pulp therapy<br>b)- Identify situations in which a tooth with an open apex requires vital pulp therapy or root end closure and root canal therapy<br>c)- Explain why nonsurgical root canal treatment and peripheral surgery are technically difficult in a tooth with open apex.<br>d)- Describe how to perform root-end closure and recognize the success or failure of treatment of an open apex  |
| 16 -                             | - Concerning geriatric endodontics, by the end of the course students should be able to<br>a)- Discuss age changes in the older dental pulp, both physiologic and anatomic<br>b)- Describe complications presented by the medically compromised older patients.<br>c)- Describe the process of diagnosis and treatment planning in the elderly patient<br>d)- Discuss why there are differences and what those differences are when root canal treatment is performed in the older patient                                                                        |
| 17 -                             | by the end of the course students should be able to describe the causes, prevention and treatment of the procedural accidents that might occur during clinical endodontics                                                                                                                                                                                                                                                                                                                                                                                        |
| 18 -                             | by the end of the course, students should be updated with new technology in endodontics                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 19 -                             | The student should interpret the subjective symptoms and objective finding to identify the nature of pulp or periapical disease                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 20 -                             | When pulpal and or periapical pathosis has been identified, the student should be able to distinguish its probable cause, estimate its severity, design proper treatment consistent with his training and estimate the probable prognosis.                                                                                                                                                                                                                                                                                                                        |
| 21 -                             | The student should be able to demonstrate ability to critique completed clinical procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>b. Intellectual Skills: :</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1 -                              | Given pain, swelling or other signs of orofacial pathosis, the student should be able to differentiate those symptoms arising from diseases of the pulp and those arising in other tissues                                                                                                                                                                                                                                                                                                                                                                        |
| 2 -                              | By the end of the course, students should be able to perform adequate subjective and clinical objective and radiographic examination for the identification of pulp and periradicular diseases and in the selection of cases suitable for endodontic treatment                                                                                                                                                                                                                                                                                                    |

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| 3 - | By the end of the course, students should be able to perform nonsurgical root canal treatment according to the selected appropriate treatment plan for the clinically diagnosed conditions of irreversible pulpitis or necrotic pulps with or without periradicular involvement. They should be able to arrange and employ the appropriate instruments, materials and techniques |
| 4 - | By the end of the course, student should be able to practice film placement and cone alignment ( direct and horizontal shift )and film processing for the clinical cases during endodontic treatment                                                                                                                                                                             |
| 5 - | By the end of the course, students should be able to interpret the preoperative, working length determination, master cone and postoperative periapical X Ray films                                                                                                                                                                                                              |
| 6 - | By the end of the course, students should be able to perform adequate temporization of the treated tooth                                                                                                                                                                                                                                                                         |

**c. Professional and Practical Skills: :**

|     |                                                                                                                                                                              |
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| 1 - | The student will be able to perceive the patients and prepare the operating position and field accurately ( Either using the two hand technique or the four hand technique ) |
| 2 - | the student should be able to perform all cavity preparations design to receive different restorative materials according to the patient conditions.                         |
| 3 - | student should be able to perform all cavity preparations designs to receive different restorative materials according to the patient conditions.                            |
| 4 - | Should be able to deal with failed restorations either by removal or repair according to principles                                                                          |
| 5 - | Student should be able to give the patient the appropriate advice to prevent disease recurrence                                                                              |
| 6 - | By the end of the course, students should be able to manage emergency case and practice supplemental anesthesia techniques if possible                                       |
| 7 - | By the end of the course, students should be able to write a prescription for managing pain and infections                                                                   |
| 8 - | By the end of the course, students should be able to write a referral form for medical consultation if needed                                                                |

**d. General and Transferable Skills: :**

|     |                                                                                                                                                                                           |
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| 1 - | By the end of the course, students should be able to perform infection control and sterilization of instruments                                                                           |
| 2 - | By the end of the course, students should be able to manage fear and anxiety with behavioral techniques and empathize with patients in stressful situations                               |
| 3 - | By the end of the course, students should demonstrate professional attitudes in communication with patients, other members of the dental staff and other health professionals             |
| 4 - | By the end of the course, students should be able to have knowledge of the hazards of ionizing radiation and regulation related to them including radiation protection and dose reduction |

**Course Topic And Contents :**

| Topic                                                                                                                            | No. of hours | Lecture             | Tutorial / Practical |
|----------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|----------------------|
| Restoration of Endodontically treated teeth                                                                                      | 4            | Emergency treatment |                      |
| Endodontics and other dental specialties ( including periodontology, orthodontics, operative, fixed and removable prosthodontics | 4            | Emergency treatment |                      |
| Preventive Endodontics                                                                                                           | 4            | Vital pulp therapy  |                      |
| Geriatric Endodontics                                                                                                            | 4            | Root resorption     |                      |

**Course Topic And Contents :**

| Topic                                          | No. of hours | Lecture                        | Tutorial / Practical |
|------------------------------------------------|--------------|--------------------------------|----------------------|
| Root resorption                                | 4            | Root resorption                |                      |
| Evaluating success and failure and retreatment | 4            | Traumatic injuries             |                      |
| Endodontics mishaps                            | 4            | Traumatic injuries             |                      |
| New technology in Endodontics                  | 4            | Bleaching of discoloured teeth |                      |

**Teaching And Learning Methodologies :**

Lectures

Clinical training

Demonstrations

Role playing and hands on

Small group discussion

**Course Assessment :**

| Methods of assessment          | Relative weight % | Week No | Assess What                                                                                              |
|--------------------------------|-------------------|---------|----------------------------------------------------------------------------------------------------------|
| Final Written Examination      | 25.00             |         |                                                                                                          |
| Mid Term Examinations          | 30.00             |         | examination short questions, multiple choice assignments, quizzes to assess knowledge and understanding. |
| Mid Term Practical Examination | 20.00             |         | to assess intellectual skills & General and transferable skills                                          |
| Oral Examination               | 10.00             |         | assess clinical skills                                                                                   |
| Practical Examination          | 15.00             |         |                                                                                                          |

**Course Notes :**

Department Books available for all students.

**Recommended books :**

Endodontics by Ingle ( Library )

Pathways of the pulp by Stephan Cohen and Richard Burns ( Library )

**Periodicals :**

Principles and practice of endodontics by torabinejad