اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Physics (1)
Course Code:	203206-4
Program:	**Bachelor in Computer Science**
Department:	**Department** of Physics
College:	**College of Science**
Institution:	**Taif University**

Table of Contents

A. Course Identification

1. Credit hours:4	

2. Course type

a.   University ☐   College ☑   Department ☐   Others ☐

b.   Required ☑   Elective ☐

3. Level/year at which this course is offered: 5/2

4. Pre-requisites for this course (if any)**: NON**

5. Co-requisites for this course (if any)**: NON**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	8	100%
2	**Blended**	0	0
3	**E-learning**	0	0
4	**Distance learning**	0	0
5	**Other**	0	0

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	50
2	**Laboratory/Studio**	30
3	**Tutorial**	0
4	**Others** (specify)	0
	Total	80

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces systems of units dimensional analysis, Vector and scalar Quantities, Motion in One Dimension, Newton's Laws of Motion, Work, Energy and momentum, Electric field, Electric Potential, Electric current, Capacitance, Direct and Alternating Current circuits, Geometrical optics

2. Course Main Objective

The course objectives are to expose the student to the basic concepts of units dimensional analysis, Vector and scalar Quantities, Motion in One Dimension, Newton's Laws of Motion, Work, Energy and momentum, Electric field, Electric Potential, Electric current, Capacitance, Direct and Alternating Current circuits, Geometrical optics.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the principles of Newtons laws and their applications	K1
1.2	Explain phenomena involving electrical forces	K1
1.3	Understand geometrical optics concepts	K1
2	**Skills :**	
2.1	Distinguish between vector and scalar quantities	S1
2.2	Use vectors to describe physical observations	S1
2.3	Apply the equations of motion and to calculate work energy and power in systems	S1
2.4	Use electrical components in an electrical circuit	S1
3	**Values:**	

C. Course Content

No	List of Topics	Contact Hours
1	Fundamental and derived quantities - Systems of units Dimensional analysis	8
2	Vector and scalar Quantities Properties of Vectors: addition and subtraction	8
3	Position, velocity, and speed: Distance & Displacement, Average velocity and Average speed - Acceleration: average acceleration and Motion with constant acceleration: Kinematic Equations of Motion	8
4	The Concept of Force - 1st , 2nd , and 3rd laws of motion: Inertia, Inertial mass, Reaction Force	8
5	Potential and Kinetic Energy Work done by a constant force Conservation of Energy Power	8
6	Electric force – coulomb's law electric field of a continuous charge distribution – motion of charged particles in a uniform electric field.	8
7	– Potential Difference – Potential Differences in a Uniform Electric Field – Electric Potential and Potential Energy Due to Point Charges	8
8	definition of capacitance – calculating capacitance – combinations of capacitors – energy stored in a charged capacitor	8
9	electromotive force – resistors in series and parallel – Kirchhoffs rules AC sources – resistors in an ac circuit – the rlc series circuit – power in an ac circuit	8
10	nature of light – reflection – refraction Total internal reflection – fiber optics	8
	Total	80

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand the principles of Newtons laws and their applications		
1.2	Explain phenomena involving electrical forces		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	Understand geometrical optics concepts	Lecture Problem Solving	Written Exams Quizzes
2.0	**Skills**		
2.1	Distinguish between vector and scalar quantities	Lecture Problem Solving Group Work	Written Exams Quizzes Practical Test
2.2	Use vectors to describe physical observations	Lecture Problem Solving Group Work	Written Exams Quizzes Practical Test
2.3	Apply the equations of motion and to calculate work energy and power in systems	Lecture Problem Solving Group Work	Written Exams Quizzes Practical Test
2.4	Use electrical components in an electrical circuit	Lecture Problem Solving Group Work	Written Exams Quizzes Practical Test
3.0	**Values**		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Lab Exam	12	20%
2	Midterm Exam	6	30%
3	Final Exam	12	50%

Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Physics for Scientists and Engineers, Raymond A. Serway – Emeritus, Thomson Brooks/Cole © 2004; 6th Edition, ISBN10: 0534408427, 2004.
Essential References Materials	NON
Electronic Materials	NON
Other Learning Materials	NON

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. • A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	• Lab materials and required software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	• Review CAF (Course assessment file) • Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS council
Reference No.	Meeting #12
Date	23-10-1443