

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

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)



Institution: University of Tabuk	Date: 18-04-2019
College/Department : Faculty of Science/Physics	
A. Course Identification and General Information	
1. Course title and code: Electromagnetism-2 (PHYS-332)	

2.	Credit	hours:	03
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3. Program(s) in which the course is offered.

Bachelor of Science in Physics

4. Name of faculty member responsible for the course : **Dr.Syed Khasim**

5. Level/year at which this course is offered:**6**

6.	Pre-requisites	for this cours	e (if any): Electi	romagnetism-1 (PHY	S-331)
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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):

9.	whole of mstruction (mark an that a	ppiy).		
	a. traditional classroom	YES	What percentage?	100%
	b. blended (traditional and online)		What percentage?	
	c. e-learning		What percentage?	
	d. correspondence		What percentage?	
	f. other		What percentage?	
C				
Co	mments:			



B Objectives

1. What is the main purpose for this course?

This course in Physics provides the students with sound knowledge about various concepts on combined effect of electricity and magnetism.

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)

- Update the content periodically.
- To highlight daily life examples to understand the concepts
- Encourage students to visit websites related to course content to build fundamental knowledge
- Online e-learning materials distributed to students, provided with web based links to understand the basic concepts in electricity and magnetism

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

Course Description:

Static magnetism, Static magnetism in matter, Electromagnetic induction, Faraday's law, Maxwell's equations, Electromagnetic waves and their propagation in conductors and insulators, Dispersion, emission of electromagnetic radiation from dipoles and point charges

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to fundamental concepts of Electricity and Magnetism	02	06
Lorentz force, Bio-Savart's law, current carrying wires (staright, semi-	02	06
infinite and circular arc), Force between parallel current carrying wires.		
Ampere's law and its applications, magnetic field of solenoids and	01	03
toroid's, curl and divergence of B		
Magnetism in matter: magnetic moment of atoms, classification of	01	03
magnetic substances		
Bound currents, boundary conditions, ferromagnetic hysteresis	01	03
Electromagnetic induction: Faraday's law, examples on emf induced, self	02	03
and mutual inductances		
Inductance of solenoids and torids, enery stored in inductor, inductive	01	03
time constant of R-L circuit		
	01	03

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Maxwell's equations in free space, matter and vacuum	01	03
Electromagnetic waves: Electromagnetic spectrum, motion of E-M waves in 1D, sine notations and complex notations, examples on calculating wavelength, frequency, time period, velocity and displacement of E-M waves.	01	03
Incident, reflected and transmitted E-M waves, pointing vector, polarization of E-M waves, incidence of E-M waves at normal and oblique incidence.	01	03

2. Course components (total contact hours and credits per semester):							
		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact	Planed	39				12	51
Hours	Actual	39					39
Creative	Planed	3					3
Credit	Actual	3					3

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	To describe the basic principles of electricity and magnetism.	• Lectures	• Exams.
1.2	To memorize the formulas and theoretical concepts learned to solve the different applications of the related topics.	 In-class discussions Exercises Home works 	Homework.Classwork.Quizzes.
1.3	To reproduce the problem solving ability		

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2.0	Cognitive Skills		
2.1	To analyze the fundamentals of electromagnetic waves, electromagnetic wave transmission through antennas To explain the concepts of electromagnetism with relevant examples used in daily life	 Lectures. Problem solving Small group work Presentations 	 Presentations Homework. Classwork.
2.3	To interpret the theoretical concepts with real time examples	-	
3.0	Interpersonal Skills & Responsibility		1
3.1 3.2	To question in class room discussions. To demonstrate, with self-reliance when working independently.	• Awareness of time management in completing their	• Respecting
3.3	To show teamwork and professional commitment to ethical practice	reports. • Encourage students to help each other • Group assignments • Lectures • Case study • Small group work • Whole group discussion.	 deadlines. Giving clear and logical arguments Oral exams Logical reasoning
4.0	Communication, Information Technology, Numerica	al	
4.1	To operate technology to interact with the teacher and students using communications technology.	Whole group discussion.	E-mail correspondences. Exams.
4.2	interpret the concepts using the technology to explain the concepts in electromagnetism	Presentations	Homework.
5.0	Psychomotor		
5.1	To prepare the reports on basic concepts	• Experiments	• Home works
5.2	To construct examples on electromagnetic concepts	 Presentations Discussions	• Laboratory experiments
5.3	To perform experiments related to electricity and magnetism		• Quizzers

5. 5	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	Quiz-1	3	20%			
2	Mid-Exam-1	6	30%			
3	Quiz-2	9	20%			
4	Mid-Exam-2	10	30%			
5	Final Exam	13	100%			

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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 member available for student academic services : 5 hour per Week

E Learning Resources

1. List Required Textbooks

- Introduction to Electromagnetism by David J Griffith
- Electricity and Magnetism by K.K Tewari

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

Web based lecture notes

- http://users.ox.ac.uk/~math0391/EMlectures.pdf
- https://www.vanderbilt.edu/cso/Electromagnetism_8th.pdf
- <u>https://ocw.mit.edu/courses/physics/8-022-physics-ii-electricity-and-magnetism-fall-2006/lecture-notes/</u>

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

- Wikipedia
- Hyper Physics

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

• Power Point Presentations on fundamental concepts of Electromagnetism provided to the students



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.)

- Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
 Adequate
- 2. Technology resources (AV, data show, Smart Board, software, etc.)
 - Needs improvement

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

• NIL

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

Evaluators: Academic Affairs Staff

Evaluation Method: 1) Completion course evaluation questionnaire, 2) Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department **Evaluators: Academic Affairs Staff**

Evaluation Method: Faculty Peer Assessment

3. Processes for Improvement of Teaching

Evaluators: Instructor

Evaluation Method: 1) Plan: The instructor will develop a strategy for teaching, 2) Do: The strategy will be implemented for one semester, 3) Study: The experiences of the students will be collected through a survey, 4) Act: Effective teaching strategies will be implemented and revised as more experiences are gained.

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)

Evaluators: Instructor

Evaluation Method: Check marking of a sample of examination papers.

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

Evaluators: Instructor

Evaluation Method: 1) Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision, 2) A feedback from all relevant assessment tools must be considered



Name of Course Instructor: Dr.Syed Khasim

Signature:

Date Specification Completed: 18-04-2019

Program Coordinator: Dr. Fahad Alharbi Signature: **Dr. Fahad Alharbi** Date Received: 19/4/2019