



هيئة تقويم التعليم

Education Evaluation Commission

المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

Course Specifications

Institution: King Saud University	Date: 15/1/2018
College/Department :	

A. Course Identification and General Information

1. Course title and code: Neutron Physics Phys 585			
2. Credit hours: 3 h(3+0)			
3. Program(s) in which the course is offered. M. Sc. In Physics Program (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Dr. Hamed Alsewaidan			
5. Level/year at which this course is offered:			
6. Pre-requisites for this course (if any): Phy s 580			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply):			
a. traditional classroom	<input 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"/>
Comments:			

B Objectives

<p>1. What is the main purpose for this course?</p> <p>i- Familiarize students with the basic concepts in neutron physics. ii- Develop the students understanding and abilities in neutron physics.</p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p>

C. Course Description (Note: General description in the form used in Bulletin or handbook)

<p>Course Description: The course reviews basic neutron properties, neutron measurements and spectrometry, Neutron diffraction, polarization and activation analysis techniques.</p>

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Production of monoenergetic neutrons, Integral and Differential cross sections, ,	2	
Measurement of thermal, epithermal and fast neutron fluxes, Neutron source strength measurement	2	
Neutron spectrometry using semiconductor, proportional and scintillation counters, Scattering of neutrons	3	
Debye Waller Factor, Incoherent and Coherent scattering, Neutron diffraction and its applications in studies of magnetic and non magnetic materials and amorphous solids,	3	
Polarization of neutrons and its applications,	1	
Neutron spectrometry using semiconductor	2	
Neutrons activation analysis, Neutron radiography.	2	

2. Course components (total contact hours and credits per semester):							
		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	45					45
	Actual	45					45



Credit	Planned	3					3
	Actual	3					3

3. Additional private study/learning hours expected for students per week.

3

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

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. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Production of monoenergetic neutrons, Integral and Differential cross sections, Measurement of thermal, epithermal and fast neutron fluxes, Neutron source strength measurement,	In-class lecturing where the previous knowledge is linked to the current and future topics. The relation between the lectures topics and the neutron physics experiments is discussed. Homework assignments	Major and final exams
1.2	Neutron spectrometry using semiconductor, proportional and scintillation counters, Scattering of neutrons	As mentioned above	As mentioned above
1.3	Debye Waller Factor, Incoherent and Coherent scattering, Neutron diffraction and its applications in studies of magnetic and non magnetic materials and amorphous solids, Polarization of neutrons and its applications,	As mentioned above	As mentioned above
1.4	Neutrons activation analysis, Neutron radiography.	As mentioned above	As mentioned above
2.0	Cognitive Skills		
2.1	The understanding of cross section , neutron spectroscopy,neutron fiffraction and polarization.	Homework assignments Problem solving. Case studies related to the course topics.	Major and final exams Checking the problems solved in the homework assignments.
2.2	Solve problems.	As mentioned above	As mentioned above
3.0	Interpersonal Skills & Responsibility		



3.1	Work independently and as part of a team.	Writing group reports Solving problems in groups.	Grading homework assignments
3.2	Manage resources, time and other members of the group	As mentioned above	As mentioned above

4.0	Communication, Information Technology, Numerical		
4.1	Use computational tools	Writing reports Incorporating the use and utilization of computer in the course requirements	None
4.2	Report writing	As mentioned above	None
5.0	Psychomotor		
5.1	Not Applicable	None	None

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework	weekly	10%
2	Major exams II		25%
3	Major exams II		25%
4	Final exams		40%
5			
6			
7			
8			

D. Student Academic Counseling and Support

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)

Office hours 4 hr/week

E Learning Resources

1. List Required Textbooks

1-Paul Reuss ‘Neutron Physics ‘ EDP Sciences, 2008

2- Glenn F.Knoll ‘Radiation Detection and Measurement Wiley; 4 edition , 2010

2. List Essential References Materials (Journals, Reports, etc.)

Reviews and Reports.

3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

Websites on the internet that are relevant to the topics of the course

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Multimedia associated with the text book and the relevant websites

F. Facilities Required

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.) Lecture room
2. Technology resources (AV, data show, Smart Board, software, etc.) Computer room containing 5-10 working stations
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Equipment and illustration tools relevant to the course material

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching i- Course evaluation by student ii- Students- faculty meetings
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department i- Peer consultation on teaching ii- Departmental council discussions iii- Discussions within the group of faculty teaching the course
3. Processes for Improvement of Teaching i- Conducting workshops given by experts on the teaching and learning methodologies. ii- Periodical departmental revisions of its methods of teaching iii- Monitoring of teaching activates by senior faculty members
4. 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) -Providing samples of all kind of assessment in the departmental course portfolio of each course ii- Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions are invited to review the accuracy of the grading policy
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. i- The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils. ii- The head of department and faculty take the responsibility of implementing the proposed changes.

Name of Course Instructor: Dr. Hamed Alsewaidan

Signature: _____ Date Specification Completed: 15-01-2018

Program Coordinator: _____

Signature: _____ Date Received: _____