### 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*

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

**A Course Identification and General Information**

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| 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**

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| 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.***
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**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  |
| Topic | No ofWeeks | 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** |

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

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

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| 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 knowledge1. ***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 developed1. ***Critical thinking***
2. ***Problem solving***
3. ***Judgment call***
 |
| (ii) Teaching strategies to be used to develop these cognitive skills1. ***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 abilities1. ***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 responsibility1. ***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 skills1. ***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***
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| **e. Psychomotor Skills (if applicable)** |
| (i) Description of the psychomotor skills to be developed and the level of performance required1. ***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 skills1. ***Clinical rotations at different hospitals***
2. ***Class participation***
3. ***Clinical assignment***
4. ***Oral presentation***
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| (iii) Methods of assessment of students psychomotor skills1. ***Practical sessions at the presence of the demonstrators***
2. ***Practical examination & oral exams***
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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 | ***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**

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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)***Office hours: 4/week******Student may always communicate through email/ blackboard*** |

##### E. Learning Resources

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| 1. Required Text(s)
2. ***Digital Radiography and PACS, Christi Carter and Beth Veale , Mosby 2010***
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| 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**

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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.)***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**

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| 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*** |