**KING SAUD UNIVERSITY**

**College of Dentistry**

**Department of Restorative Dental Sciences**

**DIVISION OF OPERATIVE DENTISTRY**

**313 RDS**

**RESTORATIVE PROCEDURES I**

**COURSE OUTLINE**

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**Course Director [MUC]**

**DR. MASHAEL BIN HASAN**

**Co-Course Director**

**2011-2012 [1432-1433]**

**COURSE DESCRIPTION**

This is the first clinical operative course that builds on the preceding principles and techniques already presented in the pre-clinical courses while expanding the area of diagnosis and treatment planning. Attention is given to efficient utilization of the clinical facilities and the need for proper patient records. Students are expected to carry out simple restorative procedures under *close staff supervision.*

This course is offered in the 3rd year as one lecture and one clinical session in the first half and one clinical in the second half of the year. A total of 12 lectures will be given with a five-minute quiz at the beginning of each lecture. Quizzes are based on the previous week’s lecture.

**COURSE GOALS**

The student will be trained to treat the following simple restorative cases: Pit and fissure sealant, Preventive Resin Restoration (PRR), Class I, Class II amalgam, Class I, II, III, IV and V Composite, Glass Ionomer (GI) and Resin Modified Glass Ionomer (RMGI). In order to achieve this, the student should:

1. Be able to describe the causes, initiation and progress of the carious lesions, its treatment and prevention.
2. Comprehend the facts and principles involved in the Clinical Protocol.
3. Apply concepts and principles from pre-clinical to new situations in the restorative clinic during treatment of the patient.
4. Be able to record the clinical status of the oral cavity with regard to soft tissues, oral hygiene, gingival inflammation, active and arrested carious lesions and restorations using dental instruments and dental radiographs examination to arrive at a well established treatment plan based on a problem list.
5. Apply the correct techniques for administering local anesthesia, R.D. and matrices.
6. Demonstrate correct usage of equipment, procedures and restorative materials.

**COURSE REQUIREMENTS**

Students are encouraged to look for suitable cases to meet their clinical requirements whilst pursuing other clinical courses as well as regular consultation with interns.

Students have to successfully finish the following minimum requirements:

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| **Amalgam** | | **Composite** | | | | | **Class V GI &/or Sandwich Tech.** | **PRR** | **TX. Plan** |
| **Class I** | **Class II** | **Class I** | **Class II** | **Class III** | **Class IV** | **Class V** | 2 | 2 | 3 |
| 3 | 2 | 3 | 2 | 3 | 1 | 2 |

* Student must complete requirements; otherwise 2% deduction will be applied for each restoration requirement not completed.
* Polishing of amalgam restorations is mandatory. If an amalgam restoration is not polished, 20% of the points for that restoration will be deducted.
* For each completed case, the student will get credit.
* Attend lectures and all clinical sessions.
* Assigned reading.
  + The Art & Science of Operative Dentistry. Sturdevant, 5th Edition (2006)
  + Fundamentals of Operative Dentistry. A Contemporary Approach, Shwartz et. al., 3rd Edition (2006)
* Finish the minimum clinical requirements.

**COURSE OBJECTIVES**

Upon completion of the course the student should be able to:

* Diagnose oral disease particularly dental caries (caries etiology) and identify patient at high risk.
* Diagnose dental pain and make differential diagnosis of dental pain.
* Perform pulp vitality test using different methods.
* Write a proper treatment plan and educate patient on his/her dental needs.
* Give oral hygiene and dietary instructions and motivate patients.
* Select proper instruments (hand cutting instruments, burs, etc.) for cavity preparation.
* Perform proper management of shallow to moderately deep carious lesions. Restoration of teeth with very deep caries with or without broken down cusps is not encouraged. Such cases should be properly referred to 411 RDS, interns or specialist.
* Write proper referral/signature approval of the clinical instructor using the prescribed form.
* “Shuffling” of patients between students without approval of the Course Director is not allowed.
* Design a cavity, for amalgam restoration, to a biologically and mechanically acceptable level.
* Properly select and use liners and bases.
* Correctly use matrices and wedges.
* Perform amalgam restoration to a biologically, physiologically and mechanically acceptable level.
* Do proper finishing and polishing of amalgam restorations.
* Design cavities for composite resin to a biologically and mechanically acceptable level.
* Correctly use the acid-etch technique.
* Manipulate and place light-cured composite restorative resin.
* Manipulate and place the glass ionomer and RMGI materials.
* Perform proper finishing and polishing of composite resin, G.I., and RMGI restorations.
* Restore non-carious lesions e.g. abrasion, erosion and other defects.

