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 Code: 108PHYS
Course Name: Principles of Physics-1

Course Specifications

Institution: **King Khalid University**	Date: **31/01/2018**
College/Department : **Faculty of Science / Physics Department**	

A. Course Identification and General Information

1. Course title and code: **108PHYS: Principles of Physics-1**
2. Credit hours: **2 theory credits**
3. Program(s) in which the course is offered. **Bachelor in Computer Engineering** (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Level 1 / First Year
6. Pre-requisites for this course (if any): NIL
7. Co-requisites for this course (if any): NONE
8. Location if not on main campus: **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:

The Blackboard LMS will be used for quizzes, lecture notes, announcements, etc.

B Objectives

1. What is the main purpose for this course?

This course will introduce students to how to:

- ✓ Explain physical phenomena based on the general concepts of physics.
- ✓ Define general principles of physics.
- ✓ Solve problems in motion, work, kinetic energy and potential energy, Fluids and Archimedes', Temperature, Heat, fluid dynamics and thermal physics.

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)

This course is being regularly revised and developed by conducting meetings with the Head of the Department, Course Coordinator and course teachers.

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

Course Description:

This course focuses on the basic measurement units and vectors, motion in one dimension and motion in two dimensions, Newton laws of motion, uniform circular motion, work, kinetic energy and potential energy, Momentum, Collisions, Rotational Motion and Equilibrium, Fluids and Archimedes' Principle, Temperature and Heat, fluid dynamics. An overview of the first, second, and third laws of Thermodynamics.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Measurements, units, vectors: Measuring Things, The International System of Units, Changing Units, Length, Time, Mass, Vectors and Scalars, Adding Vectors Geometrically, Components of Vectors, Unit Vectors, Adding Vectors by Components, Vectors and the Laws of Physics, Multiplying Vectors Examples and problems	3	6
Motion in one dimension and motion in two dimensions: Motion, Position and Displacement, Average Velocity and Average Speed, Instantaneous Velocity and Speed, Acceleration, Constant Acceleration: A Special Case, Free-Fall Acceleration, Graphical Integration in Motion Analysis Position and Displacement, Average Velocity and Instantaneous Velocity, Average Acceleration and Instantaneous Acceleration, Projectile Motion, Projectile Motion Analyzed, Uniform Circular Motion, Relative Motion in One Dimension, Relative Motion in Two Dimensions. Examples and problems	3	6
Newton's laws of motion and their applications Newtonian Mechanics, Newton's First Law, Force, Mass, Newton's Second Law, Some Particular Forces, Newton's Third Law, Applying Newton's Laws Examples and problems	2	4
Momentum, work, kinetic energy and potential energy. What Is Energy, Kinetic Energy, Work, Work and Kinetic Energy, Work Done by the Gravitational Force, Work Done by a Spring Force, Work Done by a General Variable Force, Power. Work and Potential Energy, Path Independence of Conservative Forces, Determining Potential Energy Values, Conservation of	3	6

Mechanical Energy, Reading a Potential Energy Curve, Work Done on a System by an External Force, Conservation of Energy. Examples and problems		
Fluid dynamics: What Is a Fluid? Density and Pressure, Fluids at Rest, Measuring Pressure, Pascal's Principle, Archimedes' Principle, Ideal Fluids in Motion, The Equation of Continuity, Bernoulli's Equation Examples and problems	2	4
Thermodynamics: Temperature, The Zeroth Law of Thermodynamics, Measuring Temperature, The Celsius and Fahrenheit Scales, Thermal Expansion, Temperature and Heat, The Absorption of Heat by Solids and Liquids, A Closer Look at Heat and Work, The First Law of Thermodynamics, Some Special Cases of the First Law of Thermodynamics, Heat Transfer Mechanisms. First, second and third laws of thermodynamics. Examples and problems	2	4

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	30					30
	Actual	30					30
Credit	Planed	2					2
	Actual	2					2

3. Additional private study/learning hours expected for students per week. **2**

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	Describe basic concepts and quantities of physics	Lectures	Exams, Assignments, Quizzes
2.0	**Cognitive Skills**		
2.1	Analyze the behavior of idealized systems by applying the basic physical concepts and principles	Lectures	Exams, Assignments, Quizzes
3.0	**Interpersonal Skills & Responsibility**		

3.1	Communicate analysis of problems in a professional manner.	Group discussions	Exams, Assignments, Quizzes
4.0	**Communication, Information Technology, Numerical**		
4.1	Illustrate skills in technical writing and oral presentations.	Discussions Demonstrations	Presentations Group report
5.0	**Psychomotor**		
5.1	NA		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)										
	a1	**a2**	**b1**	**b2**	**b3**	**b4**	**c1**	**c2**	**c3**	**d1**	**d2**
1.1	✓										
2.1			✓								
3.1							✓				
4.1										✓	✓

6. 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	Assignments * Choose best one from two Quizzes and Assignments	Throughout the semester	5%
2	Quizzes –Theory * * Choose best one from two Quizzes and Assignments		5%
3	Midterm-1 Exam - Theory	Week 6 / 7	20%
4	Midterm-2 Exam - Theory	Week 11 / 12	20%
5	Final Exam -Theory	Week 16 / 17	50%

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)

- 10 office hours by the faculty in a weekly schedule.

E Learning Resources

1. List Required Textbooks

- Fundamentals of Physics Extended, 10th Edition, David Halliday, Robert Resnick, Jearl Walker, 2013, WILEY Publication. ISBN: 978-1-118-23072-5

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

- University Physics: Models and Applications, William P. Crummett, Arthur B. Western, ISBN-10: 0697111997 ISBN-13: 978-0697111999, William C Brown Pub (January 17, 1994).
- Physics, Volume 1, Robert Resnick, David Halliday, Kenneth S. Krane, 5th Edition, Wiley; 2001. ISBN-13: 978-0471320579, ISBN-10: 0471320579

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

- www.lms.kku.edu.sa to access lecture notes, text book, lab manual, announcements related to the course etc.
- www.ieee.org and www.acm.org to search latest research in relevant field.

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

None

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.)
   - One lecture rooms with 40 seats

2. Technology resources (AV, data show, Smart Board, software, etc.)
   - Data Show (Projectors) in lecture room.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

None

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

At the end of semester written feedback is taken from students about course content, teaching methodology and their understanding of the course.

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

- Departmental evaluation from students about teacher.
- Course evaluation report from the course coordinator after the exam.

3. Processes for Improvement of Teaching

- Observations made from the course evaluation report by the course coordinator
- Head of department observations, suggestions, instructions etc.

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)

- The course coordinator verify the standards of the student achievements

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

The subjects are reviewed periodically by the Subject committee and the head of the department for review and improvement. Subject committee comprising of all theory and lab staff of the course, conduct meetings to review the progress of the course.

Name of Course Instructor: Dr. Bakhtiar Ul Haq

Signature: _____ Date Specification Completed: _____

Program Coordinator: Dr. Mohamed H.A. Suleiman

Signature: _____ Date Received: October 8, 2019