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

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (Phys 129)

1440-41 H (First Semester)

هيئة تقويم التعليم
Education Evaluation Commission

Course Specifications

Institution: **King Khalid University**	Date: Sept 2019
College/Department : **Faculty of Science/ Department of Physics** /Joint Program	

A. Course Identification and General Information

1. Course title and code: **Phys 129**
2. Credit hours: **4(3+1)**
3. Program(s) in which the course is offered. **Bachelor in Engineering**
(If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course
Dr Sohail Ahmad and **Dr Mohammed Shabbir (Theory)** ,
Mr Mohammed Mahmoud Abdul Aziz and Mr Abdullah Hindwan (Practical)
5. Level/year at which this course is offered: **Second level**
6. Pre-requisites for this course (if any):
No
7. Co-requisites for this course (if any): **General Physics lab**
8. Location if not on main campus: **AL MAHALA 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?

Principles of physical measurements, conversion of units, dimensional analysis.
- All algebraic processes related to vector quantities.
- Calculation of different parameters dealing with motion in one dimension (average speed, velocity, instantaneous velocity, instantaneous acceleration, free falling objects)
- Newton`s laws of motion, friction force and different applications.
- Work, kinetic energy, work-energy theory and conservative forces. potential energy.
- Coulomb's law, electric field for point charge and electrical potential.
- Buoyant forces, Archimedes principle, pressure of fluids, equation of continuity and Bernoulli's equation.
- Static equilibrium, torque and elasticity.
- Electric conductivity, electric current and electric energy.

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)

- The course contents will be periodically reviewed by the Course Committee to include new materials of relevance and to improve teaching method.
- The students will be encouraged to use university electronic databases.
- The students will be given tutorials to develop their problem solving skills.

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

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
1- Measurements, units and vectors.	2	6
2- Motion in one dimension	2	6
3- Newton's Laws of Motion and Friction	2	6

4- Work , Kinetic Energy and Potential Energy.	2	6
5- Fluid Dynamics.	1	3
6- Static Equilibrium and Elasticity.	2	6
7-Heat, Temperature, Specific Heat, Latent Heat	1	3
8- Electric Field and Potential.	2	6
9- Currents and Resistance and Electric Energy and Power.	1	3

List of Topics (Practical)	No. of Weeks	Contact hours
1- Measurement of errors	1	2
2- Helical Spring (Static Method)	1	2
3- Refractive index	1	2
4- Coefficient of Viscosity by Stokes	2	2
5-Thin Lenses	1	2
6- Specific heat capacity of solids	1	2
7- Simple Pendulum	1	2
8- Simple DC Circuits and Ohms law	1	2
9- Surface Tension and capillarity.	1	2
10- Mechanical Equivalent of heat	1	2

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	40	5		10		
	Actual						
Credit	Planed	3			1		
	Actual						

3. Additional private study/learning hours expected for students per week. 5

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	To define vector, displacement , displacement, speed, velocity, force, work, energy ,power, pressure, stress, strain, specific heat	Classroom lectures	Mid Exams
1.2	To define stress, strain, youngs modulus of elasticity, flow rate, Bernoulli theorem, electric field, Ohms law and resistance	Classroom lectures	Mid Exams
2.0	**Cognitive Skills**		
2.1	To differentiate between vectors and scalars, differentiate between speed and velocity, concept of work energy principle,	Discussions	Assignment
2.2	To understand the concept of equation of continuity, Bernoulli theorem , To differentiate between electric field and electric potential	Discussions	Assignment
3.0	**Interpersonal Skills & Responsibility**		
3.1	To apply laws of physics studied in this course to daily life situation	Classroom lectures and discussions	Mid Exam and Assignment

3.2	To apply the concept of electric charge and electric field, laws of resistance from Engineering Physics points of view.	Classroom lectures and discussions	Mid Exam and Assignment
4.0	**Communication, Information Technology, Numerical**		
4.1	Numerical problems based on mechanics (vectors, force, work energy, power)	Tutorials	Mid Exams
4.2	Numerical problems based on equation of continuity, Bernoulli equation, Young's Modulus of elasticity, Coulomb's law, Ohm's law	Tutorials	Mid Exams
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	Mid Exam	7	20
2	Assignment I	5	2.5
3	Assignment II	10	2.5
4	Practical		25
5	Final		50
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 Hrs for student consultations

E Learning Resources

1. List Required Textbooks **Physics for Scientist and Engineers (Serway and Jewett)**
2. List Essential References Materials (Journals, Reports, etc.)
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.) Main hall for lecturing 60 students
2. Technology resources (AV, data show, Smart Board, software, etc.) 20 computer sets are needed for network connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Providing educational facilities and models in the lecture.

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching The student should evaluate the course together with the instructor. - An academic evaluation is required continuously. - Renewing the course contents periodically.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department - Evaluating the course at the departmental levels. - Evaluating the course outside the department.
3. Processes for Improvement of Teaching -A comparison of the course level should be made with similar courses at different universities of international repute. - Publishing an article related to health Physics education.

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)
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. - Latest published and specialized books in Engg physics. - Contributing to conferences related to essential and university educational systems.

Name of Course Instructor: **Dr Sohail Ahmad** and **Dr Mohammed Shabbir** (theory)
Mr Mohammed Mahmoud Abdul Aziz and Mr Abdullah Hindwan (Practical)

Signature: _____ Date Specification Completed: Sept 2019

Program Coordinator: Dr. Mohamed H.A. Suleiman

Signature: _____ Date Received:_____