Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

T5. COURSE REPORT
(CR)
Course title: Medical Radiation Physics (1)
Course code: (4-403385)

Second Semester

Academic Year 1438-1439H -2017-2018

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A separate Course Report (CR) should be submitted for every course and for each section or campus location where the course is taught, even if the course is taught by the same person. Each CR is to be completed by the course instructor at the end of each course and given to the program coordinator

A combined, comprehensive CR should be prepared by the course coordinator and the separate location reports are to be attached.

Course Report

For guidance on the completion of this template refer to the NCAAA handbooks.

Institution Umm Al-Qura University	Date of CR 13/3/2018
College/ Department: Applied Sciences College- Physics department	

A Course Identification and General Information

1. Course title **Medical Radiation Physics (1)** Code # **4-403385** Section #						
2. Name of course instructor Dr.Taha Al-Fawwal Location: Main campus- Al-Abdia						
3. Year and semester to which this report applies. 1438-1439 H- 2nd Semester						
4. Number of students starting the course? 21 Students completing the course? 21						
5. Course components (actual total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	45		30			75
Credit	3		1			4

B- Course Delivery

1. Coverage of Planned Program			
Topics Covered	**Planned Contact Hours**	**Contact Actual Hours**	**Reason for Variations if there is a difference of more than 25% of the hours planned**
Scientific Fundamental Quantities and units in science and engineering Background information Excitation and Ionization Characteristic x-ray Binding Energy The chart of nuclides	6	6	
Radioactivity Decay law and physical half life Specific activity Transformation mechanism Radioactive Decay Processes Alpha emission Beta emission Electron capture x-ray emission Auger electron Gamma rays Naturally occurring radioactivity Cosmic rays Cosmogenic radionuclides Terrestrial radiation Radon risk	10	10	

Machine Sources, discovery of x-ray, Production of X Rays beam Linear Accelerator Cyclotron radiation **Interaction of radiation with matter** Beta particles attenuation Range energy curve for beta particles Alpha absorption curve Bremsstrahlung Linear energy transfer Specific ionization Mass stopping power Photon interaction mechanisms Photodisintegration Interaction of neutrons with matter Neutron scattering	10	10	
Basic Radiation quantities and units Radioactivity units Units of exposure Mean absorbed dose , the equivalent dose Problems The Effective dose Problem	7	7	
Biological Effects of Ionizing Radiation Non Stochastic Effects Death from whole body exposure The Acute Radiation Syndrome Damage to skin Stochastic effect **Radiation Protection in Medicine** Radiation protection goals and concepts Radiation protection in medical imaging Radiation protection in nuclear medicine Radiation protection in radiotherapy	12	12	

2. Consequences of Non Coverage of Topics

For any topics where the topic was not taught or practically delivered, comment on how significant you believe the lack of coverage is for the course learning outcomes or for later courses in the program. Suggest possible compensating action.

Topics (if any) not Fully Covered	Effected Learning Outcomes	Possible Compensating Action
Quality assurance and reference dose assessment for conventional X-ray	To increase the student knowledge and gain code of practice for quality assurance and dose measurements for diagnostic x-ray.	It is possible by adding new chapter for that course

3. Course learning outcome assessment.

	List course learning outcomes	List methods of assessment for each LO	Summary analysis of assessment results for each LO
1	1. Learning fundamentals of the activity; of naturally occurring radiation, information concerning radioactivity, transformation kinetics, physical half life 2.Learning fundamentals of linear energy transfer 3. Understand a scientific fundamental , to the basics of radiation physic , Introducing interaction of radiation with matter. 4. Understand students the basic radiation quantities and units 5. Learning students the radiation effect on the biological tissues 6. Learning the interaction of radiation with matter , natural background radiation and Leaning general aspects of radioactive decay processes	1. Home work 2. Interactive discussion 3. Short exam1 4. Short exam2 5. Final exam	88 % pass in short exam 1 100% pass in short exam2 50 % pass in final exam

	7. Learning fundamentals of production of X Rays : accelerated Charged Particle, , Linear Accelerator 8. Understanding the radiation unit converter, joining between photon interaction with matter and radiology. acquiring knowledge regarding radiation protection in medicine. knowing how to solve radiation physics problems.		
2	1. Analysis and explain natural variations of radiation background 2.Develop ability to think creatively the effect of linear energy transfer on biological effect 3. Develop ability to think creatively in penetration of different types of radiations. 4. Develop problem-solving skills buy using radiation unit converter software and caldose software. 5- Develop ability to think creatively in penetration of different types of radiations. 4. Develop problem-solving skills for application of medical imaging instruments.	1.Oral questions 2.Presentations 3.Quizzes 4. Problem solving	Poster presentation

