**National Commission for Academic Accreditation & Assessment**

**Course Specification**

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| Institution University of Dammam |
| College/Department College of Dentistry **/**Restorative Dental Sciences |

**A Course Identification and General Information**

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| 1. Course title and code: Restorative Procedure I (RDS-471) |
| 2. Credit hours 3 hrs |
| 3. Program(s) in which the course is offered. Bachelor of Dental Surgery |
| 4. Name of faculty member responsible for the course  Dr Rasha N Alsheikh |
| 5. Level/year at which this course is offered 4th year |
| 6. Pre-requisites for this course (if any)  Pre-clinical Operative Dentistry course (RDS-362), Dental Biomaterial science (RDS-342) |
| 7. Co-requisites for this course (if any)  None |
| 8. Location if not on main campus  College of Dentistry |

**B Objectives**

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| 1. Summary of the main learning outcomes for students enrolled in the course.   The goal of restorative procedure I course is to establish competency by the new dentists, helping them to perform different clinical restorative procedures, patient diagnosis, treatment and care. |
| 1. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)   This course is being converted to online-blended course  The use of online sessions, resources, and discussion board and self-assessment practice will improve the student learning process and will help the faculty to monitor students’ performance. |

**C. 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 | | |
| List of Topics | No of  Weeks | Contact hours |
| Course Introduction  Patient Assessment, Examination, Diagnosis and Treatment Planning | 2 | 14 |
| Cavity Preparation for Adhesive  Restorations | 1 | 12 |
| Recent Trends in Dental Cariology | 3 | 20 |
| Biological Consideration | 2 | 14 |
| Pain Control | 1 | 7 |
| Post-Operative pain and hyper sensitivity | 1 | 7 |
| Management of Deep Carious Lesion | 2 | 14 |
| Selection of Restorative Material | 1 | 9 |
| Glass Ionomer Restoration | 1 | 7 |
| Revision | 1 | 1 |

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| 2 Course components (total contact hours per semester): | | | | | |
| Lecture:  15 | Tutorial: | Laboratory | Practical/Field work/Internship  90 | Other: | Total:  105 |

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| 3. 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)  3hrs. /week |

