### Kingdom of Saudi Arabia

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

## Course Specification

**Revised sep 2012Course Specification**

*For Guidance on the completion of this template, please refer to of Handbook 2 Internal Quality Assurance Arrangements*

|  |
| --- |
| Institution ***King Saud University*** |
| College/Department ***College of Applied Medical Sciences/Radiological sciences*** |

**A Course Identification and General Information**

|  |
| --- |
| 1. Course title and code: ***Computing in Medical Imaging . RAD 454*** |
| 2. Credit hours ***Three*** |
| 3. Program(s) in which the course is offered.(If general elective available in many programs indicate this rather than list programs) ***Radiological Sciences*** |
| 4. Name of faculty member responsible for the course  ***Alanoud Alsaleh*** |
| 5. Level/year at which this course is offered ***Level 4/ 2th year*** |
| 6. Pre-requisites for this course (if any) |
| 7. Co-requisites for this course (if any) ***N/A*** |
| 8. Location if not on main campus |

**B Objectives**

|  |
| --- |
| 1. Summary of the main learning outcomes for students enrolled in the course.   1. ***Develop basic knowledge of computing in medical imaging*** 2. ***Provide basic knowledge of digital imaging and computer networking in medical imaging*** 3. ***Introduce and familiarize students to Picture Archiving and Communication System( PACS)*** |
| 2. 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)   1. ***Full implementation of Blackboard and Elsevier evolve learning system*** 2. ***Contents modification based on any new development or updated technology in the related field.*** |

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

|  |  |  |
| --- | --- | --- |
| 1 Topics to be Covered | | |
| Topic | No of  Weeks | Contact hours |
| 1. ***Introduction to Digital Radiography*** | **1** | **2** |
| 1. ***Basic Computing Principles*** | **1** | **2** |
| 1. ***Networking and Communication Basics*** | **1** | **2** |
| 1. ***Computed Radiography-Cassette Based Equipment's*** | **1** | **2** |
| 1. ***Image Acquisition*** | **1** | **2** |
| 1. ***Digital Radiography-1*** | **1** | **2** |
| 1. ***Digital Radiography -2*** | **1** | **2** |
| 1. ***PACS Fundamentals*** | **1** | **2** |
| 1. ***PACS Archiving*** | **1** | **2** |
| 1. ***PACS Quality Control-1*** | **1** | **2** |
| 1. ***PACS Quality Control-2*** | **1** | **2** |
| 1. ***Student Presentations*** | **1** | **2** |

|  |  |  |  |
| --- | --- | --- | --- |
| 2 Course components (total contact hours per semester): | | | |
| Lecture:  **22** | Tutorial:  **6** | Practical/Fieldwork/Internship:  **30** | Other:  **2 hrs oral presentation** |

|  |
| --- |
| 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)  **Students should spend a minimum of 3 hours per week.** |

|  |
| --- |
| 4. 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 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. |
| **a. Knowledge** |
| (i) Description of the knowledge to be acquired  ***Acquire knowledge about the following:*** |
| (ii) Teaching strategies to be used to develop that knowledge   1. ***Lectures & Tutorials*** 2. ***Practical Session and Reports.*** 3. ***Scientific Videos.*** 4. ***Weekly assignments.*** 5. ***Oral presentation.*** 6. ***Attend local symposium and workshop.*** |
| (iii) Methods of assessment of knowledge acquired  ***Examinations, assignment, practical report, oral presentation, and problem solving.*** |
| **b. Cognitive Skills** |
| (i) Cognitive skills to be developed   1. ***Critical thinking*** 2. ***Problem solving*** 3. ***Judgment call*** |
| (ii) Teaching strategies to be used to develop these cognitive skills   1. ***Clinical reports discussion*** 2. ***Assignments presentations*** |
| (iii) Methods of assessment of students cognitive skills  ***Problem solving and class discussion.***  ***Assignment and oral presentation***. |
| **c. Interpersonal Skills and Responsibility** |
| (i) Description of the interpersonal skills and capacity to carry responsibility to be developed  ***Understanding the digital medical imaging/archiving process and the responsibility of every member in the whole process***  ***Communicate effectively with patients, instructors, and clinical staff.***  ***Observe and assist hospital staff in medical imaging manipulation/archiving/retrieving.*** |
| (ii) Teaching strategies to be used to develop these skills and abilities   1. ***Attending practical session and provide a written report.*** 2. ***Visiting radiography departments (PACS) in hospitals in Riyadh.*** 3. ***Research and presentation skills***   ***.*** |
| (iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility   1. ***Onsite evaluation for acquired skills by supervisor in hospitals upon visits*** 2. ***Evaluation of assignments and oral presentation.*** |
| **d. Communication, Information Technology and Numerical Skills** |
| (i) Description of the skills to be developed in this domain.   1. ***Integral communication with patient and hospital staff.*** 2. ***Computing and digital imaging skills related to radiography.*** |
| (ii) Teaching strategies to be used to develop these skills   1. ***Tutorials*** 2. ***Observation during hospitals visit and clinical sessions.*** 3. ***Participating if possible during practicals.*** 4. ***Encouraging the use of the Internet, text books, and reading scientific articles.*** |
| (iii) Methods of assessment of students numerical and communication skills   1. ***Team-Based learning assessments.*** 2. ***Computer exercises*** |
| **e. Psychomotor Skills (if applicable)** |
| (i) Description of the psychomotor skills to be developed and the level of performance required   1. ***Students should learn how to act professionally at clinical circumstances*** 2. ***Students should apply knowledge learnt at the class in clinical situations*** |
| (ii) Teaching strategies to be used to develop these skills   1. ***Clinical rotations at different hospitals*** 2. ***Class participation*** 3. ***Clinical assignment*** 4. ***Oral presentation*** |
| (iii) Methods of assessment of students psychomotor skills   1. ***Practical sessions at the presence of the demonstrators*** 2. ***Practical examination & oral exams*** |

|  |  |  |  |
| --- | --- | --- | --- |
| 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 | ***First midterm exam*** | **7** | **20** |
| 2 | ***Assignment*** | **Weekly** | **10** |
| 3 | ***Second midterm exam*** | **13** | **20** |
| 4 | ***Oral presentation*** | **15** | **10** |
| 7 | ***Final exam*** | **16** | **40** |

**D. Student Support**

|  |
| --- |
| 1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)  ***Office hours: 4/week***  ***Student may always communicate through email/ blackboard*** |

##### E. Learning Resources

|  |
| --- |
| 1. Required Text(s) 2. ***Digital Radiography and PACS, Christi Carter and Beth Veale , Mosby 2010*** |
| 2. Essential References |
| 3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)  International bodies and associated websites :  [AAPM](http://www.aapm.org/), American Association of Physicists in Medicine  [ACR](http://www.acr.org/) American College of Radiology  [AIP](http://www.aip.org/), American Institute of Physics  [ASRT](http://www.asrt.com/) The American Society of Radiologic Technologists  [AMIA](http://amia2.amia.org/), American Medical Informatics Association  [SCAR](http://www.scar.rad.washington.edu/), Society for Computer Applications in Radiology |
| 4-.Electronic Materials, Web Sites etc  ***- Elsevier evolve learning system*** |
| 5- Other learning material such as computer-based programs/CD, professional standards/regulations  ***Blackboard ( King Saud University)*** |

**F. Facilities Required**

|  |
| --- |
| 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.)  ***Class room 2 hour/week & 2 hour/week tutorials or hospital visit*** |
| 2. Computing resources  ***1-Audio-visual facilities (computer and data show)***  ***2-DICOM image reading/manipulation software ( OSiriX)*** |
| 3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) |

**G Course Evaluation and Improvement Processes**

|  |
| --- |
| 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching  ***Course Assessment and students feedback at end of semester*** |
| 2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department  ***Self assessment exercise*** |
| 3 Processes for Improvement of Teaching  ***Continuous educations through short courses*** |
| 4. Processes for Verifying Standards of Student Achievement (eg. 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)  ***Not Yet Implemented*** |
| 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.  ***Not Yet Implemented*** |