Course Syllabus of General Physics

Faculty: Medicine and Health Sciences
Department: Health Sciences
Program: **Bachelor in** Radiologic Technology & Medical Imaging

I. General information about the course instructor :							
Name	**Dr. Abdullah Taher**	**Office Hours(2 Hours Weekly)**					
Location & phone number	**UST- 715989708**	**Sat**	**Sun**	**Mon**	**Tue**	**Wed**	**Thu**
Email	**Ataher8383@yahoo.com**				2		

II. General information about the course:						
1.	**Course Title :**	**General Physics**				
2.	**Course Code and Number :**	**BMI111**				
3.	**Credit Hours:**	**Theoretical**	**Seminar/Tutorial**	**Practical**	**Training**	**Total**
		2		**1**		**3**
4.	**Study Level and Semester:**	**1st level/ 1st semester**				
5.	**Pre-requisites :**	None				
6.	**Co-requisites** :	None				
7.	**Program in which the course is offered:**	**Bachelor in Radiologic Technology & Medical Imaging**				
8.	**Teaching Language:**	**English**				
9.	**Instruction location:**	**University of Science and Technology, Sana'a, Yemen**				

III. Course Description

This course provides student with the principles of physics which related to biophysics and medical physics concepts as well as their applications. The course topic will cover and focus on: Physical measurements and units, Physical properties of matter, energy, radiation types and sources, electromagnetic radiation properties, ionizing and non-ionizing radiation, light and optics Principles, laser properties and its applications, and physical properties of human body. The course carried out using: lectures, self-learning, seminar, applied research, discussion, Brainstorming session, Miniature education, Solve problems, and other activities to teach this course. Evaluation via periodic oral presentation, written assignments, practical reports, and final written exam.

عميد الكلية:
د. عبدالله المخلافي

رئيس القسم:
د. عبدالحبيب القباطي

المراجع
د. محمد الشميري

APPROVED

الموصف :
د. عبدالله طاهر

IV. Course Aims: This course aims to:-

1. Demonstrate the basic knowledge of physics related to medical physics concepts.
2. Learn to integrate various physical concepts related to human body.
3. Investigate the effect of physical parameters on the medical radiation.
4. Extend students' knowledge with physics applications in medicine.

V. Course Intended Learning Outcomes (CILOs): At the end of this course study the students will able to:-

1. Describe the physical properties of matter and radiation.
2. Develop understanding of physical aspects in medical radiation production.
3. Interpret the relations between the physical factors which affect on the work of radiation instrumentations and control its behaviour using physical laws and mathematical equations.
4. Apply the theories solutions in radiation dosimetry, and radiation safety.
5. Implement the physical principle to improve the understanding of matter and optics properties.
6. Prepare the literature review for reports using library and internet.
7. Manage of self -time and tasks regarding doing assignments about the course materials in a team.

VI. Course Contents

Theoretical Aspect:

No.	Course Units	Sub-topics	Week due	Contact Hours
1	**Ch. 1 Physical Measurements**	Units and Dimensions	1st	2
2	**Ch. 2 Force and motion**	Displacement, velocity, Laws of constant acceleration motion on a straight line, and Newton's laws.	2nd , 3rd	4
3	**Ch. 3 Work and energy**	Work, Energy, Types of energy, conservation energy, relation between matter and energy.	4th , 5th	4
4	**Ch. 4 Material properties**	Matter states, Density, Hock's law, Young's modulus, share modulus, and types of pressure.	6th, 7th	4
5	**Midterm exam**		8th	2
6	**Ch. 5 Electromagnetic radiation**	Wave properties, types of radiation, ionization, and medical radiation.	9th,10th	4
7	**Ch. 6 Light and Optics**	Light properties , Total reflection application, Laser , and laser applications.	11th,12th	4
8	**Ch. 7 Physical properties of human body**	Viscosity, gas transport in respiratory system, work of the heart, Impulses in Nerve and Muscle Cells.	13th, 14th,15th	6

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9	Final exam		16th	2
Total number of weeks and hours			16	32

Second: Practical/Tutorial/Clinical Aspects			
No.	**Practical/Tutorial/Clinical topics**	**Week due**	**Contact Hours**
1	Accurate measurements (Practical report).	2nd	2
2	Practical report about gravity	3rd	2
3	Measurement of specific Heat for some metals.	4th	2
4	Measurement of sound velocity.	5th	2
5	Measurement of light refraction for water.	6th	2
6	Practical report about light total reflection applications.	7th	2
7	Measurement of air pressure.	8th	2
8	Measurement of fluid viscosity.	9th	2
9	Final practical exam	10th	2
Total number of weeks and hours		9	18

المراجع :
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