



University: Fayoum University
Faculty: Computers and Information
Department: Basic Science



Course Specification

1- Basic Information			
Code: GEN 125	Course Title: Physics(1)	Year/Level: First year – First term	
Programme: B.Sc degree in Computer Science	Number of units:	Lecture:	4 hrs/ week
		Tutorial:	3 hrs/ week
		Practical:	2 hrs/ week

2- Aims of Course:	On completion of this course the successful student will be able to:
	<ol style="list-style-type: none"> 1. Explore the principles that support developments in motion in one & two dimension, vectors, law of gravity, circular of motion, energy & work done and law of motion. 2. Define the basic concepts of motion in one and two dimensions, law of gravity, rolling motion, conversation of energy and linear momentum & collision. 3. Understanding and analyzing the physical phenomena in linear momentum & collision, energy & work done and law of gravity. 4. Understand the basic concept of the static electricity and magnetism. 5. Define the microscopic description of the current. 6. Understand the basic concept of the dc current and the elements of the circuits. 7. Apply simple, basic principles to solve the problems (problem-solving skills).

3- Intended Learning Outcomes	
A- Knowledge and Understanding:	<p>On completing this course, students should have knowledge and understanding of :</p> <p>A3- Demonstrate the essential mathematics and physics relevant to computer science.</p> <p>A7. Demonstrate Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.</p> <p>A10. Identify and explain the fundamental concepts, principles, and techniques needed for the analysis, development, validation, verification, deployment, and operations of computer-based systems.</p> <p>Through the following:</p> <p>a1. Study the concepts, principles and theories relating to fundamental of physics such as motion in one & two</p>

	dimensions, law of gravity and linear momentum & collision . a2. Understand the tools and methodologies used in physics such as law of momentum and law of motion. a3. Understand the basic concept of mechanics and its laws. a4 Define Potential difference, and calculation of capacitance and with dielectric. a5. Understand the concept of the Dc & AC current their circuits a6. Understand the essential mathematics related to physics topics
B- Intellectual Skills:	<p>On completion of this course the successful student will be able to:</p> <p>B1. Analyze real problems, and appropriate problem solving methods that satisfy commercial or industrial constraints and analyze results.</p> <p>B7. Determine goals for problem solving and test the result of the solution of the problems</p> <p>Through the following:</p> <p>b1. Realize the concept, theories and the principles used in physics such as three Newton's law , linear momentum and law of gravity also for the current circuits .</p> <p>b2. Identify the problems in physics such as gravity, motion in one/two dimension problems and how to solve them using the principles and the theories.</p> <p>b3. Utilizations of theories, rules and basic sciences to interpret physical events.</p> <p>b4. Apply the law in problem to solve.</p> <p>b5. Collecting information from its relevant sources and use it in discussion.</p>
C- Professional and Practical Skills:	<p>C1. Analyze and improve organizational processes from an ICT perspective.</p> <p>C8. Deploy appropriate tools for the construction and documentation of computer-based systems that are used to solve practical problems</p> <p>C11. Develop a range of fundamental research skills that enable the graduate to continuously increase his knowledge, advance his career and pursue graduate studies.</p> <p>Through the following:</p> <p>c1) Being able to solve problem sheets related to the material course</p> <p>c2) Collect and record data & information from libraries and summarize it in suitable forms.</p> <p>c3) The student would be able to apply some experiments related to course contents.</p>
D- General and transferable Skills	<p>D2. Use effective information-retrieval skills (including the use of browsers, search engines and catalogues) and general IT facilities.</p> <p>D4. Demonstrate independent critical thinking and problem solving skills</p> <p>D5. Communicate effectively through oral, written, and visual means.</p>

4-Course Content:	1. Mechanics <ul style="list-style-type: none"> • physics and measurements • Vectors, Motion in one dimension, vectors, motion in two dimensions, laws of motion, • Circular motion and its applications, • Potential energy and conservation of energy
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	<ul style="list-style-type: none"> • Linear momentum • collision, 2. Electricity and magnetism: <ul style="list-style-type: none"> • Over view on the static electricity, electric and magnetic fields . • Electric Current, Resistance and Ohm's Law • Resistance and current • Direct current and circuit
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5- Teaching and Learning Methods:	1. Lectures 2. Tutorials 3. Experimental Lab. 4. Class discussions 5. Internet searches and Self Studies:
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6- Teaching and Learning Methods for handicapped students :	-
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7- Student Assessment			
A- Assessment Methods:	1. Assignments and Quizzes 2. Midterm written exam 3. Oral Exam 4. Practical exam 5. Final written exam		
B- Assessment schedule:	Midterm Examination: Week 7 or 8 Practical examination: Week 13 Oral Examination: Week 14 Final Examination: Week 15-17		
C- Weighting of assessments:	Year work	Mid-Term Examination activities	25 (16.6%)
	Lab Exam		20(13.3%)
	Oral exam.		10(6.66%)
	Final-Term Examination		95(63.3%)

8- Books and References	
A- Notes:	-
B- Essential Books (Text Books):	▪ Physics For Scientists And Engineers 9E By Serway And Jewett (2014)
C- Recommended Books:	Raymond A. Serway , John W. Jewett, Physics for Scientists and Engineers, 7 th Ed., Brooks /Cole, CA, 2008 ▪ Physics for Scientists and Engineers with Modern Physics, Sawnders Collodge Publishing.
D- Periodicals, Web sites, ... etc	In ppt files

- **Course Coordinator: Prof. Dr. Nabila Hassan and : Dr. Troob Abdenaby**

- Head of Department: Dr. Amira Edress Signature:.....

Date: 12-10-2016

Course Content Intended Learning Outcomes Matrix

Course Title: Physics (1)

Course Code: GEN 125

Course Content	Week	Knowledge & Understanding							Intellectual Skills						Professional & Practical Skills			General & Transferable Skills		
		a1	a2	a3	a4	a5			a6	b1	b2	b3	b4		b5	c1	c2	c3	d1	d2
- Measurements - Over view on the static electricity, electric and magnetic fields.	1	x	x					x	x				x			x				
- Vectors - Electric Current, Resistance	2	x	x					x	x				x			x				
- Motion in one dimension, vectors,	3		x	x				x	x				x			x				
- motion in two dimensions, laws of motion - Quiz 1 - Ohm's Law . energy and rat of power	4		x	x					x	x				x			x			
- Applications - Electromotive Force & combination of the resistance	5		x	x						x	x	x		x			x			
Circular motion and its applications - Quiz 2- and direct current	6		x	x						x	x	x		x			x			
Work and energy RC Circuits & Electrical Meters	7			x	x					x	x	x		x	x		x			
Mid-term exam	8	x	x	x	x			x	x	x	x	x	x	x	x					
- Potential energy and conservation of energy - RC Circuits & Electrical Meters	9				x	x	x				x	x	x		x	x				
- Linear momentum - Quiz 3 & AC circuits	10				x	x	x						x	x	x	x		x		
- Collision - The RLC Series Circuit and vector diagram	11				x	x	x			x	x	x	x	x	x	x	x	x		
- rotation of a rigid body - Power in an AC Circuit & Resonance in a Series RLC Circuit	12				x	x	x			x	x	x	x	x	x	x	x	x		
- rolling motion, law of gravity - The Transformer and Power Transmission - Rectifiers and Filters	13				x	x	x			x	x	x	x	x	x	x	x	x		
Quiz 4 - Revision- staring the oral Exam	14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

Course coordinator: Prof. Nabila Hassan & Dr. Troob Abdelnabi

Head of Department: Amira edrees

Date: