هيئة تقويم التعليم
Education Evaluation Commission
المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

هيئة تقويم التعليم
Education Evaluation Commission

Course Specifications

Institution: King Saud University	Date: 2 January 2018
College/Department : Sciences / Physics and Astronomy	

A. Course Identification and General Information

1. Course title and code: Elementary Particle Physics I (PHYS 561)
2. Credit hours: 3(3+0+0)
3. Program(s) in which the course is offered. M.Sc. in Theoretical Physics
(If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Dr. Maien Binjonaid
5. Level/year at which this course is offered: Year 2 – Level 3
6. Pre-requisites for this course (if any): Phys 510
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. traditional classroom	*	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

This course introduces the major concepts of elementary particle physics, namely quarks and leptons and the interactions between them. It provides the students with the knowledge and tools to perform sophisticated calculations related to the field, and prepares them for research and higher-level cources.

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)

Produce slides and use of blackboard or other educational tools. Also, introduce Mathematica which is becoming essential tool in the field of particle physics for performing high-demand calculations.

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

Course Description:

Historical introduction for the elementary particles, Elementary particle dynamics, Relativistic kinematics, Symmetries, Boundstates, Feynman calculus, Quantum Electrodynamics, Electrodynamics of quarks and hadrons, Quantum chromodynamics, Weak Interactions, Gauge theories.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Historical introduction for the elementary particles, Elementary particle dynamics	1	3
Relativistic kinematics	2	6
Symmetries	2	6
Boundstates	1	3
Feynman calculus	2	6
Quantum Electrodynamics	2	6
Electrodynamics of quarks and hadrons, Quantum chromodynamics	2	6
Weak Interactions	2	6
Gauge theories	1	3

2. Course components (total contact hours and credits per semester):

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	45					45
	Actual						
Credit	Planed	3					3
	Actual						

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	Quarks and leptons and their interactions	Lectures	Exams and HWs
1.2			
2.0	**Cognitive Skills**		
2.1	Analytical thinking	Lectures	Exams and HWs
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

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	Midterm 1	5	20%
2	Midterms 2	10	20%
3	Homework	1 per week	10%
4	Report or Presentation	12	10%
5	Final exam	15	40%
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) 2 hours per week

E Learning Resources

1. List Required Textbooks Introduction to elementary particles by David Griffiths, Second Edition, Wiley-VCH, 2008 Modern Particle Physics by Mark Thomson, First Edition, Cambridge University Press, 2015
2. List Essential References Materials (Journals, Reports, etc.) Quarks and Leptons by Collins and Martin, Wiley
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

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.) Class room for 10 students
2. Technology resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. 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 Feedback after each exam and before and after final exam
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department Peer consultation
3. Processes for Improvement of Teaching Peer consultation
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) Peer consultation
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Group meeting and statistical reports

Name of Course Instructor: _____

Signature: _____ Date Specification Completed: _____

Program Coordinator: _____

Signature: _____ Date Received: _____