

**Umm Al-Qura University**

**Faculty of Dentistry**

**Vice Deanship of Academic Development & Community Service**

**جامعــة أم القــرى**

**كلية طب الأسنان**

**وكالة الكلية للتطوير الأكاديمي وخدمة المجتمع**

وحدة تطوير المناهج

**Curriculum Development Unit**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**Course Specifications**

**(CS)**

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| **Course Name** | Cariology II and Operative Dentistry | |
| **Course Code** | 190442205 | |
| **Academic Level** | 4th Level | |
| **Semester** | 1st & 2nd | |
| **Study Plan No** | 33 | |
| **Department** | Conservative and Restorative Dentistry | |
| **Division** | Restorative Dentistry | |
| **Academic Year** | 2018-2019 AD – 1439 -1440 AH | |
| **Contact hours** | Theoretical | 2 / week |
| Clinical | 3 / week |
| **Total Contact Hrs** | 5 / week | |
| **Total Credit Hrs** | 7 | |

UQU-DENT:F0401-01/02

**Course Specifications**

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| Institution Umm Al Qura University Date of Report: 1/6/2019 |
| College/Department: Faculty of Dentistry/ Conservative Dentistry Department. |

**A. Course Identification and General Information**

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| 1. Course title and code: Cariology II and Operative Dentistry / 190442205 |
| 2. Credit hours: 7 Credit hours |
| 3. Program(s) in which the course is offered: Bachelor Degree of Dental Medicine and Surgery (B.D.S.)  (If general elective available in many programs indicate this rather than list programs) |
| 4. Name of faculty member responsible for the course: Dr. Moanes Soliman Assistant Professor of Restorative Dentistry  e-mail: [mmsoliman@uqu.edu.sa](mailto:mmsoliman@uqu.edu.sa) Cellular phone #: 0590979394 |
| 5. Level/year at which this course is offered: Students of 4th year |
| 6. Pre-requisites for this course: Successful completion of the 3rd year courses. |
| 7. Co-requisites for this course: None. |
| 8. Location: the main campus at Al-Abedia. |
| 9. Mode of Instruction (mark all that apply)  a. Traditional classroom √ What percentage? 50%  b. Blended (traditional and online) What percentage?  c. e-learning yes What percentage? 5%  d. Correspondence What percentage?  f. Other √ What percentage? 45%  Comments:   1. Traditional classroom: in the form of interactive lectures. 2. E-learning in the form of computer based assignments. 3. Other: in the form of clinical sessions. |

**B Objectives**

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| **1. Summary of the Main Learning Outcomes:**  On completion of the course the students will have sufficient knowledge about management of caries lesions prevention and treatment. As he will be familiar with the different methods used by WHO Organization and in the published researches to classify the patient according to his caries risk, so that he will be able to design a customized treatment plan suitable for patient needs, as well as, performing different treatment techniques; to restore the patient oral health. |
| 2. As the scope of the field of caries and other hard-tissue prevention, diagnosis and restorative techniques is continuing to improve and develop, so that continuous updating of the scientific content of the course to match with the rapid pace of development in both materials and techniques by:   * Continuous review and updating of the theoretical interactive lectures. * Offering the financial funds to purchase the advanced diagnostic and treatment devices and restorative materials. * Encouraging the students to read and perform computer-based search and presentations to keep them aware of the most novel and up-to-date prevention and treatment modalities. |

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

Table of theoretical tuition sessions:

