ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

General Physics
for Engineering students
(Phys. 128)

Course Specifications

Institution **Majmaah University**	Date of Report **25/3/1435**
College/Department **College of Science Al-Zulfi / Physics Department**	

A. Course Identification and General Information

1. Course title and code: **General Physics for Engineering students // (PHY 128)**
2. Credit hours **3 hours**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Physics Program (B.Sc.)
4. Name of faculty member responsible for the course
Dr. Ahmed Adel
5. Level/year at which this course is offered
Preparatory Year
6. Pre-requisites for this course (if any)
NO
7. Co-requisites for this course (if any)
No
8. Location if not on main campus
College of Science Al-Zulfi
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	√	What percentage?	85 %
b. Blended (traditional and online)	√	What percentage?	15 %
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:
The mode of instructor is distributed and used two items [Traditional classroom with 85% and Traditional online with 15%]

B Objectives

What is the main purpose for this course?

The main objective of this course is to provide the students with a background of basic physics concepts, which allows them to understand the general laws of mechanics and electricity.

At the end of this course, students should be capable to

1. **Understand the fundamental laws and principles of mechanics and electricity.**
2. **Describe the nature phenomena by using the language of physics.**
3. **Solve physics problems efficiently through the appropriate use of basic mathematical and physical concepts.**

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)

1. **Annual review of the course using recent textbooks and references.**
2. **Electronic materials and computer based programs are used to support the lecture course.**
3. **Increase use of video material**
4. **Exploring the possibility of introducing students to a specialized software**

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

(The credit point is equal 25-30 hours)

Topic	Contact hours			Total of contact hours	Self- Study				Total hours
	Lecture	tutorials	Lab		Internet	Library	Homework	Discussions	
Units and measurement	3	-	-	3	1	1	3	1	9
Vectors	3	-	-	3	1	2	3	1	10
Motion along straight line	6	-	-	6	1	2	3	1	13
Mid-term 1	-	-	-	2	-	-	-	-	2
Motion in two dimensions and three dimensions	6	-	-	6	1	1	3	1	12
Force and motion I	6	-	-	6	2	1	3	1	13
Force and motion II	6	-	-	6	1	1	3	1	12
Mid-term 2	-	-	-	2	-	-	-	-	2
Kinetic energy, work, and power	6	-	-	6	1	1	3	1	12
Electricity	6	-	-	6	1	2	3	1	13
Final Exam	-	-	-	2					2
Total	42	-	-	48	9	11	24	8	100

Course components (total contact hours and credits per semester):								
	Credit	Contact hours				Self-Study	Others	Total
		Lecture	Tutorial	Laboratory	Practical			
NCAAA	3	48	---	---	---	52	---	100
ECTS	5	48	---	---	---	52	---	100

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

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

For each of the domains of learning shown below indicate:

- **A brief summary of the knowledge or skill the course is intended to develop.**
- **A description of teaching strategies used in the course to develop that knowledge or skill.**
- **The methods of student assessment used in the course to evaluate learning outcomes in the domain concerned.**

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Recognize the fundamental physical quantities and their units.	Developing basic communicative ability through: - Lecturing - Team work - Discussion - Exercises	- Class Participation - Graded homework - Quizzes - Midterms - Final Exam
1.2	Describe straight-line motion in terms of velocity and acceleration.		
1.3	Define vectors in Cartesian and polar Coordinates and their addition in terms of their Cartesian components.		
1.4	Identify the concept of force and relate it to the mass and acceleration of the object.		
1.5	Define Weight, normal force, and contact force.		
1.6	Recognize the kinetic energy, work and power		
1.7	Define electric field and electric potential.		
2.0	**Cognitive Skills**		