3	.1. Develop ability to work independently 2. Develop ability to work productively with others 3. Improve self study 4. Develop leader ship skills	1. Marking the home works 2. Working closely with the different groups 3. Evaluate the efforts of each student in preparing the report 4. Evaluate the scientific values of reports 5. Evaluate the work in team	Poster presentation
4	- 1. Enhancement the ability of students to use computers and internet 2. Know how to write a report 3. Perform effective communication with colleagues and faculty members 4. Ability to use programs designed for dose calculation and unit converter. 5- Problem solving and ability to interpret the results.	1. Give the students research assignments 2. Ask the student to search the internet for the solution of a specific problem 3. Evaluate of presentations and reports	

Summarize any actions you recommend for improving teaching strategies as a result of evaluations in table 3 above.
Encouraging students to prepare the next lecturer and introduce power point presentation
Initiating reactive learning

4. Effectiveness of Planned Teaching Strategies for Intended Learning Outcomes set out in the Course Specification. (Refer to planned teaching strategies in Course Specification and description of Domains of Learning Outcomes in the National Qualifications Framework)			
List Teaching Methods set out in Course Specification	Were They Effective?		Difficulties Experienced (if any) in Using the Strategy and Suggested Action to Deal with Those Difficulties.
	No	Yes	
seminar presentation by the students and web-interactions.		Yes	The students need to gain more experience via sharing in national and international conference .
Students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course		Yes	
All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions		Yes	
Encouraging students to collect the new information about what the new procedures in radiation measurements.		Yes	
Enable the reference books and scientific sites concerning radiology in internet		Yes	

Lectures **Brain storming** **Discussion**		Yes	
Lab work Case Study Active learning Small group discussion Data presentation Learning methods: ,. Power point, . E-learning		Yes	

Note: In order to analyze the assessment of student achievement for each course learning outcome, student performance results can be measured and assessed using a KPI, a rubric, or some grading system that aligns student work, exam scores, or other demonstration of successful learning.

C. Results

Result Summary:
Passed: No 21 Percent 100% Failed No - Percent 0 %

The weighted arithmetic mean for degree is 76.66 out of 100.
Did not complete No Percent

. Distribution of Grades

Letter Grade	Number of Students	Student Percentage	Analysis of Distribution of Grades
A			There are variations in degree distribution due to performance for each student. The degree distribution was 62% with *B grade, 9.5 % with B grade and 9.5 % with C and 19 % with D ,
A			
B	13	62%	
B	2	9.5	
C	2	9.5%	
C	4	19%	
D			
D			
F			
F			
Denied Entry			
In Progress			
Incomplete			
Pass	21		
Fail			
Withdrawn			

2. Analyze special factors (if any) affecting the results

none

3. Variations from planned student assessment processes (if any) (see Course Specifications).	
a. Variations (if any) from planned assessment schedule (see Course Specifications)	
Variation	Reason
b. Variations (if any) from planned assessment processes in Domains of Learning (see Course Specifications)	
Variation	Reason
BN	

4. Student Grade Achievement Verification (eg. cross-check of grade validity by independent evaluator).	
Method(s) of Verification	Conclusion

D Resources and Facilities

1. Difficulties in access to resources or facilities (if any)	2. Consequences of any difficulties experienced for student learning in the course.
Shortage WEB rooms available for student to be useful at any time between lectures	All students must take all of the requirements before start in this course

E. Administrative Issues

1 Organizational or administrative difficulties encountered (if any)	2. Consequences of any difficulties experienced for student learning in the course.

