**King Saud University**

**College of Dentistry**

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| **Course Specification** | | |
| Course Title : | **Clinical Restorative Procedures** | |
| Course Code : | **313 RDS** | |
| Course Director(s): | **Dr. Fahad Al-Khudairy - DUC**  **Dr. Mayyadah AlMozainy - GUC** | |
| Department : | **College of Dentistry** | |
| Academic Year : | **1435-1436H (2014-2015G)** | |

**Course Specification**

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| Institution | King Saud University |
| College/Department | College of Dentistry |

1. **Course Identification and General Information**

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| 1. Course title and code | Clinical Restorative Procedures – 313 RDS |
| 1. Credit hours: | 3 hours |
| 1. Program(s) in which the course is offered.   (If general elective available in many programs indicate this rather than list programs) | Bachelor of Dental Sciences, BDS |
| 1. Name of faculty member responsible for the course | Dr. Mayyadah AlMozainy - GUC  Dr. Fahad Al-Khudairy - BUC |
| 1. Level/year at which this course is offered: | Third Year |
| 1. Pre-requisites for this course (if any) | Pre-Clinical Operative course 213 RDS |
| 1. Co-requisites for this course (if any) | 211 MFS- Local Anesthesia & Exodontia |
| 1. Location if not on main campus | Darriyah University Campus (DUC) -  Main Campus  Girls University Campus (GUC) |

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| 1. **Learning Objectives** 2. Summary of the main learning outcomes for students enrolled in the course.   The course provides the student with knowledge and skills required to handle, prevent and treat patients with simple restorations (carious and non-carious lesions) under close supervision.  All lectures are aiming to recall and reinforce the students’ previous knowledge gained in the early operative courses and to update the student’s information.  It will be directed towards the clinical application of principles of different cavity preparations as well as different types of restorative materials.  At the end of this course, the students should be able to:   1. Diagnose caries and identify patient at high risk, diagnose dental pain and distinguish different types of dental pain. (1.3, 1.4) 2. Write a proper treatment plan and demonstrate proper education of their patients’ dental needs and apply proper patient’s motivation on oral hygiene. (2.1, 2.2) 3. Perform pulp vitality test using different methods and all clinical practice to the highest professional level. (2.1, 2.2) 4. Use proper instruments (hand cutting instruments, burs, etc) for cavity preparation, bases, liners, matrices and wedges correctly. (5.1, 5.2, 5.3) 5. Produce amalgam, light cured composite restorative resin, Glass Ionomer Cement and Resin Modified Glass Ionomer Cement restorations to a biologically, physiologically and mechanically acceptable level with proper finishing and polishing for all form of restorations. (5.1, 5.2, 5.3) 6. Examine and treat non-carious lesion (e.g. abrasion, erosion, and other defects). (5.2, 5.3) |
| 1. Briefly describe any plans for developing and improving the course that are being implemented.  (e.g. increased use of IT or web based reference material,  changes in content as a result of new research in the field)  * Update the content periodically * Increase use of web-based references * Relate theoretical information with clinical practice |

1. **Course Description** (Note:  General description in the form to be used for the Bulletin or Handbook should be attached)

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| 1. Topics to be Covered |  |  |
| Topic | No. Of Weeks | Contact hours |
| Introduction to 311 RDS course | 1 | 1 |
| Examination, Diagnosis and Treatment Planning | 2 | 2 |
| Explanation of Clinical Manual | 1 | 1 |
| Control of moisture | 1 | 1 |
| Dental Caries: Diagnosis and Clinical Manifestation | 1 | 1 |
| Dental Caries: Caries Risk Assessment and Management | 1 | 1 |
| Concepts of Conservative Cavity Design and Management | 1 | 1 |
| Tooth Colored Restorations: Part 1, Part II, Part III  (Resin composite) | 3 | 3 |
| Tooth Colored Restorations: Part IV, Part V  (Glass Ionomer Cement) | 2 | 2 |
| Theoretical information and clinical application | 1 | 1 |

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| 1. Course components (total contact hours per semester): | | | |
| Lecture:  14 | Tutorial: | Practical/Fieldwork/Internship  90 contact hours in clinical sessions of the academic year | Other: |

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| 1. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week) |

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| 1. Development of Learning Outcomes in Domains of Learning   For each of the domains of learning shown below indicate:   A brief summary of the knowledge or skill of the course is intended to develop.   A description of the teaching strategies to be used in the course to develop that knowledge or skill.   The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned. |