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|  | 1. Topics to be Covered | | |
|  | List of Topics | Hours /week | Contact Hours |
| 1 | **Patient reception, operating positions and field preparation:** Ergonomics in dentistry | One hour for one week | 1 Hr |
| 2 | **Diagnostic criteria for dental caries:**  Introduction  Dental caries and methods of examination  Pre-cavitated carious lesion diagnostic criteria  Traditional diagnostic criteria of dental caries | One hour over four weeks | 4 Hrs |
| 3 | **Patient examination, diagnosis and treatment planning:**  Patient charting, records, habits and past history  Record keeping  Conventional methods of patient examination and caries diagnosis  Diagnosis of non-carious lesions  Examination and evaluation of existing restorations  Recent devices and methods of tooth examination  Customized treatment plan | One hour over six weeks | 6 Hrs |
| 4 | **Definitions of diagnostic criteria and Methods of examination of dental caries:**  Recent diagnostic criteria of dental caries  Risk factors and risk models  Caries risk factors  Caries risk indicators  Levels of risk assessment  Introduction to caries activity test | One hour over six weeks | 6 Hrs |
| 5 | **Isolation of the operative field:**  Nature of oral environment and methods of operative field contole  Rubber dam and its techniques of application | One hour over two weeks | 2 Hrs |
| 6 | **Caries risk assessment (Caries risk factors):**  Microbiologic caries activity tests | One hour for one week | 1 Hr |
| 7 | **Caries activity tests:**  Biochemical caries activity tests | One hour for one week | 1 Hr |
| 8 | **Temporaization:**  Requirements, aims and types | One hour for one week | 1 Hr |
| 9 | **Selection of restorative material:**  Requirements of ideal restorative material and factors affecting selection of the material: material-related factors  Patient-related factors and operator-related factors | One hour over two weeks | 2 Hrs |
| 10 | **Matrices and retainers:**  Importance of matricing, restoring tooth form and preservation of soft tissues health  Types and techniques of application of posterior and anterior matrices | One hour over two weeks | 2 Hrs |
| 11 | **Caries management based on risk assessment:**  Role of saliva in caries risk assessment  Tooth defense factors and caries activity tests  New methods in caries activity tests | One hour over three weeks | 3 Hr |
| 12 | **Biological aspects of operative dentistry:**  Types of irritants and factors affecting the pulp response  Factors affecting the pulp reaction during cavity preparation  Biocompatability of the different restorative materials | One hour over three weeks | 3 Hrs |
| 13 | **Cariogram:**  Cariogram program  Caries related factors according to the Cariogram  Estimation of the caries risk. How to build the Cariogram?  Work shop about how to build the Cariogram?  Introduction to CAMBRA. | One hour over five weeks | 5 Hrs |
| 14 | **Pain control in operative dentistry:**  Pain control during the different phases of treatment: pre-op, operative and post-op | One hour for one week | 1 Hrs |
| 15 | **Vital pulp therapy and management of deep carious lesions:**  Direct pulp capping, indirect pulp capping and step-wise caries excavation  Factors affecting success of vital pulp therapy | One hour over two weeks | 2 Hrs |
| 16 | **Dentin hypersensitivity and post-operative pain:**  Etiology of dentin hypersensitivity and differential diagnosis  Conservative treatment of dentin hypersensitivity and desensitizing agents  Causes and methods followed for avoiding post-operative pain | One hour over three weeks | 3 Hrs |
|  | **Caries management based on risk assessment:**  Caries balance & imbalance models  CAMBRA implementation  How to use the CAMBRA Clinical Guidelines?  Minimally invasive dentistry  Remineralization therapy  Newer approach (strategies) to remineralization therapy | One hour over six weeks | 6 Hrs |
|  | **Glass ionomer restorative techniques:**  Recent improvements of GICs  Techniques of manipulation and different techniques of clinical applications | One hour over two weeks | 2 Hrs |
|  | Assignments' presentation and discussion | One hour over two weeks | 2 Hr |
|  | Revision and discussion | One hour over two weeks | 2 Hr |
|  | Total | 56 hours/ 28 weeks | 56 Hrs |

Table of clinical sessions:

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| Topics to be Covered | | |
| List of Topics | Hours /week | Contact Hours |
| 1st clinical session is held in the preclinical lab. For demonstration and practicing rubber dam isolation on the phantom head. | Three hours for one week | 3 Hr |
| Demonstration of performing patient reception, positioning, examination and diagnosis, as well as, making the suitable treatment plan and execution of restorative treatment for a clinical case; done by the clinic supervisors. | Three hours for one week | 3 Hrs |
| Starting from the third week; the students are allowed to perform treatment management of clinical cases in the faculty educational hospital. | Three hours over the week | 78 Hrs |

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| 2. Course components (total contact hours and credits per year ): | | | | | | |
|  | Lecture | Tutorial | Laboratory | Practical | Clinical | Total |
| Contact  Hours | 56 |  |  |  | 84 | 140 |
| Credit | 4 |  |  |  | 3 | 7 |

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| 3. Additional  Private study/learning hours expected for students per week. Four hours |

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| 4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy |

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The ***National Qualification Framework*** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

