Faculty of Oral & Dental Medicine

Endodontics Technology

Information :

Course Code :	CONS 433	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Faculty of Oral & Dental Medicine

Instructor Information :

Title	Name	Office hours
Associate Professor	Adel Abdel Wahed Mahmoud Abdallah	3
Associate Professor	MAHMOUD MOHAMED HUSSEIN MAHMOUD BADR	
Lecturer	Dalia Abdel Fattah Abbas Sayed	
Lecturer	Yasmine Ashraf Elsayed Abou khalaf	
Lecturer	MARWA WAGIH SAAD IBRAHIM ELBORAEY	
Lecturer	Samar Talaat Mohamed Mohamed	
Assistant Lecturer	KHOLOUD MOHAMED EMAM TAHA EMAM	
Assistant Lecturer	Hatem Tarek Salah eldin Ahmed Mohamed Elsayed Abu Shousha	
Teaching Assistant	Mohamed Fawzy Mohamed Sayed	

Area Of Study :

Part I : Science of endodontics
1. Appreciate the full scope of endodontics
2. Be familiar with disease and conditions involving the pulpal and periradicular tissues in permanent teeth
3. Understand the possible etiology of disease and conditions involving the pulpal and periradicular tissues in permanent teeth.
4. Be familiar with instruments and materials used in conventional endodontic treatment.
Part II : Technical and art of endodontics:
1. Develop sound technical excellence in performing control cavity
preparation, intraradiicular cleaning and shaping and obturation in
uncomplicated signal and multicanaled extracted human permanent teeth.
2. Be aware of procedural errors during root canal treatment, determine the
effect on their prognosis, and select appropriate procedure for their
correction.
3. Develop some clinical experience in nonsurgical root canal treatment of anterior and / or premolar teeth with irreversible pulpities.
4. To critically evaluate his or her level of competency
5. Develop and acquire general skills and attitude including : health safety and infection control , communication skills (student-staff member and with other healthcare professionals), life-long learning, ethical behavior and the professionôs wider responsibility towards the community as a whole.

Description :

The course is concerned with study of morphology, micro and macroscopic anatomy of pulp. Access cavity principles,instruments, cleaning and shaping and obturation techniques. Laboratory access cavity prepration and cleaning and shaping of anterior and premolar teeth.

Course outcomes :

a.Knowledge and Understanding: :

1 -	a1- Concerning the pulp and periapical disease , by the end of the course students should be able to a- Identify etiologic factors causing pulp inflammation and spread of pulpal inflammation into the periradicular tissue. b- Classify pulpal and periradicular disease and describe their subjective , clinical and radiographic features . state the histopathological features responsible for such symptoms and signs.
2 -	a2- Concerning adontogenic and non odontogenic pain by the end of the course students should be able to a- Describe the physiology of pain mechanism b- Describe the different between dentinal pain and pilpal c- Explain how referred and spreading pain may lead to misdiagnosis d- Recognize the different between odontogenic and non odontogenic origin.
3 -	Concerning pulpal and periapical microbiology and immunology , by the end of the course students should be able to a- Describe portal of entry of microorganisms to the pulp and periradicular tissue b- Understand the significance of microorganisms in pulpal and periradicular tissue c- Describe the predominante bacteria , their virulence and the reaction of the pulp and periradicular tissues to bacteria. d- Discusse the rational for debridement of root canal system e- Describe the indications and methods for microbial sampling of endodontic infections. f- List specific and non specific mediators of pulp inflammation g- Understand and describe the role of immune system in flammatory process
4 -	Concerning application of thgerapcutics in endodontics , by the end of the course students should be able to a- Understand the indications and contraindications for prescribing analgestics , antibiotics , anti-inflammatory agents and anxiolytics b- List the most commonly indicated types of anitibiotics and anti-inflammatory agents and anxiolytics
5 -	Concerning the pulp space morphology and macroscopic anatomy , by the end of the course students should be able to a- Define the pulp space and list and describe its major components b- List for each tooth type , the average length , number of roots , most common root curvatures and the most frequest variations in root and pulp anatomy
6 -	Concerning the endodontics instruments , by the end of the course students should be able to a- List and describe the basic set of instruments appropriate for these procedures : control access preparation , disgnosis , tooth length determination , radicular preparation , and obturation b- Describe the design (longitudinal , cross-sectional , and tip configuration) c- Explain the basis for standardization of hand and rotary operated instruments d- Describe the action and use hand and rotary instruments used for cleaning and shaping the root canal e- Recognize factors that will predispose to instrument fracture example visible changes and number of usage f- Select the appropriate sterilization methods for endodontic instruments and materials.
7 -	Concerning tooth isolation , by the end of the course students should be able to a- describe reasons for rubber dam isolation during endodontic procedures. b- List the identify the appropriate clamp selection for anterior , premolar and molar teeth. c- Describe techniques for application of clamp / rubber dam in single-tooth isolation. d- Describe temporization of extensively damaged teeth and special approaches , which are necessary for rubber dam isolation
8 -	concerning the endodontic coronal access cavity preparation , by the end of the course student should be able to a- Identify major objectives and anatomic relevance of access preparation in both anterior and posterior teeth. b- State techniques for difficukt ï to ï find chambers or canals c- List errors that might occur during coronal access preparation , their prevention , and treatment if possible.
9 -	Concerning the endodontics working length of determination , by the end of the course students be able to a- Deacribe the relationships between anatomic apex , radiographic apex and the actual location of the apical foramen b- Describe the technique to obtain the working length c- Recognize why many root curvatures and extra canals are not apparent on standard radiographs and suggest methods revealing them.