2.1	Demonstrate the ability to solve basic problems of physics in those practical situations covered in the course.	- Problem solving -Class discussion -Project presentation	- Class Participation - Presentation - Essay Question - Research
2.2	Use the vector notation in order to separate the two or three dimensional problems into their components along different Cartesian directions and solve each independently.		
2.3	Apply the gained mathematical and experimental knowledge in any physical related topic.		
2.4	Analyze and utilize Newton's laws of motion.		
3.0	**Interpersonal Skills & Responsibility**		
3.1	Completing assignments in due time.	-Discussion with students - Making students aware about time management in completing their assignments and projects -Encourage students to help each other - Group presentation - Group assignments	- Evaluation of group reports and individual contribution within the group - Peer or self-assessment -Performance on midterms and final exams are evidence of the student's ability to retain and analyze information
3.2	Participate in class discussion and think critically.		
3.3	Acting responsibly and ethically in carrying out individual as well as group projects.		
3.4	Communicate, listen, negotiate, and evaluate their strengths and weaknesses as members of a team.		
4.0	**Communication, Information Technology, Numerical**		
4.1	Developing the student skills in the usage of computer, network, and software packages relevant to nuclear physics.	- Exercises - Problem solving - Oral quizzes - Essay questions	-Oral Presentation -Oral Examination -Essay Question
4.2	Improving student communication skills such as : writing, reading, presenting, negotiating and debating		
5.0	**Psychomotor**		
5.1	Not applicable	Not applicable	Not applicable

5- Please fill in this table based on the following criteria:

Course Objectives:	Course Outcomes:	PLO	NCAAA	Asiin
Understand the fundamental laws and principles of mechanics and electricity	Recognize the fundamental physical quantities and their units.	1,2	2	a,b
	Analyze and utilize Newton's laws of motion.	1,2,6	2,4	c
	Define electric field and electric potential	1,2	2	a,b

Describe the nature phenomena by using the language of physics. .	Describe straight-line motion in terms of velocity and acceleration.	1,2,5	2	a
	Identify the concept of force and relate it to the mass and acceleration of the object.	2,5	2	a
	Recognize the kinetic energy, work and power	1,2	2	a
Solve physics problems efficiently through the appropriate use of basic mathematical and physical concepts.	Solve problems for two-dimensional motion by decomposing it into its components.	6,10	4	b,c,d
	Derive mathematical expressions for projectile motion.	21	4	c
	Solve problems involving friction.	6	4	b,d
The development of students' mental abilities.	Present a short report in a written form and orally using appropriate scientific language.	12,18	10,12	J,k
	Construct the mathematical formulation suitable for the theoretical analysis of various decay modes.	14,17	13	i

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First exam*	5	20%
2	Second exam*	11	20%
3	Lab. Exam	-	
4	Presentation	-	20%
5	Homework	Weekly	
6	Quizzes	End of topics	
7	Discussions	Weekly	
8	Team group	Three time/ semester	
9	Tutorials	-	
10	Computer tools used	Every report	
11	Project	-	
12	Peer project	-	
13	Final exam *	End of the semester	40%
	Total		100 %

* First exam, second exam and final exam are written exam

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 6 hr/ week.**

E. Learning Resources

1. List Required Textbooks **Introductory Physics** .
2. List Essential References Materials (Journals, Reports, etc.) **Physics for Scientists and Engineers, Raymond A. Serway and John W. Jewett, Thomson Brooks/Cole © 2004; 6th Edition**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) **Schaum's Outline of College Physics, 11th Edition (Schaum's Outline Series) F. J. Bueche and E. Hechet, McGraw-Hill**
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) **http://science.pppst.com/physics.html** **http://physwiki.ucdavis.edu** **http://www.physics.org**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Physics Simulation Softwares.**

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 with at least 25 seats.** **Auditorium of a capacity of not less than 100 seats for large lecture format classes**
2. Computing resources (AV, data show, Smart Board, software, etc.) **A smart board to write on and computer.**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) **Library, and Seminar Room, Wi-Fi internet connections.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **Student evaluation electronically organized by the University.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor **There is a department committee responsible for the development of the strategies of Teaching.**
3 Processes for Improvement of Teaching **1. Course report.** **2. Program report.** 3. **Training Courses.**
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) **Efficiency of course will be reflected on the results of the class, which may be reviewed by members of the teaching staff in addition to other duties such as discussing ideas and ways of teaching and learning. The course should be developed periodically to ensure that it contains the latest developments in the field of study. Development could be put as an objective in the report of the course to be achieved each semester.**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **1- Course Evaluation** **2- Exam Evaluation** **3- Improvement plan** **4- Program Outlearning with course outlearning** 5- **Outlearning from the pre-requisite course**

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed: _____**

Received by: _____ **Dean/Department Head**

Signature: _____ **Date: _____**