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| 4. Development of Learning Outcomes in Domains of Learning |
| **a. Knowledge** |
| 1. Description of the knowledge to be acquired   By the end of this course, the student will be able to:  I.21.1. List the precautions and instructions for dental post-operative pain and sensitivity following restorative treatment.  I.22.3. Recognize different concepts and techniques of adhesions.  I.22.5. Discuss the fundamentals, concepts and steps of tooth preparation for restorative procedures.  I.22.7. Recognize interdisciplinary considerations in operative treatment planning. Describe the intraoral diagnostic techniques  I.23.1. Discuss modern and traditional diagnostic techniques used in Operative Dentistry.  I.23.5. Discuss the techniques used to apply direct restorative materials. |
| (ii) Teaching strategies to be used to develop that knowledge   * Lectures * Reading Assignments * Faculty Coordinated Discussions |
| (iii) Methods of assessment of knowledge acquired   * Graded assignments * Self-assessment * Exam 1 & 2 * Final written exam |
| **b. Cognitive Skills** |
| 1. Description of cognitive skills to be developed   By the end of this course, the student will be able to:  II.4.10. Select appropriate diagnostic techniques to examine different lesions affecting hard tooth structure and / or existing restorations.  II.4.11. Evaluate teeth with deep carious lesion.  II.5.3. Distinguish dental abnormalities requiring restorative intervention.  II.5.5. Differentiate between different lesions affecting hard tooth structures.  II.6.5. Establish restorative treatment plan based on the collected data.  II.6.6. Compose a sequential treatment plan based on the patient needs.  II.11.1. Select appropriate techniques to prevent postoperative pain and sensitivity.  II.16.7. Identify the best restoration for a particular indication.  II.16.8. Apply biomechanical and aesthetic fundamentals in dental restorations. |
| (ii) Teaching strategies to be used to develop these cognitive skills   * Lectures * Reading Assignments * Videos * Tutorials * Animations * Faculty Coordinated Discussions |
| (iii) Methods of assessment of students cognitive skills   * Clinical practice * Graded assignments * Self-assessment activities * Exam 1 & 2 * Final written exam |
| **c. Interpersonal Skills and Responsibility** |
| (i) Description of the interpersonal skills and capacity to carry responsibility to be developed  By the end of this course, the student will be able to:  IV.5.10. Maintain safe environment during cavity preparation and restoration.  IV.5.11. Recognize hazards of using various dental materials in dental clinics and laboratories.  IV.5.12. Identify the possible biological hazards during performing restorative procedures.  IV.5.13. Identify the possible environmental hazards during performing restorative procedures. |
| (ii) Teaching strategies to be used to develop these skills and abilities   * Group discussion * Clinical supervised practice * Dentist-patient communication |
| (iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility   * Evaluation of individual and group discussions and presentations by instructor and peers. * Clinical supervision |
| **d. Communication, Information Technology and Numerical Skills** |
| (i) Description of the skills to be developed in this domain.   * Assess the quality of published articles to use their conclusions in clinical practice. * Use provided online-resources effectively. |
| (ii) Teaching strategies to be used to develop these skills   * Assignment * E-learning resources * Online discussion sessions |
| (iii) Methods of assessment of students numerical and communication skills   * Graded assignment * Statistical evaluation of online access use |
| **e. Psychomotor Skills (if applicable)** |
| 1. Description of the psychomotor skills to be developed and the level of performance required   III.2.6. Use caries detection methods and equipment.  III.2.7. Use chair side methods to assess caries risk.  III.7.2. Perform moisture control using isolation techniques.  III.7.3. Practice soft tissue management techniques.  III.8.3. Perform cavity preparation for direct and indirect restorative procedures.  III.9.2. Perform direct bonding procedures.  III.10.3. Manipulate amalgam restoration in lab and clinic.  III.10.4. Manipulate resin composite restoration.  III.10.5. Manipulate base and liner materials.  III.10.8. Apply pulp protection materials. |
| (ii) Teaching strategies to be used to develop these skills   * Clinical tutorials * Supervised clinical practice |
| (iii) Methods of assessment of students psychomotor skills   * Clinical-perfomance evaluation weekly * Requirement count * Final clinical examination |

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| 5. Schedule of Assessment Tasks for Students During the Semester | | | |
| Assessment | Assessment task (eg. essay, test, group project, examination etc.) | Week due | Proportion of Final Assessment |
| 1 | Assignment 1 | 4 | 3% |
| 2 | Assignment 2 | 8 | 3% |
| 3 | Exam 1 | 6 | 10% |
| 4 | Assignment 3 | 12 | 4% |
| 5 | Exam 2 | 12 | 10% |
| 6 | Clinical requirement |  | 30% |
| 7 | Final written exam | 11-14 | 20% |
| 8 | Final practical exam | 16 | 20% |
| **Total** | | | 100% |
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| **General Rules**  Student must fulfill the minimum clinical requirement to pass the course, although scoring a 70% of the clinical requirements allow him/her to sit in the final clinical examination.  The students will not be awarded marks for attendance. Student with an absence of 25% or more will not be allowed to sit for the final examination, and therefore would be required to repeat the course.  **Assignment Rules**  Assignments will be announced through the blackboard with the due dates, late submission will deduct from the intended grade  Groups of student for each assignment will be assigned randomly at the time of the announcement  **Clinical Requirement Rules**  Students will score points as well as grade for each clinical procedure performed during the clinical sessions.  15% of the total clinical requirements grade (30%) is gained through the points count, the other 15% is gained through calculating the grades average obtained through the clinical procedure evaluation in each clinical session (2% for the generic domain)  In order to be able to take the final clinical exam student must collect 70% (44 point) of the total points required (63 points) point distribution as follow:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Clinical Procedure** | **Points Gained** |  | **Grade (%)** | **Point Count** | | Buccal pit | ½ point |  | 1% | 0.63 point | | Patient examination | 1 point |  | C (70%) | 44 point | | Class V | 1 |  | B (80%) | 50.5 points | | Class I | 2 |  | A (90%) | 56.5 points | | Class III | 2 |  |  |  | | Class I w B/L ext | 3 |  |  |  | | Class II | 4 |  |  |  | | Complex Class I | 5 |  |  |  | | | | | |

**D. Student Support**

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| 1. Arrangements or availability of teaching staff for individual student consultations and academic advice. (Include amount of time teaching staff are expected to be available each week)    * Each faculty has two academic sessions per week each of 2 hrs    * Scheduled online discussion session is available weekly    * All participating faculty are available in the clinic at a ratio of 1 to 4-5 students |

##### E Learning Resources

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| 1. Required Text(s) |
| 1. Essential References  * Fundamentals of Operative Dentistry A Contemporary Approach \_ 3rd edition (2006), by James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, et al. * Sturdevant's Art and Science of Operative Dentistry (Roberson, Sturdevant's Art and Science of Operative Dentistry) (2006), by Theodore Roberson, Harold O. Heymann , Edward J. Swift. |
| 3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)   * Operative Dentistry: A Practical Guide to Recent Innovation (2010), by Hugh Devlin * Craig’s Restorative Dental Materials: Restorative Dental Materials (2012), by Ronald L. Sakaguchi and John M. Powers. * Current Concept of Cariology (2010), Douglas Young, Margret Fontana, et al. |
| 4-. Electronic Materials, Web Sites etc   * UD e-Library * Extra reading materials and articles provided by the faculty through the Blackboard * Educational videos posted into the blackboard |
| 5- Other learning material such as computer-based programs/CD, professional standards/regulations |

**F. Facilities Required**

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| Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.) |
| 1. Accommodation (Lecture rooms, laboratories, etc.)   * Lecture room * Dental Clinics * Computer Lab |
| 1. Computing resources  * Black-board access * UD e-Library * Computer Lab |
| 3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)   * Dental Clinics * Computer Library |

**G Course Evaluation and Improvement Processes**

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| 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching   * Faculty e-mail addresses are provided * Course evaluation questionnaire |
| 2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department   * Course evaluation questionnaire |
| 1. Processes for Improvement of Teaching  * e-learning supporting virtual classes and clinics * Periodic statistical evaluation of student performance in the clinic |
| 1. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)   - Weekly clinical evaluation is done in a rotational pattern allowing the student to be supervised by different faculties during the course.  - Three faculty members evaluate the clinical exam for each student and an average grade is calculated.  - Statistical evaluation of student performance in the clinic |
| 5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.  The course is evaluated via:   * Course evaluation questionnaire * Faculty peers feed back   Feedback is collected and statistically analysed by the quality deanship, a report then is sent to the department and the course coordinator. The department chair then meet with the course coordinator and the faculty if needed to suggest improvements needed then final approval. |

**Lectures Schedule**

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| **Week** | **Date**  **Male** | **Date**  **Female** | **Topic** | **Faculty** |
| 1 | 2/9/2014 | 3/9/2014 | Course Introduction  Patient Assessment, Examination, Diagnosis and Treatment Planning | Dr Rasha AlSheikh |
| 2 | 9/9/2014 | 10/9/2014 |
| 3 | 16/9/2014 | 17/9/2014 | Cavity Preparation for Adhesive  Restorations | Dr Sayed Zubair |
| 4 | 14/10/2014 | 15/10/2014 | Resent Trends in Dental Cariology | Dr Moataz ElGezawi |
| 5 | 21/10/2014 | 22/10/2014 |
| 6 | 28/10/2014 | 29/10/2014 |
| 7 | 4/11/2014 | 5/11/2014 | Biological Consideration | Dr Inas Alghandour |
| 8 | 11/11/2014 | 12/11/2014 |
| 9 | 18/11/2014 | 19/11/2014 | Pain Control | Dr Ahmed Talal |
| 10 | 25/11/2014 | 26/11/2014 | Post-Operative pain and hyper sensitivity | Dr Sayed Zubair |
| 11 | 2/12/2014 | 3/12/2014 | Management of Deep Carious Lesion | Dr Abeer Elembaby |
| 12 | 9/12/2014 | 10/12/2014 |
| 13 | 16/12/2014 | 17/12/2014 | Selection of Restorative Material | Dr Rasha AlSheikh |
| 14 | 23/12/2014 | 24/12/2014 | Glass Ionomer Restoration | Dr Ahmed Talal |
| 15 | 30/12/2014 | 31/12/2014 | Revision |  |

