



University: *Fayoum University*
 Faculty: *Computers and Information*
 Department: *Basic science*

Course Specification

1- Basic Information		
Code: GEN 126	Course Title: Physics (2)	Year/Level: First year – Second term
Programme: B.Sc degree in Computer Science	Number of units:	Lecture: 3 hrs/ week Tutorial: 2 hrs/ week Practical: 2 hrs/ week

2- Aims of Course:	<ol style="list-style-type: none"> 1. The graduates have to know the nature of vibration wave motions with emphasis on their mathematical descriptions and super positions. 2. The graduates have to know how light interfere, diffract and polarized together with applications of these phenomena. 3. The graduates have to know the nature of vibration and wave motions with emphasis on their mathematical description and superposition. 4. The graduates have to develop a clear understanding of the basic concepts of modern physics. 5. Developing the graduate's skills and creative thought needed to meet new trends in science. 6. Supplying graduates with basic attacks and strategies for solving problems.
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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> <ol style="list-style-type: none"> a1) Concept of light interference and phase change due to its reflections. a2) Experiments that display interference phenomenon. a3) Concept of light diffraction, and of light polarization. a4) Concept of oscillation motion and wave motion. a5) Understand the most fundamental knowledge and laws to

	describe the traveling waves. a6) Identify the principal of superposition with different frequencies and deduce the modulation waves. a7) Strategies for solving problems related to the previous 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) To understand the most fundamental knowledge and laws to describe optics and waves.</p> <p>b2) Determined and apply the principal of superposition with different ways.</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 and information from libraries and summarize it in suitable forms.</p> <p>c3) The student would be able to apply some experiments related to the 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>Through the following:</p> <p>d1) Graduate should be able to access data and information from the Internet related to the course subjects.</p> <p>d2) Graduate should develop self professional, scientific, and personal attitude towards continuous education.</p> <p>d3) Graduate should be able to cooperate in teams</p>
4-Course Content:	<ol style="list-style-type: none"> 1. Optics: Superposition of waves 2. Optics: interference 3. Optics: diffraction and polarization 4. Waves: Oscillatory motion. 5. Wave motion

	6. Sound waves. 7. Super position and standing waves
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5- Teaching and Learning Methods:	1. Lectures 2. Tutorials 3. E- learning 4. Class discussions 5. Internet searches
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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 8 Practical examination: Week 13 Oral Examination: Week 14 Final Examination: Week 15
C- Weighting of assessments:	Assignments and Quizzes: 0% Mid-Term Examination: 16% Oral Examination: 8% Practical Examination : 16% Final-term Examination: 60%

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:	<ul style="list-style-type: none"> ▪ Physics for Scientists and Engineers, P. M. Fishban, S.G. Gasiorowioz and S.T.Thorston, Prentice- Hall Macmillan. ▪ Physics for Scientists and Engineers with Modern Physics, Sawnders Colledge Publishing.(2014)
D- Periodicals, Web sites, ... etc	-

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

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

3. Date: 12-10-2016

Course Content Intended Learning Outcomes Matrix

Course Title: Physics (2)

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Course Content	Week	Knowledge & Understanding							Intellectual Skills		Professional & Practical Skills			General & Transferable Skills		
		a1	a2	a3	a4	a5	a6	a7	b1	b2	c1	c2	c3	d1	d2	d3
The nature of light, oscillatory motion	1			x				x	x			x	x		x	x
geometric optics mathematical presentation of Osc. motion.	2	x	x					x	x			x	x		x	x
Interference SHM and applications	3			x				x	x		x	x	x	x	x	x
diffraction polarization Wave Motion	4				x			x	x		x	x	x	x	x	x
Superposition in optics Wave motion in string	5				x		x	x	x		x	x	x	x	x	x
Sound wave in string	6					x	x	x	x		x	x	x	x	x	x
Midterm exam	7	x	x	x	x	x	x	x	x		x	x	x			
Doppler Effect	8							x	x	x	x	x	x	x	x	x
Super position in one dimension	9							x	x	x	x	x	x	x	x	x
standing waves in physics	10							x	x	x	x	x	x	x	x	x
Superposition of waves	11							x	x	x	x	x	x	x	x	x
Introduction to modern physics and applications	12							x	x	x	x	x	x	x	x	x
resonance	13							x	x	x	x	x	x	x	x	x
Oral exam.	14	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: