ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

هيئة تقويم التعليم
Education Evaluation Commission

Course Specifications

Institution: Al Yamamah University	Date: February 10, 2019
College/Department : Computer and Information Systems / Mathematics and Natural Sciences	

A. Course Identification and General Information

1. Course title and code: Physics I / PHY 103
2. Credit hours: 3+1=4
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Software Engineering, Network Engineering, and Industrial Engineering.
4. Name of faculty member responsible for the course: Dr. Radi Al Enaizi
5. Level/year at which this course is offered: First Year
6. Pre-requisites for this course (if any): PHY 201 / Introduction to Physical Sciences
7. Co-requisites for this course (if any): None
8. Location if not on main campus: None
9. Mode of Instruction (mark all that apply):

a. traditional classroom	√	What percentage?	75
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other *		What percentage?	25

* Comments: The other 25% is conducted in the laboratory

B Objectives

1. What is the main purpose for this course?
The course is designed to provide opportunities for students to:

- Prepare students with fundamental knowledge of physics and obtain skills necessary for higher-level science courses.
- To provide students with a thorough understanding of the basic concepts of physics and the methods scientis use to explore natural phenomena.
- Develop clear understanding to the foundational principles of kinematics dynamics and gravitation (Newton's mechanics).
- Compare and develop clear understanding to the principles of work, energy, energy transfer (conservation of energy), linear and angular of momentum.
- Describe the basic principles of fluid mechanics and dynamics.
- Apply physics principles to solve problems and explain practical physics applications.
- To provide students with problem solving skills by an approach that describes physical phenomena with relevant mathematical models and formulae.
- To develop the student's mathematical ability to manipulate formulae and derive correct numerical solutions that can be measured in the real world.
- Students are provided with the opportunities to spend a minimum of 25 percent of instructional time engaging hands-on–laboratory work with an emphasis on inquiry-based investigations.

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 th field)

- Electronic materials and computer-based programs are utilized to support the lecture course material and increasing the use of data show and smart board in classroom.
- The course material is posted on the LMS (Learning Management System) that could be accessed by the students enrolled in the course only.
- Increased use of IT or web-based reference material.

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

Course Description:

This four-credit course provides students' knowledge of mechanics. Topics include details of vector's analysis (two and three dimensions), Newton's laws using graphs and vectors, linear motion, circular motion, work and energy, energy transfer, linear and angular momentum and their conservation, universal gravitation, periodic and wave motion, dynamics and statics of particles and rigid bodies, harmonic vibrations and fluid mechanics of motion.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
- Physics and Measurements	1	3
- Vectors - Theory of vectors: Representation, Algebra and Application	2	6
- Dynamics: - Kinematics: Motion in two dimensions	1	3
- Kinematics: Motion in two dimensions	2	6

- Kinetics: Newton's laws of Motion: Linear, Circular and Curvilinear motion. - Statics: Systems of forces	2	6
- Energy: Kinetic and Potential - Conservation of energy.	1	3
- Linear momentum - Mechanics of Rigid bodies	1	3
- Angular momentum - Static equilibrium and Elasticity	2	6
- Newton's laws of universal gravitation	1	3
- Fluid dynamics	1	1
- Oscillatory motion	1	3
Total	15	45

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

		Lecture	Tutorial	Laboratory / Studio	Practical	Other:	Total
Contact Hours	Planed	45		30			75
	Actual	45		30			75
Credit	Planed	3		1			4
	Actual	3		1			4

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** After successful completion of the course students will be able to		
1.1	Recognize the basic quantities dimensions, SI units, and prefixes in mechanical physical, basic principles of	Formal lectures Group discussion	Home works Quizzes

	static & dynamic mechanics.	Exercises Class room activities	Exams Lab. Reports In-lab evaluation
1.2	Describe non-accelerated (uniform) and accelerated motions of an object through kinematics equations.		
1.3	Defined/State the Newton's laws of motion and used it to solve linear dynamics problems.		
2.0	**Cognitive Skills** After successful completion of the course students will be able to		
2.1	Evaluate vector algebra and applications in One & Two-dimensional mechanics.	Formal lectures Group discussion Exercises Class room activities Lab demonstration	Home works Quizzes Exams Lab. Reports In-lab evaluation
2.2	Illustrate schematic representations and diagrams related to the principles of kinematics, equilibrium, and conservation.		
2.3	Develop methodology for solving applications or problems in the field of general mechanics.		
3.0	**Interpersonal Skills & Responsibility** After successful completion of the course students will be able to		
3.1	Use team work to conduct - Lab experiments. - Write laboratory reports relate the experiments.	Lab demonstration Group discussion	In-lab evaluation Lab. Reports Exams
4.0	**Communication, Information Technology, Numerical** After successful completion of the course students will be able to		
4.1	Calculate numerical problems related to: - The polar and cartisans coordinates - Static equilibrium and conservation principles.	Group discussion Class room activities	Home works Quizzes Exams
5.0	**Psychomotor**		
5.1	NA	NA	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)**								
	1.1	**1.2**	**1.3**	**2.1**	**2.2**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**
1.1	-	X	-	-	X	-	-	-	-	-
1.2	-	-	-	-	X	-	-	X	-	-
1.3	X	X	-	-	X	-	-	X	X	X
2.1	-	-	-	-	X	-	-	X	X	X
2.2	-	-	-	-	-	-	-	X	X	X
2.3	-	-	-	X	X	-	-	X	-	X
3.1	-	-	-	X	X	X	X	X	-	-
4.1	-	-	-	X	-	-	-	-	-	X

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	First Homework	4	6%
2	First Quiz	5	6%
3	Second Homework	7	6%
3	Mid – Term Exam	8	15%
4	Second Quiz	12	6%
5	Third Quiz/Homework	14	6%
6	Lab work	15	25%
7	Final Exam	16	30%

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)

Faculty Members have around 10 office hours every week for student consultations.

E Learning Resources

1. List Required Textbooks

- **Physics for scientists and engineers; Raymond A. Serway and John W. Jewett; Cengage Learning; 9th edition; (2013).**

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

- Halliday D. and Resnick R., Physics, 9thEdition, John wiley & sons (2011).
- Physics; John D. Cutnell and Kenneth W. Johnson; John Wiley & Sons; 9th edition; (2012).

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

https://lms.yu.edu.sa/login/index.php

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

NA

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.)

Classrooms and laboratory

2. Technology resources (AV, data show, Smart Board, software, etc.)

Data Show/Smart board

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

As required/recommended by the instructor

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching At the end of the course, students receive feedback forms designed as per guidelines of NCAAA that are used to evaluate the effectiveness of teaching.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department Peer review visits are normally conducted among faculties wherever possible during academic year. During the lecture time Chair (Head)/ Dean of the department visits the classroom. At the end of each visit, faculties are usually set together to discuss related issues
3. Processes for Improvement of Teaching - Feedbacks from students using different types of survey including Student Experience Survey (SES), Program Evaluation Survey (PES), and Alumni Survey (AS) are shown and discussed with faculty members to improve the teaching. - Specialized workshops and seminars are conducted throughout academic year to address specific teaching strategies and improvements.
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 review and discussion with course coordinator. There should be a strong liaison with teacher from some external university/institute in order to exchange ideas related to marking/ evaluating quizzes and assignments
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. At the end of each semester, Curriculum committee conducts a meeting with all faculty members in which surveys filled by the students and other feedbacks from faculty members are discussed. Effectiveness of the courses, mistakes done and weaknesses are discussed. These points are made basis for the planning for improvements for next semester/year.

Name of Course Instructor: Dr. Radi Al Enaizi Signature: _____
Date Specification Completed: February 10, 2019
Program Coordinator: Dr. Sadiqah Al Marzooq Signature: _____
Date Received: _____