10 -	Concerning the cleaning and shaping of the root canal , by the end of the course students be able to a- Describe objectives for cleaning and shaping of root canal b- Describe techniques for standardized , flaring (step back and / or crown down) preparations. c- State the importance of early radicular access. d- Define how to determine Appropriate size of the master apical file, e- Describe techniques for shaping canals that are irregular , such as round , oval , kidney shape f- List the techniques of prepariations in different root canal classes and systems. g- List radicular preparation errors and describe how to avoid and correct if possible h- Describe techniques for negotiating severly curved , or blocked or ledged canals
11 -	Concerning root canal irrigation and intracanal medication, by the end of the course , students should be able to : a- List ideal irrigant properties and identify which irrigant meets most of these criteria. b- State needles gauges and types used and techniques that provide maximal and safe irrigant effect. c- Discuss the role of chelating and decalcifying agents d- Discuss the role of intracanal , interappointment medicaments and proper temporization
12 -	Concerning root canal obturation , by the end of the course students should be able to a- Describe the purpose of obturation and reasons why inadequate obturation may result in treatment failure. b- Recogniz the technical and clinical criteria that determine when to obdurate and describe the preparation of canal for obturation and the significance of smear layer. c- Describe cold lateral compaction of gutta-percha d- Discuss the technique for fitting the master cone and the significance of depth of spreader penetration during compaction e- Describe vertical compaction technique of heat softened gutta-percha f- Describe briefly other techniques used for obturation and their indications g- List requirements , indications of sealer and available types h- Describe a technique for mixing and placing sealer i- Describe technique for removing exc
13 -	by the end of the course , students should be able to : a- Define ethical principles including : autonomy , nonmaleficence , beneficence , justice , veracity , and fidelity . b- List of items included inendodontic treatment record including the follow up visits . c- Understand the importance of keeping a treatment record and of obtaining an informed consent
b.Intellectual Skills: :	
1 -	By the end of the course students should be able to distinguish between clinical signs and symptoms and radiographic features of pulpal diseases
2 -	-. By the end of the course students should be able to interpret radiographs for extracted teeth and determine adjusted working length , verify master cone and evaluate postoperative obturation.
3 -	By the end of the course students should be able to select and apply the appropriate instrumentation , obturation materials for simple cases such.
c.Professional and Practical Skills: :	
1 -	Concerning the pulp space morphology and macroscopic anatomy , by the end of the course students should be able to a- Draw and label the most common internal and external anatomy of each tooth in the following planes : sagittal section of mesiodistal and faciolingual planes , and cross section through the cervical , middle and apical thirds of the root. b- Draw and label the outline form of the access preparation for all teeth and show the location of each orifice relative to the occlusal or lingual surface.
2 -	Concerning the endodontic coronal access cavity preparation , by the end of the course students should be able to c- Draw and label diagrams of the steps involved for complete access preparations on various teeth. d- Draw and label errors that might occur during access preparations e- Perform with excellence coronal access cavities in anterior , premolar and molar extracted permanent teeth
3 -	Concerning the cleaning and shaping of the root canal , by the end of the course students should be able to a- Draw and label diagram of both step back preparation crown down techniques. b- Draw and label errors that might occur during radicular preparation. c- Perform the step by step technique for obtaining the working lengths using Ingle's method. d- Choose the appropriate instruments and perform with excellence step back preparation technique in anterior and extracted premolar teeth e- Practice the proper use of root canal instruments and their file motions. f- Practice the use of gates-gildden drills in early radicular access
4 -	By the end of the course , students should be able to choose and use the appropriate irrigating solution , needles and techniques that provide maximal and safe irrigant effect.

5 -	Concerning the root canal obturation , by the end of the course students should be able to : a- Draw and label diagram of lateral compaction technique. b- Draw and label errors that might occur during obturation. c- Choose the appropriate instruments and perform with excellence preparation of the canal for obturation , master cone fitting , and sealer mixing lateral condensation technique , in anterior and premolar extracted permanent teeth.
6 -	By the end of the course , students should be able to perform the organization of instrument for various procedures and their sterilization
7 -	the end of the course , students should be able to apply the rubber / dam properly and choose the appropriate clamp for anterior , premolar , and molar
8 -	the end of the course , students should be able to apply the technical skills of coronal access preparation , working length determination radicular preparation , and obturation on clinical cases diagnosed with vital pulp disease.
9 -	the end of the course , students should be able to write a prescription for managing pain
d.General and Transferable Skills: :	
1 -	the end of the course , students should be able to perform infection control and sterilization of instruments.
2 -	the end of the course , students should be able to communicate effectively and ethically with members of the dental staff and with patients

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to Endodontic	3		
Macroscopic Anatomy and Access cavity preparation	3		
Macroscopic Anatomy and Access cavity preparation	3		
Endodontic Instruments	3		
Endodontic Instruments	3		
Endodontic Instruments	3		
Cleaning and shaping of the root canal system	3		
Cleaning and shaping of the root canal system	3		
Obturation of the root canal system	3		
Obturation of the root canal system	3		
Obturation of the root canal system	3		

Teaching And Learning Methodologies :

Lectures
Small group (Practical and clinical training)
Demonstrations

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st Mid Term Examinations	15.00		(short questions , multiple choice , quizzes , assignments) to assess knowledge and understanding.

2nd Mid Term Examinations	15.00		(short questions , multiple choice , quizzes , assignments) to assess knowledge and understanding.
Final Written Examination	25.00		
Oral Examination	10.00		
Practical Examination	15.00		to assess clinical skills

Course Notes :

Department books available for students to purchase

Recommended books :

ÅEndodontics by Ingle. (library)
ÅPathways of the pulp by Stephan Cohen and Richard Burnes (library)
ÅPrinciples and practice of endodontics by Torabinejad (library)