**![coll_en[1]]()KING SAUD UNIVERSITY**

**College of Dentistry**

**Department of Restorative Dental Sciences**

**DIVISION OF OPERATIVE DENTISTRY**

**413 RDS**

**Clinical Operative Dentistry II**

**Course Director:**

**Dr. Nasrien Ateyah**

**Co-Course Director:**

**Dr. Amal Awdah**

**2013-2014G [1434-1435H]**

**COURSE INFORMATION**

This course is given in the fourth year as the final operative course. The structure of the course includes one lecture and one clinical session in the First Semester and one clinical session in the Second Semester.

* **CREDIT HOURS**

 First Semester and Second Semester

 1 + 0 + 1 0 + 0 + 1

* **COURSE OBJECTIVE**
1. Identify and describe newly introduced restorative materials and techniques
2. Apply the principles of different cavity preparations
3. Manipulate different types of restorative materials in supervised context
4. Discuss and differentiate various treatment modalities in the area of esthetic restorative dentistry, then select and apply the most appropriate one to the clinical situation
5. Manage the special cases assigned to selected students in a supervised context for those students who were able to finish the clinical requirements (inlay, onlay, veneer)
6. **Theory Component:**

Students should attend weekly lecture in the First Semester. Most of the knowledge that the students are required to learn will be presented through a variety of formal lectures. These will be structured to help the students understand the reasons behind the procedures that they are going to use as well as teach them the essential knowledge they need to perform the procedures in the clinic.

* Every week, the lecture period will start with a quiz on the previous week lecture.
* Attendance will be taken in the Lecture and Clinical Session.
* **READING ASSIGNMENT**
* Textbook of Operative Dentistry, Baum, Philips, Lund, 3rd edition, 1995
* The Art and Science of Operative Dentistry, Sturtevant, 5th edition, 2006
* Fundamentals of Operative Dentistry, Schwartz, 3rdedition, 2006
1. **Clinical Component:**
2. **Clinical Requirements:**

The Clinical phase of the course is a very important component of the students’ training in Operative Dentistry. It will help them develop skills in Operative Dentistry procedures. All of the tasks that will be practiced in the clinic must be performed according to specific criteria taught during lectures.

This clinical course is a continuation of the first clinical course given in the third year. One clinical session in each semester, students have to finish the assigned requirements and are evaluated according to the current evaluation criteria set by the Division (subjective and objective).

Students are expected to perform all their clinical practice to the highest professional level. It is expected that all operative procedures are performed successfully in this course with high standards of quality under full faculty supervision. The Student is responsible for scheduling the patients under the supervision of the instructors and in coordination with the Booking Office.

**For every patient:**

* Files should be present, mounted recent radiographs and other relevant diagnostic aids, if required, before starting the treatment.
* Treatment plan should be discussed and approved by the instructor before the commencement of treatment.
* Grades for appearance, attitude, punctuality, attendance, and successful management will be counted.
* Professionalism, in general is our main objective.

**MINIMUM CLINICAL REQUIREMENTS**

 Students have to successfully finish the following minimum requirements:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Treatment Plan** | **Amalgam Class I** | **Amalgam Class II** | **Amalgam Build-up** | **Anterior Composite Resin** | **Composite Class I** | **Composite Class II** | **Composite Build-up (Vital)** | **PRR** | **Glass Ionomers** | **TOTAL** |
| **3** | **3** | **5** | **2** | **7****(3) Cl III** **(1) Cl IV** **(3) Cl V** | **4** | **4** | **2** | **2** | **4****Cl V** | **36** |

**IMPORTANT CLINICAL INFORMATION**

1. Requirements are mandatory for passing the course.
2. **Anterior composites:** The student must complete all preparation and restoration types, which includes **3 class III, 1 class IV & 3 class V of composite resin restorations**.

**Large composites:** More than half of the tooth is missing.

1. Sandwich technique (glass ionomer + composite resin) is considered as composite restoration.
2. **Glass ionomer cement:** Experience with different GIC material is essential (conventional GIC, resin modified GIC).
3. Class II mesial and distal boxes in the same tooth are considered as two separate restorations. The same is true for separate class I and II restorations in a simple tooth (e.g.: upper first molar)
4. **Amalgam build-up:** This procedure is defined as building the tooth up with amalgam. This would mean that at least **one major cusp** is lost and auxiliary means of retention is incorporated within the preparation for retaining the amalgam **(pin, slot, direct post, bonded amalgam, amalgam pin)**.

The restoration should be clinically acceptable to be considered as final restoration and not as foundation for crown or a pretreatment for endodontic procedures.

1. **Polishing of amalgam** is mandatory. If amalgam restoration is not polished then **20%** of the points for the restoration will be deducted. As a general policy students will not be allowed to start a new restoration unless polishing of the previous one was done.
2. Students must complete their requirements; otherwise **2%** deduction will be applied for each restoration requirement not complete and **3%** for each missing treatment plan. For each completed case, the student will get **2%** credit.
3. **Special skill requirement:** This will be awarded as extra point and it could be any of the following:
	* Cast Gold (Inlay and Onlay)
	* Indirect composite inlay or onlay
	* Porcelain inlays or onlays
	* Selection and approval of the special skill case should be done in the beginning of the second semester. The student is required to write and submit a report about the case containing a detailed account of the treatment procedure. The deadline for starting the case is the first week of April 2014.
	* Porcelain veneer cases will be approved by the Course Director in special circumstances.
4. **Clinical Competency Test:**

There is a Clinical Competency Test during the 2nd Term: Each student should do a Class II composite preparation and restoration on a tooth picked by the student. Tooth suitability is to be first approved and then evaluated by the Course Director and any Course Contributor. Students should successfully pass this Test in order to pass the Course. Students who fail this Test will get an “Incomplete” grade until they successfully pass the Test.

* **GRADE DISTRIBUTION**
1. **Theory Component - 40%**

Quizzes - 10%

Final Written Exam - 25%

Subjective - 5%

1. **Clinical Component - 60%**

Weekly Clinical Evaluation - 50%

 Competency Test - 10%

**GUIDELINES FOR THE STUDENTS:**

1. Evaluation form for regular and additional patients are included in the evaluation logbook with the codes.
2. Each week you have to enter the date, patient information, works attempted or completed, and have your instructor sign for you. You absolutely must account for your clinical time.
3. Clinic starts at 9:00 a.m. and ends at 11:30 a.m., by 11:45 a.m., your logbook should be signed and you should leave the clinic no later than 12:00 p.m., strict adherence to the clinic hours is highly appreciated.
4. By the end of the academic year, you should have at least three (3) cases of completed comprehensive operative treatment.
5. If you do three (3) or more teeth for any emergency or single appointment patient, you must have a treatment plan for that case.
6. Remember, you cannot do more than one (1) build-up per instructor.
7. For all build-up and special skill case, you should attach to your evaluation logbook (preoperative **periapicals** and postoperative **bitewings**) radiographs.
8. For all class II (Composite or amalgam) cases, you should attach to your evaluation logbook (preoperative **bitewings** and postoperative **bitewings**) radiographs unless it was done directly (no adjacent tooth).
9. Do not write on the (finished and polished requirements) column of your evaluation forms, it is for instructor’s use only.
10. Make sure you complete all the information on your evaluation forms. Also, do not scratch out or erase the information you entered, if the wrong information is filled-out, please start on another line.
11. All the restorations you started should be finished and polished.
12. The special skill case must be approved before end of MARCH 2014.

 You should make three (3) copies of the case report.

* 1. Course Director
	2. Supervising Instructor
	3. You

**CLINICAL CALCULATION POINTS**

**Student who will collect 1000 points will get 60% of the clinical part (50 points). Starting from 50 % and above each 25 points equals to 1 %, according to the following scale:**

 **1000 60%**

 **1250 70%**

 **1500 80%**

 **1750 90%**

 **2000 100%**

**Example: Student X collected 1300 points is considered as follows:**

 **1250 = 70% (she got 50 points more)**

 **Each 25 points = 1% (50 points =2%)**

 **Percentage = 72%**

 **Grade = 0.72 x 60 = 43.2 out of 60**

\*Extra points will be added to the student total grades depend on the student performance behavior, subjective evaluation by the Course Director.

Why **1000** points is considered as the passing grade **(60%)?**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Requirement** | **3** | **5** | **2** | **4** | **4** | **3** | **1** | **3** | **2** | **2** | **4** | **3** |  | **36**  |
| Amalgam Class I | Amalgam Class II | AmalgamBuild-up | Composite Class I | Composite Class II | Composite Class III | Composite Class IV | Composite Class V | Composite Build-up | PRR | GIC | TX Plan | **POINTS** | **TOTAL** |
| Average Difficulty Factor | 4 | 7 | 9 | 3 | 5 | 3.5 | 4 | 3.5 | 9 | 2 | 3.5 | 3 |  | **-** |
| Multiplied by Requirement | 12 | 35  | 18 | 12 | 20 | 10.5 | 4 | 10.5 | 18 | 4 | 14 | 9 |  | **177.5** |
| Multiplied by Passing Grade 60% | 72 |  |  |  |  |  |  |  |  |  |  |  |  | **1002** |

