ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

Course Specifications

Institution: Dammam Univeristy Date : 19-3-2014

College/Department :Science College – Physics

A. Course Identification and General Information

1. Course title and code: general Physics II- Physics 132N - 800162
2. Credit hours: **4** Cr. Hrs
3. Program(s) in which the course is offered. Bsc physics
4. Name of faculty member responsible for the course **A specific team from the Physics Department**
5. Level/year at which this course is offered Level II the second year
6. Pre-requisites for this course (if any) Phys I

7. Co-requisites for this course (if any) Nothing else
8. Location if not on main campus College of Science for girls. (department of physics)
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?

Due to the ubiquitous nature of electric charge in nature and technological applications, the theoretical framework describing electromagnetic interactions is necessary in fields as diverse as engineering, physics, biology, and chemistry. This course serves as a survey of classical electromagnetic theory, starting with Coulomb's law governing interactions of charged systems and culminating with the experimental evidence that led to the development of modern quantum theory. This main goals of this course are:

1. Teach students the fundamental concepts in electricity, magnetism and elementary circuit theory,
2. Teach students how to collect and analyze experimental data including rigorous error analysis and
3. Prepare students for intermediate and advanced science courses that build on electricity and magnetism.
4. Describe, in words, the ways in which various concepts in electromagnetism come into play in particular situations
5. Represent these electromagnetic phenomena and fields mathematically in those situations
6. Predict outcomes in other similar situations.

The overall goal is to use the scientific method to come to understand the enormous variety of electromagnetic phenomena in terms of a few relatively simple laws.

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- Explain strategy of the course in the beginning of the semester
2- Outlines of the physical laws, principles and the associated proofs.
3- Highlighting the day life applications whenever exist.
4- Encourage the students to see more details in the international web sites and reference books in the library.

5- Discussing some selected problems in each chapter.
6- Cooperate with different institution to find how they deal with the subject
7- Renew the course references frequently
8- Develop and deliver course material in ways that facilitate learning for students with differing learning aptitudes.

Frequently check for the latest discovery in science

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

C o u r s e
Description:

Physics II is an introduction to electromagnetic fields and forces. Electromagnetic forces quite literally dominate our everyday experience. The material object presenting this text does not fall through the floor to the center of the earth because it is floating on (and held together by) electrostatic force fields. However, we are unaware of this in a visceral way, in large part because electromagnetic forces are so enormously strong, 1040 times stronger than gravity. Because of the strength of electromagnetic forces, any small imbalance in net electric charge gives rise to enormous forces that act to try to erase that imbalance. Thus in our everyday experience, matter is by and large electrically neutral, and our direct experience with electromagnetic phenomena is disguised by many subtleties associated with that neutrality. This is very unlike our direct experience with gravitational forces, which is straightforward and unambiguous. This is a course for physical science students on the phenomena of electromagnetism. Topics include electric charges and fields, electric potential, capacitance, magnetic fields, electric circuits.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Electric Fields	2	
Gauss's Law	2	
Electric Potential	2	
Capacitance and Dielectrics	1	
Current and Resistance	1	
Direct Current Circuits	1	
Magnetic Fields	2	
Faraday's Law	2	

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total

Contact Hours	12	12		10		34
Credit						

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

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and
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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	Learning fundamentals in electromagnetism theory.	Demonstrating the basic information and principles through lectures and the achieved applications	Solve some example during the lecture.
1.2	Understanding the physics of electromagnetism and their applications mentioned in the text	Discussing phenomena with illustrating pictures and diagrams	Exams**:** -Quizzes -Short exams (mid term exams) -Long exams (final) -Oral exams

1.3	Understanding electromagnetic fields is essential to our understanding the world around us.	Demonstrating the some device depend on the basic of the electromagnetic fields	Discussions with the students.

	Improving logical thinking.	Lecturing method: -Blackboard -Power point e-learning	Discussions with the students.
2.0	**Cognitive Skills**		
2.1	How to use physical laws and principles to understand the subject	Preparing main outlines for teaching	Midterm's exam. Exams, short quizzes
2.2	How to simplify problems and analyze phenomena	Define duties for each chapter	Asking about physical laws previously taught
2.3	Analyze and explain natural phenomena To understand the physical basics for some phenomena	Homework assignments	Writing reports on selected parts of the course
2.4	Represent the problems mathematically	Encourage the student to look for the information in different references.	Discussions of how to simplify or analyze some phenomena
3.0	**Interpersonal Skills & Responsibility**		
3.1	Work independently	Learn how to search the internet and use the library.	Quizzes on the previous lecture.
3.2	The students learn independently and take up responsibility	Learn how to cover missed lectures	Checking report on internet use and trips.
3.3	To present any topic that would help them in their research	Learn how to summarize lectures or to collect materials of the course.	
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicate with some interested groups to discuss the ecology problems on the bases of the fundamental topics of this course	Know the basic physical principles.	Their interaction with the lectures and discussions
4.2	Data analysis and interpretation.	Use the web for research.	The reports of different asked tasks
4.3	Feeling mathematical reality of solving problems	Discuss with the student	Homework, Problem solutions assignment and exam should focus on the understanding.

5.0	Psychomotor		
5.1			
5.2			

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		2.1		3.2		4.1	
1.1									
2.1									

6. 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	Midterm 1	6th week	10
2	Midterm 2	10th week	10
3	Homework	Every week	10
4	Experimental evaluation	12-13 week	30
4	Final exam	End of semester	40

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)

4 office hours per week

E Learning Resources

1. List Required Textbooks

1- Fundamentals of Physics: David Halliday , R.Resnick; John Wiley & Sons , Inc.

2- Physics for Engineers and Scientists: Serway; 8th Ed.

3- University Physics: Sears, ZemanskY and Young
2. List Essential References Materials (Journals, Reports, etc.) Physics for Engineers and Scientists: Serway; 8th Ed.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Wikipedia

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 for 10 students Library
2. Computing resources (AV, data show, Smart Board, software, etc.) Computer room Scientific calculator.
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 · Midterm and final exam. · Quiz. · Presented of selected some topic
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching Fortification of the student learning. Handling the weakness point.

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 instructors of the course are checking together and put a unique process of evaluation

Check marking of a sample of papers by others in the department.

Feedback evaluation of teaching from independent organization.

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

1- The following points may help to get the course effectiveness
   - Student evaluation
   - Course report
   - Program report
   - Program Self study
2- According to point 1 the plan of improvement should be given.
3- Contact the college to evaluate the course and the benefit it add to other courses.

Add some subject and cut off others depending on the new discoveries in Mathematics and basic science.