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|  | **NQF Learning Domains**  **And Course Learning Outcomes** | **Course Teaching**  **Strategies** | **Course Assessment**  **Methods** |
| **1.0** | **Knowledge:** By the end of this course the student should be able to: | | |
| 1.1 | Describe diagnostic criteria and techniques of precavitated and cavitated dental caries lesions. | 1. Interactive lectures. 2. Individual computer based assignments. | 1. Written examinations: quizzes, midyear and final. 2. Assessment of the assignment presentation using the rubric form. |
| 1.2 | Recognize the different preventive and restorative techniques used in management of dental hard tissue lesions. |
| **2.0** | **Cognitive Skills:** By the end of this course the student should be able to: | | |
| 2.1 | Correlate patient evaluation and diagnostic findings, biological aspects of cavity preparation, as well as, different conservative biomaterials properties in order to design proper treatment plan. | 1. Interactive lectures 2. Individual computer based assignments. | 1. Written examinations: quizzes, midyear and final. 2. Assessment of the assignment presentation using the rubric form. |
| 2.2 | Appraise different sources and methods of management of postoperative complications. |
| **3.0** | **Interpersonal Skills & Responsibility:** By the end of this course the student should be able to: | | |
| 3.1 | Show cooperation with his peers and supervisors in individual computer based assignments and during clinical sessions. | 1. Individual computer based Assignments. 2. Clinical sessions. | 1. Assessment of the assignment presentation using the rubric form. 2. Clinical requirements. |
| **4.0** | **Communication, Information Technology, Numerical:** By the end of this course the student should be able to: | | |
| 4.1 | Select the keywords for making a web-based medical research and gather a reliable medical information from the medical web sites and digital libraries. | Individual computer based Assignments. | Assessment of the assignment presentation using the rubric form. |
| **5.0** | **Psychomotor:** By the end of this course the student should be able to: | | |
| 5.1 | Utilize different diagnostic methods for detection of dental hard tissues lesions. | Clinical sessions. | 1. Clinical requirements. 2. Clinical examinations: midyear and final. |
| 5.2 | Perform all classes of cavity preparation and the application of different direct restorative materials; indicated for restoration of dental hard tissues lesions. |

**Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching**

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| **NQF Learning Domains** | **Suggested Verbs** |
| **Knowledge** | list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write |
| **Cognitive Skills** | estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise |
| **Interpersonal Skills & Responsibility** | demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write |
| **Communication, Information**  **Technology, Numerical** | demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize |
| **Psychomotor** | demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct |

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand

Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

**Suggested assessment methods and teaching strategies are:**

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

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| 5. Schedule of Assessment Tasks for Students During the Semester | | | |
|  | Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.) | Week Due | Proportion of Total Assessment |
| 1 | First quiz exam | Scheduled according to academic office plan for the first semester | 5% |
| 2 | Midyear clinical exam | Free date between 12th -14th week | 10% |
| 3 | Midyear written exam | At the end of the first academic semester | 15% |
| 4 | Second quiz exam | According to academic office plan for the second semester | 5% |
| 5 | Clinical requirements: through number of completed clinical cases | At the end of the clinical sessions | 10% |
| 6 | Assignments' assessment | 28th week | 5% |
| 7 | Final clinical exam | Free date between 26th -28th week | 20% |
| 8 | Final written exam | At the end of the academic year | 30% |

**D. Student Academic Counseling and Support**

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| 1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)  Staff members of the two disciplines of this course are available for individual student counseling and advice. An average for each of the seven faculty members of 6 hrs/week is allocated for each staff member teaching the course.  The schedule is arranged in accordance to the faculty time table and is announced to all students. |