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| 1. **Knowledge** 2. Description of the knowledge to be acquired   Upon completion of the course the student should be able to:   1. Identify oral disease particularly dental caries (caries etiology) (1.3) 2. Identify dental pain. (1.3) 3. List different types of dental pain. (1.3) 4. Define caries and non-carious lesions e.g. abrasion, erosion and other defects). (1.3) 5. Select proper restorative materials (i.e. amalgam, light cured composite restorative resin, Glass Ionomer Cement and Resin Modified Glass Ionomer Cement) (1.3,1.4) 6. Recognize the proper cavity design and the correct manipulation and application of different restorative materials. (1.3, 1.4) 7. Recognize all instruments available for cavity preparation, restoration and finishing and polishing of different restorative materials. (1.3, 1.4) |

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| 1. Teaching strategies to be used to develop that knowledge  * Lectures * Class group discussion * Demonstration in the clinic |
| 1. Methods of assessment of knowledge acquired  * Weekly quizzes * Final examination is given at the end of the first semester |
| 1. **Cognitive Skills** |
| 1. Cognitive skills to be developed 2. Upon the completion of the course the student should be able to: 3. Apply concepts and principles gained from pre-clinical training to the new situations in the restorative clinic during treatment of the patient. (2.1, 2.2) 4. Analyze and formulate decisions in restorative dentistry (2.1, 2.2) 5. Identify the concept of integration of carious lesions with cavity preparation design (2.1, 2.2) 6. Perform pulp vitality tests properly using different methods. (2.1, 2.2) 7. Select different dental materials. (2.1, 2.2) |
| 1. Teaching strategies to be used to develop these cognitive skills  * Lectures * Group discussion * Demonstration in the clinic * Clinical supervision |

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| 1. Methods of assessment of students cognitive skills  * Weekly clinical evaluation by the supervisor * Weekly quizzes * Final exam |
| 1. **Interpersonal Skills and Responsibility** |
| 1. Description of the interpersonal skills and capacity to carry responsibility to be developed 2. Apply teamwork skills with fellow students and assistants. (3.1) 3. Apply proper professional conduct with patients and faculty. (3.1) 4. Demonstrate proper patient’s motivation and good time management. (3.2, 3.3) |
| 1. Teaching strategies to be used to develop these skills and abilities  * Lectures * Tutorial during the clinic * Demonstration in the clinical |
| 1. Methods of assessment of students interpersonal skills and capacity to carry responsibility  * Close weekly supervision (direct observation) during clinical practice. * Feedback from the supervisors |
| 1. **Communication, Information Technology and Numerical Skills** |
| 1. Description of the skills to be developed in this domain.  * Not applicable |

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| 1. **Psychomotor Skills (if applicable)** | | | |
| 1. Description of the psychomotor skills to be developed and the level of performance required   At the end of the course the student should be able to:   1. Apply the correct techniques for administering local anesthesia and rubber dam. (5.1, 5.2, 5.3) 2. Use proper instruments for cavity preparation (hands cutting instruments, burs, etc.), matrices and wedges correctly. (5.1, 5.2, 5.3) 3. Prepare a cavity to a biologically and mechanically acceptable level for different restorative materials. (5.1, 5.2, 5.3) 4. Manipulate different restorative materials and use acid-etch technique correctly to produce a restoration to a biologically, physiologically and mechanically acceptable level. (5.1, 5.2, 5.3) 5. Demonstrate proper finishing and polishing technique for different restorative materials. (5.1, 5.2, 5.3) 6. Apply aseptic techniques. (5.1) | | | |
| 1. Teaching strategies to be used to develop these skills  * Clinical supervision and guidance in the clinic. * Clinical demonstration for some procedures when needed. | | | |
| 1. Methods of assessment of students psychomotor skill  * Weekly clinical supervision and assessment. | | | |
| 1. Schedule of Assessment Tasks for Students During the Semester | | | |
| Assessment | Assessment task (e.g. essay, test, group project, examination etc.) | Week Due | Proportion of Final Assessment |
| 1 | Quizzes | Weekly | 10% |
| 2 | Clinical work (requirements) | Weekly | 50% |
| 3 | Final written exam | Week 15 | 30% |
| 4 | Subjective assessment |  | 10% |

1. **Student Support**

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| 1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)  * Available at working time. * Available at office hours. * Available at clinical session for supervision, support, advice and help. * Available through e-mail and phone. |

1. **Learning Resources**

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| 1. Required Text(s)   The Art & Science of Operative Dentistry. Sturdevant, 5th Edition (2006) |
| 1. Essential References   Schwartz's Fundamentals of Operative Dentistry 3rd Edition (2006)  Akpata Textbook of Operative Dentistry, 1997 Class Publishing BARB House |
| 1. Reference Material (Journals, Reports, etc) (Attach List)  * Pickard’s Manual of Operative Dentistry (8thh edition), E.A.M. Kidd, B.G.N. Smith and T.F. Watson, Oxford University Press. * Journal of Operative Dentistry * Journal of American Dental Association (JADA) |
| 1. Electronic Materials, Web Sites etc.   <http://jada.ada.org>  <http://ksu.edu.sa>  <http://KSUJDS.ksu.edu.sa>  <http://faculty.ksu.edu.sa/Dr.Shethri/default.aspx>  <http://dent.ksu.edu.sa/> |
| 1. Other learning material such as computer-based programs/CD, professional standards/regulations |

1. **Facilities Required**

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| Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.) |
| 1. Accommodation (Lecture rooms, laboratories, etc.)   Smart class room linked to the internet for online educational materials |
| 1. Computing resources   Computers are very important for students with internet access for educational resources |
| 1. Other resources (specify -e.g. If specific laboratory equipment is required, list requirements or attach list)   Provide the clinical halls with a left handed oriented dental chairs and equipment. |

1. **Course Evaluation and Improvement Processes**

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| 1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching  * Questionnaires distributed to obtain student feed back * Meeting periodically with the students and take their impression * Direct contact with course director through phone or e-mail |
| 1. Other Strategies for Evaluation of Teaching by the Instructor or by the Department   Feedback from contributors and weekly discussion during clinical sessions. |
| 1. Processes for Improvement of Teaching  * Attending lectures and courses to improve teaching skills and methods (through the development department of the university). * Feedback from contributors in the division especially fourth year instructor and contributors. |
| 1. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)   Feedback of fourth year instructor and contributors as they come into contact with students next year. |
| 1. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.   At the end of each year, the course is reviewed and short comings are corrected. Also feedback from students are collected and incorporated to improve the course in the future.  The Division and then the Department must discuss the course and its outcome during their periodic meetings. |

**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 | 1 | 3 | 3 | 3 | 1 | 2 |

* Student must complete requirements; otherwise 4% 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.
* “Shuffling” of patients between students without approval of the Course Director is not allowed.
* 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.

**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 five (5) 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 3, 2014**

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 10, 2014**

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 17, 2014**

1. Infection control workshop.

**Fourth week: September 24, 2014**

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)

**Fifth week: October 15, 2014**

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 fifth week, students who complete all the above procedures satisfactorily are permitted to treat patients.

**LECTURE SCHEDULE**

**2014 – 2015**

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| **Week** | **Date** | **Lecture Title** | **Lecturer** |
| 1 | 3 September | Introduction to the Course | Dr. Al-Mozainy |
| 2 | 10 September | Examination, Diagnosis and Treatment Planning I | Dr. Awdah |
| 3 | 17 September | Examination, Diagnosis and Treatment Planning II | Dr. Awdah |
| 4 | 24 September | Explanation of Clinical Manual | Dr. Al-Mozainy |
| **28 September –**  **11 October** | | **HAJJ HOLIDAY** | |
| 5 | 15 October | Control of Moisture | Dr. Al-Mozainy |
| 6 | 22 October | Dental Caries: Diagnosis and Clinical Manifestation | Dr. Al-Shamrani |
| 7 | 29 October | Dental Caries: Caries Risk Assessment and Management | Dr. Al-Shamrani |
| 8 | 5 November | Concepts of Conservative Cavity Design and Management | Dr. Bin Hasan |
| 9 | 12 November | Tooth Colored Restorations: Part I  Adhesive Dentistry | Dr. Shono |
| 10 | 19 November | Tooth-colored Restorations: Part II  Anterior composite Restoration | Dr. Al-Mansour |
| 11 | 26 November | Tooth-colored Restoration: Part III  Posterior composite Restoration | Dr. Al-Jazairy |
| 12 | 27 November | Tooth Colored Restorations: Part IV  Glass Ionomer Cements (GIC) | Dr. Shono |
| 13 | 4 December | Tooth Colored Restorations: Part V  Resin Modified GI and Polyacids Modified Composite | Dr. Shono |
| 14 | 11 December | Biological Influence of Restorative Procedures |  |
| 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 |
| **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 |
| **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 |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **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 |
| **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 |

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| **Lecture No.** | **Lesson** | **Sequence** | **Contents** | **Required Reading** |
| **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** | **Biological Influence of Restorative Procedures** | **1 of 1 Lecture** | * + Describe the reaction of dentin-pulp complex to cavity preparation and irritants from restorative materials.  1. Know the reasons for the need of pulp protection. 2. Know the different types and indications of liners and bases. 3. Know the methods of mixing and application of each cement. 4. Know the consequences of the failure of pulp protection.    * Describe the reaction of the periodontium to restorations with cervical overhangs as well as those that interfere with occlusion.    * Describe the reaction of the oral mucosa to irritation from rough restoration surfaces and traumatic operative procedures such as placement of rubber dam clasps.    * List the sources of mercury exposure by man, including the exposure of dental personnel and patients with amalgam restorations | 1. Handout 2. Articles based on current literature |