**Lectures Outline**

1. Patient Assessment, Examination, Diagnosis and Treatment Planning (Two lectures)
   1. Patient Assessment ( history past & present – Chief complaint)
   2. Examination and Diagnosis
   3. Clinical Examination for Caries, restorations of restorations and other defects.
   4. Clinical rating (USPHC)
   5. Methods of teeth and restoration examination.
   6. Review of Periodontium
   7. Examination of occlusion
   8. Examination of the patient in pain
   9. Diagnosis of cracked tooth
   10. Treatment planning
   11. Operative preventive treatment
   12. Treatment of root surface caries
   13. Replacement of existing restoration
   14. Soft tissue managment
2. Cavity Preparation for Adhesive Restorations (One lecture)
   1. The rational for minimal cavity preparation
   2. Adhesive cavity designs
   3. Advantages and indications
   4. Class I cavity preparation
   5. Class II cavity preparation
3. Dental Cariology (Three lectures)
   1. Etiology of dental caries
   2. Contributing factors of dental caries
      1. Dental plaque
      2. Role of dietary carbohydrate
      3. The host
      4. Time
         1. Histology and Clinical features of caries
         2. Basic structure of enamel caries
         3. Clinical considerations
         4. Dentin caries
         5. Reaction of dentin-pulp complex to caries attack
         6. Zones of dentin caries
         7. Advance carious lesion
         8. Clinical relevance
         9. Caries risk management
         10. Management of caries
             1. Preventive methods

Fluoride treatment

Plaque control and chemoprophylaxis

Control of diet

Pits & fissures sealing

Immunization

Control & Treatment

1. Biological Considerations in Operative Dentistry (Two lectures)
   1. Tooth Structure
   2. Sensitivity of Dentin & dentin permeability
   3. Types of cavity depths
   4. Dental caries: Characteristics and Pulpal reaction
   5. Influence of Restorative Procedures on Dentin-Pulp Organ ( 6 influences)
   6. Influence of Restorative Materials on Dentin-Pulp Organ ( leakage- chemical makeup - biodegradation)
   7. Gingival and periodontal Irritation
2. Pain Control (One lecture)
   1. Causes of pain
      1. Instrumentation
      2. Physical and Chemical Irritation
      3. Miscallaneous
   2. Reduction of pain
      1. Local Anesthesia
      2. Surface Anesthesia
      3. Sedation
      4. General Anesthesia
      5. Audio Analgesia
   3. Factors Affecting Pain Production
3. Post-Operative Pain and Hyper-sensitivity (One lecture)
   1. Pulp respond to different stimuli
   2. Pain Vs. Hyper-sensitivity
   3. Causes of post-operative pain
   4. Different theories of post-operative sensitivity (hydrodynamic , thermal shock )
   5. Different ways to prevent post-operative pain and hyper sensitivity
   6. Ways to control resin-composite shrinkage
   7. Cavity sealers, liners and bases
4. Management of Deep Caries (Two lectures)
   1. Reaction of pulp-dentinal organ to caries & modern concepts in dental caries
   2. Clinical evaluation of cases for vital pulp therapy
   3. Difficulties of determination of pulp state
   4. Determination of the type and depth of the lesion
   5. Incidents of microscopic and macroscopic pulp exposures
   6. Treatment of deep lesions
   7. Indirect &Direct pulp capping
   8. General considerations & modern management of dentin caries
   9. Success or failure of vital pulp therapy
5. Selection of Restorative Materials (One lecture)
   1. Available Restorative Materials
      1. Permanent restoratives
      2. Temporary Materials
   2. Requirements for an ideal restoration
   3. Assessment of some material behavior
   4. Factors influencing selection of restorative material
      1. Factors concerning the available restorative materials
      2. Factors concerning the patient
      3. Factors related to the operator
6. Glass-Ionemer restorations (One lecture)
7. GIC properties and aplications
8. GIC-restoration cavity design and requiremtn
9. GIC indications
10. Indictions & contraindications- advantages
11. Limitations