**COURSE EVALUATION**

**CONTINUOUS ASSESSMENT 60%**

Quizzes 10%

Weekly clinical work 50%

**FINAL EXAMINATION 40%**

Subjective assessment 10%

Final written exam 30%

**PRECLINICAL ACTIVITIES**

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| **Student’s Name:** |  | **Computer No.:** |  | **Group** | **Cubicle No.:** |
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| **Clinical** | | **Unacceptable** | **Acceptable** | **Date** | **Signature** |
| **1ST WEEK** | 1. Cubicle assignment and tour of the clinic and introduction to the steri-center, emergency clinic, booking area. |  |  |  |  |
| 1. Demonstration of the operation procedure of the dental unit and different positions of the chair and light in relation to restorative procedures. |  |  |  |
| 1. Polishing upper teeth on a student partner with rubber cup and pumice to gain experience on how to use the handpiece. |  |  |  |
| **SUBTOTAL/10** |  | | |
| **2ND WEEK** | 1. Oral examination and charting on a student partner to write a treatment plan based on a problem list. |  |  |  |  |
| **SUBTOTAL/10** |  | | |
| **3RD WEEK** | 1. Cavity preparation on extracted teeth: class I, class II, class IV, class V |  |  |  |  |
| 1. Application of liners & bases on extracted teeth i.e. Dycal, G.I., Vitrebond, IRM |  |  |  |
| **SUBTOTAL/10** |  | | |
| **4TH WEEK** | 1. Practice to give infiltration on tooth #14 to student partner and place a rubber dam (tooth #14-24). |  |  |  |  |
| **SUBTOTAL/10** |  | | |
| **TOTAL /40** | |  | | |  |

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|  | Student passed and completed the previous procedures and he/she can see patient. | | |
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|  | Student not passed and he/she cannot see patient. | | |
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|  | Grade for pre-clinical activities. | | |
|  | |  | Dr. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | |  | Signature |

**PRECLINICAL ACTIVITIES (CLINICAL HALL)**

During the first four (4) clinical sessions, the student should not expect to treat any patient. Instead an introduction to the clinic and clinical work will be carried out.

**First Week: September 13, 2011**

1. Cubicle assignment and tour of different sections of the clinical hall, including steri-center, emergency clinic, and booking area.
2. Demonstration of the operation procedure of the dental unit and different positions of the dental chair and light in relation to restorative procedures.
3. Polishing upper teeth on a student partner with rubber cup and prophylaxis paste to gain experience on how to use the handpiece clinically.

**Second Week: September 20, 2011**

1. Oral examination and charting on a student partner.
2. Write a problem list based on clinical examination and radiographs. Every student must bring her recent bitewing radiographs and periapicals (where appropriate).
3. Write a treatment based on the problem list.

**Third Week: September 27, 2011**

1. Cavity preparation on extracted teeth: class I, class II, class III, class V
2. Application of liners and bases on extracted teeth (i.e.: Dycal, GI, Vitrebond, IRM)
3. Application of temporary restoration on extracted teeth (ex.: IRM, RMGI)

**Fourth week: October 4, 2011**

1. Practice giving, infiltration for tooth #14 and gain experience in applying rubber dam on a student partner (tooth #14-24).
2. Infection control lecture.

At the end of the fourth week, students who complete all the above procedures satisfactorily are permitted to treat patients.

**LECTURE SCHEDULE**

**2011 - 2012**

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| **Week** | **Date** | **Lecture Title** | **Lecturer** |
| 1 | 13 September | Introduction to the Course | Dr. Al-Mansour |
| 2 | 20 September | Examination, Diagnosis and Treatment Planning I | Dr. Mourad |
| 3 | 27 September | Examination, Diagnosis and Treatment Planning II | Dr. Mourad |
| 4 | 4 October | Explanation of Clinical Manual | Dr. Al-Mansour |
| 5 | 11 October | Control of Moisture | Dr. Al-Saud |
| 6 | 18 October | Dental Caries: Diagnosis and Clinical Manifestation | Dr. Bin Hasan |
| 7 | 25 October | Dental Caries: Caries Risk Assessment and Management | Dr. Bin Hasan |
| **1 – 11 November** | | **HAJJ HOLIDAY** |  |
| 8 | 15 November | Concepts of Conservative Cavity Design and Management | Dr. Al-Saud |
| 9 | 22 November | Tooth Colored Restorations: Part I  Adhesive Dentistry | Dr. Shono |
| 10 | 29 November | Tooth-colored Restorations: Part II  Anterior composite Restoration | Dr. Al-Mansour |
| 11 | 6 December | Tooth-colored Restoration: Part III  Posterior composite Restoration | Dr. Al-Jazairy |
| 12 | 13 December | Tooth Colored Restorations: Part IV  Glass Ionomer Cements (GIC) | Dr. Al-Nahedh |
| 13 | 20 December | Tooth Colored Restorations: Part V  Resin Modified GI and Polyacids Modified Composite | Dr. Shono |
| 14 | 27 December | Theoretical information and clinical application | Dr. Al-Mansour |
| 15 | **FINAL EXAMINATION** | | |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **1** | **Introduction to the Course, Clinical Protocol** | **1 of 1 Lecture** | 1. **Introduction to the Course** 2. Attendance requirements 3. Evaluation methods 4. Quizzes and assessments 5. Course grading policy and method of evaluation 6. Course requirements 7. **Clinical protocol in the college Clinic** 8. The student will be introduced to a clinical protocol. 9. To understand what is required in order to facilitate the transition from pre-clinical to clinical setting. 10. Identify the areas where emergency equipment is located. 11. Know the different areas of the clinic. | 1. Course syllabus |
| **2** | **Examination, Diagnosis and Treatment Planning** | **1 of 2 Lectures** | * Learn and differentiate between types of dental visit. * Perform clinical assessment. * Perform dental examination, charting of teeth/ restoration, and diagnosis. | 1. Sturdevant: 4th Ed. 2001. Chapter 9, pages 389-392 and 399-413   OR   1. Sturdevant: 5th ed. 2006. Chapter 9 pages 407-435 |
| **3** | **Examination, Diagnosis and Treatment Planning** | **2 of 2 Lectures** | * Learn about the adjunctive aids for examining teeth and restorations. * The student will be able to determine the treatment plan according to the urgency of each problem and the sequence of procedures that should be followed. | 1. Sturdevant: 4th Ed. 2001. Chapter 9, pages 414-428   OR   1. Sturdevant: 5th ed. 2006. Chapter 9, pages 435-445 |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **4** | **Explanation of Clinical Manual** | **1 of 1 Lecture** | * + Understand the coding system of different operative clinical procedures.   + Understand the different forms of the clinical manual.   + Learn how to fill the clinical manual. | 1. Course syllabus |
| **5** | **The Control of Moisture in Restorative Field** | **1 of 1 Lecture** | * + Know the different methods of moisture control.   + Know the purpose, advantages, and disadvantages of the rubber dam.   + Get acquainted with rubber-dam materials, instruments and method of application.   + Know the alternate methods for placing the rubber dam for fixed bridge isolation.   + Know the errors in placing and removal of the rubber dam. | 1. Sturdevant: 4th Ed. 2001. Chapter 10, Pages 444- 469   OR   1. Sturdevant: 5th ed. 2006. Chapter 10 pages 463-491 |
| **6** | **Caries Diagnosis** | **1 of 2 Lectures** | * + Describe the traditional caries diagnostic methods and discuss their advantages and disadvantages.   + Briefly describe the rationale of the newer caries diagnostic methods, including their limitations.   + Describe the clinical classification of dental caries. | 1. Akpata: Textbook of Operative Dentistry. Chapter I, pages 1-10 2. Sturdevant: 4th Ed. 2001. Chapter 3, Pages 65-69; 92-100 3. Articles based on current literature |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **7** | **Caries Risk Assessment and Management** | **2 of 2 Lectures** | * + Discuss the main factors considered in caries risk assessment.   + Describe commonly used caries activity tests.   + Briefly discuss preventive and therapeutic management of dental caries. | 1. Akpata: Textbook of Operative Dentistry, Chapter I, pages 10-14 2. Sturdevant: 4th Ed. 2001. Chapter 3, Pages 101-130 3. Articles based on current literature |
| **8** | **Concepts of Conservative Cavity Design and Management** | **1 of 1 Lecture** | * + Clinical techniques of Pit and Fissure sealant and PRR.   + Modern principles of conservative amalgam cavity design and preparation for Class I and II.   + Revision of Clinical application of amalgam restoration for Class I and II. | 1. Pickard’s Manual of Operative Dentistry (7th edition), pages 105-111 2. Fundamentals of Operative Dentistry: Schwartz, 2nd edition, pages 273-299; 306-321; 336-342; 345-352 3. Lecture notes |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **9** | **Tooth-colored Restoration: Part I, Adhesive Dentistry** | **1 of 5 Lectures** | * + Know the types of polymers used as restorative materials.   + Know the chemistry of composite resin and the properties of each component.   + Know the different classifications of composite resins.   + Know factors affecting adhesion to enamel and dentine.   + Know the adhesion steps. | 1. Fundamentals of Operative Dentistry, Schwartz and Summitt, 2nd Ed, 2000, chapter 8, pages 178-222 or 3rd Ed, 2006, chapter 8, pages 183-242 |
| **10** | **Tooth-colored Restoration: Part II, Anterior Composite Restorations** | **2 of 5 Lectures** | * + Learn clinical application of composite resins.   + Revise the cavity preparation and restoration of class III, IV and V.   + Hints and tips for better esthetic restorations will be given through restoration. | 1. Fundamentals of Operative Dentistry, Schwartz and Summitt, 2nd Ed. 2000, chapter 9, pages 236-259 or 3rd Ed. 2006, chapter 9, pages 262-288 2. Sturdevant: 5th ed. 2006, chapter 11, pages 497-502; 506-512; 517-525; chapter 12, pages 529-563 |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **11** | **Tooth-colored Restoration: Part III, Posterior Composite Restorations** | **3 of 5 Lectures** | * + Indications, contraindications, advantages, and disadvantages for posterior composite.   + Clinical technique for direct CL I composite restoration.   + Clinical technique for direct CL II composite restoration | 1. Fundamentals of Operative Dentistry, Schwartz and Summitt, 2nd Ed, 2000, chapter 10, pages 260-305 or 3rd Ed. 2006, chapter 10, pages 289-339 |
| **12** | **Tooth-colored Restoration: Part IV, Conventional Glass Ionomer Cement** | **4 of 5 Lectures** | * + List the advantages and inherent properties of GIC.   + List the types of GIC.   + List the indication and contraindications for GIC.   + Know the procedure of finishing, and polishing of GIC.   + Recognize the causes of failure of GIC and their clinical manifestation. | 1. Handout 2. Sturdevant: 5th ed. 2006. Chapter 12, pages 563-565 |
| **13** | **Tooth-colored Restoration: Part V, Resin Modified GI and Polyacids Modified Composite (Compomers)** | **5 of 5 Lectures** | * + List the advantages and inherent properties of RMGI and PMC (Compomers).   + List the types and differentiate between GIC, RMGI and Compomers.   + List the indication and contra-indications for RMGI and Compomers.   + Know the procedure of restoring class V erosion, abrasion and carious lesions with Compomers. | 1. Handout |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **14** | **Theoretical information and clinical application** | **1 of 1 Lecture** |  | 1. Handout 2. Articles based on current literature |