**E. Learning Resources**

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| 1. List Required Textbooks   1. Axelsson P: Diagnosis and risk prediction of dental caries, 1st ed. Quintessence publisher 2000. 2. Moganstein W and Gluk G: Community Dental Health, 5th ed. Mosby 2003. 3. Fejerskov O and Kidd E: Dental caries: The disease and its clinical management. 2nd ed. Blacwell 2008. 4. Roberson T, Heymann H and Sturdevant J: "Sturdevant's Art & Science of Operative Dentistry" 6th ed., Mosby inc., St. Louis, Missouri, 2013. 5. Summitt J, Robbins J, Hilton T and Schwartz R: "Fundamentals of Operative Dentistry" 3rd ed., Quintessence Publishing Co. Inc., Illinois, 2006. 6. Qualtrough A, Satterthwaite J, Morrow L and Brunton P: "Principles of Operative Dentistry” Blackwell Munksgaard, Blackwell Publishing, Oxford, 2005. 7. Kidd M, Smith B, and Watson T: "Pickard's manual of operative dentistry" 8th ed., Oxford New York, Oxford Medical Publications, 2003. 8. Harry Albers F:" Tooth-colored restoratives: principles and techniques. 9th ed., BC Decker inc., Hamilton, London, 2002. 9. Hugh Devlin: Operative Dentistry A Practical Guide to Recent Innovations, Springer, Heidelberg, 2006. |
| 2. List Essential References Materials (Journals, Reports, etc.)   1. Journal of public health dentistry. 2. Evidence based dentistry journal. 3. Journal of caries research. 4. Journal of dental materials. 5. Journal of operative dentistry. 6. Journal of esthetic dentistry. |
| 3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)   1. Garg N and Garg A: “Textbook of Operative Dentistry” 1st ed., Jaypee Brothers Medical Publishers, New Delhi, 2010. 2. Freedman G: "Contemporary Esthetic Dentistry" 1st ed., Elsevier Mosby, St. Louis, Missouri, 2012. 3. Terry D, Leinfelder K, Geller W: "Aesthetic & Restorative Dentistry" 1st ed., Everest publishing media, Stillwater, 2009. |
| 4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)   1. <https://uqu.edu.sa/lib/digital_library> 2. <http://www.ncbi.nlm.nih.gov/pubmed> 3. http://www.cochrane.org/ 4. http://ww.who.int/en/ 5. <http://dental.tufts.edu/academics/prosthodontics-and-operative-dentistry/operative-dentistry/> |
| 5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.   1. Power point presentations of lectures in the form of slide show. 2. Clinical demonstrations done by the operative faculty staff members, to show the students the different techniques used with the different diagnostic and restorative techniques and materials used in treatment of different classes of cases. 3. The use of intra-oral cameras to show the treatment procedures magnified and displayed on large monitors. |

**F. 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 (Classrooms, laboratories, demonstration rooms/labs, etc.)   1. **Classrooms**: are supplied with audiovisual equipment, data show, large screens, Screen pointers &other equipment needed for the power point presentation of lectures. 2. **Clinics**: these are well equipped with up-to-date dental units mounted in ergonomic compartments to suit the student’s needs. Supplied with x-ray machines, large screens, good lighting sources and intra-oral cameras. In addition, all the necessary diagnostic and treatment devices are supplied. A wide variety of dental cements and restorative materials are available for each indication. The clinics are following a restrict infection control measures for protection of the maximum to the patients and operators. |

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| 2. Computing resources (AV, data show, Smart Board, software, etc.)   1. Cariogram computer software. 2. All the dental units are connected by computers that gives the student full access to his patient’s records and at the same time gives the supervisors full control on the students’ management to their cases. |
| 3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)   1. Classrooms for group discussion sessions. 2. The faculty library offering reading and borrowing the text books and periodicals as well as internet access to international libraries and universities. |

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| 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching   1. The faculty web site allows the students to express their evaluation of each lecture. 2. By the end of the year; evaluation sheets of the course and faculty members are received from students. 3. The students’ opinions and future suggestions are included. 4. Debriefing from students and lecturers regarding what went well and what could have gone better. |
| 2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor  An annual course report is prepared by the faculty members including their course evaluation and future suggestions. |
| 3 Processes for Improvement of Teaching   1. Workshops to facilitate exchange of experiences among faculty members. 2. Regular meetings where problems are discussed and solutions given. 3. Discussion of challenges in the classroom with colleagues and supervisors. 4. Staff members attend professional development workshops and conferences. |
| 1. Processes for Verifying Standards of Student Achievement (e.g. 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) 2. Rubric forms are prepared for evaluation of student's clinical performance and for evaluation of the SDL presentations. 3. Double checking of the students answers by two evaluators. |

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| 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.   1. Curriculum review committee reviews the curriculum periodically and suggests improvements. 2. Regular meetings for staff members teaching the course to discuss improvements at least once/semester. 3. Compare course description with other course descriptions in other universities nationally and internationally. |

**Faculty or Teaching Staff:** Dr. Yasser El-Bouhi Assistant Professor of Operative Dentistry

Dr. Rabab Salama, Assist. Prof. of Dental Public Health

Dr. Wahdan El-Kwatehy, Assist. Prof. of Dental Public Health

Dr. Moanes Hany, Assist. Prof. of Operative Dentistry

Dr. Sahar El-Marsafy, Assist. Prof. of Operative Dentistry

Dr. Safinaz Abdelwahab, Assist. Prof. of Operative Dentistry

Dr. Nada Ali, Assist. Prof. of Operative Dentistry

**Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Report Completed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Received by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dean/Department Head**

**Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**