**LECTURE DESCRIPTION**

1. **THEORY COMPONENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture** | **Date** | **Topic** | **Faculty** |
| 1 | 01 September | Introduction | Dr. N. Ateyah |
| 2 | 08 September | Adhesion to tooth structure I | Dr. H. Al-Nahedh |
| 3 | 15 September | Adhesion to tooth structure II | Dr. H. Al-Nahedh |
| 4 | 22 September | Direct anterior composite resin restorations I | Dr. N. Taher |
| 5 | 29 September | Direct anterior composite resin restorations II | Dr. N. Taher |
| 6 | 6 October | Posterior Composite Resin Restorations | Dr. H. Al-Nahedh |
| **10 October –**  **20 October** | **HAJJ HOLIDAY** |  |
| 7 | 27 October | Restoration of Cervical Lesions | Dr. R. Al-Hamdan |
| 8 | 3 November | Restoration of badly broken down teeth I | Dr. N. Ateyah |
| 9 | 10 November | Restoration of badly broken down teeth II | Dr. N. Ateyah |
| 10 | 17 November | Restoration of endodontically treated teeth | Dr. L. Al-Saud |
| 11 | 24 November | Cast gold restorations |  Dr. A. Awdah |
| 12 | 1 December | Tooth colored inlays & onlays I | Dr. K. Al-Mansour |
| 13 | 8 December | Tooth colored inlays & onlays II | Dr. K. Al-Mansour |
| 14 | 15 December | Esthetic Dentistry I | Dr. Y. Al-Jazairy |
| 15 | 22 December | Esthetic Dentistry II  | Dr. Y. Al-Jazairy |
| 16 |  | **FINAL EXAM** |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| 1 | Introduction and Course Description | 1 of 1 lecture | 1. Introduction to 413 RDS course.
2. Explain the course rules and regulations
3. Explain how to enter information and complete the clinical evaluation book.
 | * Lecture presentation
* Course outline
 |
| 2 | Adhesion to Tooth Structure | 1 of 1 lecture | 1. Compare bonding of enamel to bonding to dentin.
2. Discuss the impediments to resin bonding with dentin.
3. Know the different generations of DBA & characteristics of the 4th, 5th& 6th generations
4. Discuss the dentin acid etching technique, its mechanism and safety.
5. Explain the characteristics of the resin/dentin inter-phase and define the hybrid & hybridoid layers.
6. Explain the concept of wet bonding (collapse & re-expansion of the collagen network) and the overwet phenomenon.
7. Know the types of primers (acetone-based, water-based and self-etching)
8. Introduce the students to new concepts (direct pulp capping with adhesives and treating dentin adhesives with DBA).
 | * The Science of Bonding: from first to sixth generation, Kugel G, Ferrari M., JADA 2000; 131, pages 208-255
* Dentin Bonding State of the Art, 1999, Perdigao J, Lopes M., Compendium 1999; 20, pages 1151-1162
 |
| 3 & 4 | Direct Anterior Composite Resin Restorations I & II | 1 & 2 of 2 lectures | 1. Overview of composites classification
2. Advantages of direct anterior composites
3. Factors influencing composite selection
4. Clinical application of composites
5. Composite finishing and polishing
6. Class III, Class IV, Diastema closure, incisal elongation, direct and indirect composite veneers
7. Esthetic reconstruction of anterior teeth with composite resin (Layering technique and staining)
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz, Chapter 9, pages 261-288
* Color Atlas of Dental Medicine: Esthetic Dentistry, Joseph Schmidseder, Pages 92-142
 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| 5 | Posterior Composite Resin Restorations | 1 of 1 lecture | 1. Indications for placing composite resin in posterior occlusal cavities.
2. Limitations of the materials and the techniques used to counteract their effects.
3. Clinical steps for placing composite resin restorations
4. Advantages and disadvantages of packable composites.
5. Tunnel preparations technique, its advantages and limitations.
6. The uses of flowable composites, their advantages & disadvantages.
7. Advantages of composite surface sealants.
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz, Chapters 10, pages 289-339
* Handout based on current literature
 |
| 6 | Restoration of Cervical Lesions | 1 of 1 lecture | 1. Briefly discuss etiology of cervical lesion carious and non-carious, and the assessment of the risk factors associated with it.
2. Methods of isolation of such cavities including 212 clamp and surgical isolation.
3. The scope of materials available for such restorations and the indications for each (composite, conventional GIC, resin modified GIC, compomer& amalgam)
4. Quick review of chemistry, advantages & disadvantages of the different materials.
5. Placement technique of the different materials and their finishing & polishing procedures.
6. Incremental placement technique and the veneering technique.
7. Indications for the sandwich technique in class III, IV & V and how it is done.
8. Briefly discuss the etiology and treatment of dentinal sensitivity.
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz:
* Chapter 12, page 394-406
* Chapter 13, pages 407-419