F Course Evaluation

1 Student evaluation of the course **(Attach summary of survey results)**

01 الأهداف الأساسية للمقرر (بما في ذلك المعلومات والمهارات التى صمم المقرر لتنميتها) واضحة بالنسبة لي
02 متطلبات النجاح في المقرر (بما في ذلك الواجبات التي يتم التقيم بناء عليها ومحكات التقييم) واضحة بالنسبة لي
03 مصادر مساعدتي في المقرر (بما في ذلك الساعات المكتبية لعضو هيئة التدريس والمراجع) واضحة بالنسبة لي
04 تنفيذ المقرر والأشياء التي طلب مني أداوها متسقة مع الأهداف الأساسية للمقرر
05 التزام عضو هيئة التدريس بأعطاء المقرر بشكل كامل (مثل : بدء المحاضرة ، تواجد الأستاذ ، التحضير ...)
06 لدى عضو هيئة التدريس إلمام كامل بمحتوى المقرر الذي يقدمه
07 عضو هيئة التدريس موجود للمساعدة خلال الساعات المكتبية
08 عضو هيئة التدريس متحمس لما يقوم بتدريسه
09 عضو هيئة التدريس مهتم بمدى تقدمي الدراسي وكان معينا لي
10 كل ما يقدم في المقرر حديث ومفيد (النصوص المقروءة ، التلخيصات ، المراجع ، وما شابهها)
11 مصادر التعلم التي احتجتها في هذا المقرر متوافرة كلما احتجت إليها
12 تم استخدام الفعال للتقنية لدعم تعليمي في هذا المقرر
13 وجدت تشجيعا لإلقاء الأسئلة وتطوير أفكاري الخاصة في هذا المقرر
14 شجعت في هذا المقرر على تقديم أفضل ما عندي
15 ساعدت الأشياء التي طلبت مني في هذا المقرر في تطوير معرفتي ومهاراتي التي يهدف المقرر لتعليمها
16 كانت كمية العمل في هذا المقرر متناسبة مع عدد الساعات المعتمدة المخصصة للمقرر
17 قدمت لي درجات الواجبات والاختبارات في هذا المقرر خلال وقت معقول
18 كان تصحيح واجباتي واختباراتي عادلا ومناسبا
19 وضحت لي الصلة بين هذا المقرر والمقررات الأخرى بالبرنامج (القسم)
20 ما تعملته في هذا المقرر مهم وسيفيدني مستقبلا
21 ساعدني هذا المقرر على تحسين قدرتي على التفكير وحل المشكلات بدلا من حفظ المعلومات فقط
22 ساعدني هذا المقرر على تحسين مهاراتي في العمل كفريق
23 ساعدني هذا المقرر على تحسين مهارات الاتصال بفاعلية
24 أشعر بالرضا بشكل عام عن مستوى جودة هذا المقرر

Total student no. 21 **No of students taken the survey : 11** **% of respondents : 52 %**

Q	غير موافق بشدة (1)	غير موافق (2)	محايد (3)	موافق (4)	موافق بشدة (5)	المتوسط
Q1	0	0	1	4	6	4.5
Q2	0	0	1	3	7	4.5
Q3	0	1	1	1	7	4.4
Q4	0	0	2	3	6	4.4
Q5	0	0	1	4	6	4.5
Q6	0	0	2	4	5	4.3
Q7	0	0	0	3	8	4.7
Q8	0	0	0	7	4	4.4
Q9	0	0	2	4	5	4.3
Q10	0	0	3	5	2	3.9
Q11	0	1	2	4	4	4.0
Q12	0	3	1	4	3	3.6
Q13	0	1	1	6	3	4.0
Q14	0	2	2	3	4	3.8
Q15	1	0	1	5	4	4.0
Q16	0	1	1	3	6	4.3
Q17	0	1	1	4	5	4.2
Q18	0	0	4	3	4	4.0
Q19	0	0	1	4	6	4.5
Q20	0	0	2	2	7	4.5
Q21	0	0	1	5	5	4.4
Q22	0	0	0	5	6	4.5
Q23	0	0	1	4	6	4.5
Q24	1	0	0	6	4	4.1

a. List the most important recommendations for improvement and strengths

b. Response of instructor or course team to this evaluation

2. Other Evaluation (eg. by head of department, peer observations, accreditation review, other stakeholders)
a. List the most important recommendations for improvement and strengths
b. Response of instructor or course team to this evaluation

G Planning for Improvement

1. Progress on actions proposed for improving the course in previous course reports (if any).			
Actions recommended from the most recent course report(s)	Actions Taken	Action Results	Action Analysis
a. New lecture was added to cover the dose assessment.		Was applied successfully	

2. List what other actions have been taken to improve the course (based on previous CR, surveys, independent opinion, or course evaluation).

3. Action Plan for Next Semester/Year				
Actions Recommended for Further Improvement	Intended Action Points (should be measurable)	Start Date	Completion Date	Person Responsible
a. Updating the course according to the recent publications ▪ Visit to Researches Lab.				

Name of Course Instructor: _ Dr. Taha Al-Fawwal Signature : _
Date Report Completed: 13-1-2018
Program Coordinator:
Signature …… …Date Received: