



Course Specifications (CS)

Course Specifications

Institution	Najran University	Date of Report	02/07/1438 H
College /	Applied Medical Science		

A. Course Identification and General Information

1. Course title and code:	Computed Tomography Techniques (427 RAD -3)																						
Credit hours	3 (2+1)																						
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	Mr. Albosairi Taifor Ahmed (Faculty member in the male section) Dr. Samia Abdulgeum (Faculty member in the female section)																						
5. Level/year at which this course is offered :	Level 7 / 4th Year																						
6. Pre-requisites for this course (if any) :	Cross sectional Anatomy (304 RAD-2)																						
7. Co-requisites for this course (if any)	N/A																						
8. Location if not on main campus	Main campus																						
9. Mode of Instruction (mark all that apply)	<table border="0"> <tr> <td>a. Traditional classroom</td> <td><input checked="" type="checkbox"/></td> <td>What percentage?</td> <td><input type="text" value="100%"/></td> </tr> <tr> <td>b. Blended (traditional and online)</td> <td><input type="checkbox"/></td> <td>What percentage?</td> <td><input type="text"/></td> </tr> <tr> <td>c. e-learning</td> <td><input type="checkbox"/></td> <td>What percentage?</td> <td><input type="text"/></td> </tr> <tr> <td>d. Correspondence</td> <td><input type="checkbox"/></td> <td>What percentage?</td> <td><input type="text"/></td> </tr> <tr> <td>f. Other</td> <td><input type="checkbox"/></td> <td>What percentage?</td> <td><input type="text"/></td> </tr> </table>			a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100%"/>	b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>	c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>	d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>	f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
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Comments:																							

B Objectives

- Summary of the main learning outcomes for students enrolled in the course.

At the end of this course the student will be able to:

- **Identify the basics information about CT scanner and image formation.**
- **Identify the CT procedures to include scan field of view, display field of view, algorithm, gantry tilt, table incrimination and slice thickness.**
- **List a CT scanner and room preparation steps for each procedure.**
- **Describe and demonstrate protocols for CT examinations including head, neck, chest, abdomen, pelvis, spine and extremities.**
- **Describe patient preparation and education on various aspect of CT and obtain informed consent.**
- **Discuss procedural indications, contraindications, contrast media dosage and administration.**
- **Demonstrate patient position, technical factors, and scan range for CT protocols.**
- **Perform CT procedures effectively and with safety**
- **Evaluate CT images for quality, anatomy and pathology.**
- **Describe current post- procedural trends in CT scan.**

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)

- **Updating the course content annually.**

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

This course is composed of cross sectional study of anatomical body parts, the foundations of CT scan operations and how do they work and computer hardware associated with it through the study of different investigation techniques associated with digital CT scan to all body parts and systems. In addition topics cover the components of the digital CT scan image, extract the sections, definitions of window and templates, principles of contrast media applications in C.T scan and examples of brain, neck and spine sections, Quality management in C.T with compare between conventional radiology, conventional tomography and CT technology.

1 Topics to be Covered						
List of Topics				No of Weeks	Contact hours	
Introduction/ Basic Principle of CT				1	4	
Formation of a CT image				1	4	
Scan parameters				1	4	
Procedure elements.				1	4	
Patient preparation and contrast media dosage and administration				1	4	
Protocols for head and neck.				2	8	
Protocols for the chest.				1	4	
Protocols for the abdomen and pelvis.				2	8	
Protocols for the spine.				1	4	
Protocols for Upper limbs and Lower limbs.				2	8	
Protocols for CT angiography CTA				1	4	
Protocols for Interventional CT. ICT				1	4	
2 Course components (total contact hours per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30		30			60
Credit	2		1			3
3. Additional private study/learning hours expected for students per week.					2 hrs/ week	

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.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1-1	State the principles of Computed Tomography equipment and concept of image formation.	Lectures, demonstrations in the lab, group discussion.	Written mid-semester and final exams, practical exams and quizzes.
1-2	Describe protocols for CT scan including head, neck, chest, abdomen, pelvis, spine and extremities.	Lectures, demonstrations in the lab, group discussion.	Written mid-semester and final exams, practical exams and quizzes.
1.3	Recognize the normal appearance of human anatomy in Computed Tomography (C.T.) images.	Lectures, demonstrations in the lab, group discussion.	Written mid-semester and final exams, practical exams and quizzes.
2.0	Cognitive Skills		
2.1	Explain the essential sciences	Lectures,	Written mid-semester and

	concepts necessary for applications of Computed Tomography procedures.	demonstrations in the lab, group discussion.	final exams, practical exams and quizzes.
2-2	Estimate the protocols appropriate for applications in Computed Tomography procedures.	Lectures, demonstrations in the lab, group discussion.	Written mid-semester and final exams, practical exams and quizzes.
3.0	Interpersonal Skills & Responsibility		
3.1	Demonstrate ethical and legal manners during performance	Demonstrations in the lab, group discussion	Observation Card of Student's Performance and practical exams.
4.0	Communication, Information Technology, Numerical		
4.1	Operate effectively the different informational resources including the library resources and websites in addition to extracting information and data in during Computerized Tomography (C.T.) exams	Demonstrations in the lab, group discussion, Assignments.	Observation Card of Student's Performance and practical exams.
5.0	Psychomotor		
5.1	Perform accurately and safely the basic protocols of CT scan	Demonstrations in the lab	practical exams

Assessment task (e.g. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
Continuous assessment	During the course	10
Mid-Term exam (written & practical)	8 th	30
Final written exam	18 th	40
Final practical exam	17 th	20
Total		100 %

D. Student Academic Counseling and Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- 2 hours weekly
- Student encourage to communicate on e-mail or at office
- Exam error analysis in class
- Feedback for each student

E. Learning Resources

1. Required Text(s)

- Knollmann F, Coakley F: Multislice CT principle and protocols, Saunders: ISBN -10: 1416002685.

2. Essential References

- Webb W.R, Brant W. Nancy Major : Fundamentals of bodyCT Saunders: ISBN – 10: 1416000305.
- Computed body tomography with MRI correlation: fourth edition: joseph k. t. lee. stuart. sagel_ robert j. stangly. jay. p. heiken: Lippincott Williams & Wilkins
- Text book of radiology and imaging : David Sutton. Seven edition. Churchill livingstone Elsevier
- Peter Dawson, Protocols for Multislice Helical Computed Tomography. Informa HealthCare; 1 edition (January 17, 2006).

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)

- Bruning R. Kuttner A Flohr T: Protocols for multislice CT, Springer: ISBN- 10:3540272712.

4-.Electronic Materials, Web Sites etc

<http://rad.usuhs.mil/rad/home/comptom.html>
<http://radiographics.rsna.org/content/20/6/1787.full>

5- Other learning material such as computer-based programs/CD, professional standards/regulations

- **Multi media associated with the text books and the relevant websites**

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.)

- **Lecture room**
- **Data show**
- **Computer**

2. Computing resources

YES

3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)

- **Film library.**
- **Access to internet**
- **Computed Tomography machine and accessories**
- **Computed Tomography phantom**

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- **Student course evaluation questioner**

2 . Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- **Reviewing random samples of student answer sheets**

3. Processes for Improvement of Teaching

- **Updating information's semester twice or annually.**

4. 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)


- **Mutual staff review of students exams.**
- **Peer staff review of students assignment**

- Open discussion with a peer staff on the content of the exams and the students marks

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Annual course effectiveness evaluation.
- Studying the questioners and staff remarks and student marks to improve the plan.

Name of Instructor: Mr. Albosairi T. Ahmed

Signature: 

Date Report Completed: 05-07-1438 H

Program coordinator: Alfatih Hasan Mohamed Albadri

Signature: 

Date: 07/07/1438 H

Name of Instructor: Dr. Samia Abdelgauom Ahmed

Signature: 

Date Report Complete: 29/07/1438 H

Name of Course Instructor Dr. Samia Abdelgauom Ahmed

Signature: 

Date Report Complete: 29/07/1438 H

Program Coordinator :Dr. . Mawahib Sayed Ahmed Aldosh

Signature : 

Date Received : 04/ 08/1438 H