* Chapter 14, pages 420-436
 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| 7 & 8 | Restoration of Badly Broken Down Teeth I & II | 1 of 2 lectures | 1. How to diagnose and manage deep carious lesions, treatment options (pre-operative assessment)
2. Methods of stepwise excavation of carious lesions
3. The difference between indirect and direct pulp capping
4. The dynamics of indirect pulp capping and the steps of treatment for direct pulp capping
5. How to evaluate the rate of success in both direct and indirect pulp capping
6. Treatment options for severely broken down teeth and factors that must be taken into consideration.
7. How and when to use alternative retentive features (like slot, amalgapins, boxes, etc.) to restore badly broken down teeth
8. Causes of restoration failure
 | * The Art and Sciences of Operative Dentistry, 5th edition, Sturtevant:
* 5th edition Chapter 15, pages 500-533
* 4th edition Chapter 19, pages 807-842
* Textbook of Operative Dentistry3rd edition, Baum, Philips & Lund Chapter 8, pages 161-173 & 176-184
* Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz Chapters 5, pages 101-123
 |
| 2 of 2 lectures | 1. The different kinds of pins available for use with large amalgam restoration
2. When and where to use pin retained amalgam restorations and their clinical technique
3. Clinical steps of the TMS pin retention method
4. Causes and management of failure in pin retained amalgam
5. Techniques for bonding amalgam to tooth structure and its clinical procedures
 | * The Art and Sciences of Operative Dentistry, Sturtevant:
* 5th edition Chapter 15, pages 500-533
* 4th edition Chapter 19, pages 807-842
* Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz Chapters 11, pages 354-393
 |
| 9 & 10 | Restoration of Endodontically Treated Teeth I & II | 1 & 2 of 2 lecture | 1. The importance of proper management of endodontically treated teeth in restorative dentistry
2. How to diagnose and determine the level of treatment in case of badly broken down teeth
3. The different techniques in managing anterior endodontically treated teeth
4. The different technique in managing posterior endodontically treated teeth
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rd edition, Schwartz Chapter 20, pages 570-590
 |
| 11 | Cast Gold Restorations | 1 of 1 lecture | 1. Indication and contraindication of onlays& partial veneer castings
2. Concept of using gold casting
3. Steps for preparing partial veneer and onlay preparations
4. Different designs, preparations, &the importance of tissue management
5. The proper selection of impression material and cements used during the clinical procedure
6. The steps of temporization and cementation
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, J. Summitt, J. Robbins, R. Schwartz, Chapter 19, pages 538-569
* The Art & Science of Operative Dentistry, 5th edition, Sturtevant Chapter 20, pages 845-916
 |
| 12 & 13 | Tooth Colored Inlays &Onlays | 1 & 2 of 2 lectures | 1. Indications and contraindication for tooth colored inlays and onlays.
2. The different systems of constructing tooth colored inlays and onlays.
	1. Composite resin inlay and onlays
	2. Conventional porcelain inlays
	3. Glass ceramic inlays and onlays (castable, injection molded, CAD-CAM and copy milled materials)
3. The indications and advantages for each system.
4. The clinical and laboratory steps of this technique in details
5. Steps in details of cementation using resin-luting agents
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz Chapters 18, pages 514-537
* Handout based on current literature
 |
| 14 & 15 | Esthetic Dentistry Part I & II | 1 of 2 lectures | 1. Esthetic considerations in treatment planning
2. Different esthetic treatment modalities to restore conservatively discolored teeth and slightly malformed or spaced teeth
3. Bleaching
4. Indications and contraindications
5. Step-by-step clinical approach
 | * Fundamentals of Operative Dentistry: A Contemporary Approach, Schwartz, 3rd edition:
* Chapter 3, pages 68-80
* Chapter 15, pages 401-426
 |
| 1 of 2 lectures | 1. The different treatment modalities to restore conservatively discolored teeth and slightly malformed or spaced teeth according to the following:
	1. Enamel micro-abrasion
	2. Enameloplasty
	3. Diastema closure using composite resin (already discussed in Direct Anterior Composite Resin Restorations)
2. Indications and contraindications
3. Step-by-step clinical approach.
4. How to manage discolored malformed or spaced teeth that did not respond to the treatment options listed in Part I and II

Laminate veneers:* Direct (Composite resin) (already discussed in Direct Anterior Composite Resin Restorations)
* Indirect (bonded porcelains)
 | * Handout based on current literature
* Fundamentals of Operative Dentistry: A Contemporary Approach, 3rdedition, Schwartz, Chapters 16, pages 463-459
 |