

## Faculty of Engineering & Technology

### Physics 1

**Information :**

**Course Code :** PHY 131

**Level :** Undergraduate

**Course Hours :** 4.00- Hours

**Department :** Faculty of Engineering & Technology

**Instructor Information :**

Title	Name	Office hours
Lecturer	Mohamed Ehab Ahmed Fakhr Eldin Bakr	17
Lecturer	AHMED MOHAMED ALI ASHOUR AHMED	2
Lecturer	AHMED MOHAMED ALI ASHOUR AHMED	2
Lecturer	AHMED MOHAMED ALI ASHOUR AHMED	2
Assistant Lecturer	Mohamed Essam Abd El Aziz Abd El Aal	8
Assistant Lecturer	Mohamed Essam Abd El Aziz Abd El Aal	8
Assistant Lecturer	SHEROUK SOBHI ABDELSALAM FOUUDA	22
Assistant Lecturer	Mohamed Essam Abd El Aziz Abd El Aal	8
Assistant Lecturer	Noha Mohamed Abdelaziz Asker	2
Assistant Lecturer	Mahmoud Ahmed Nasr Kamal Abdo Mostafa	16
Assistant Lecturer	Nada El Said Abdallah Hassan Salem	30
Assistant Lecturer	YOUSSEF ELSAYED ABDELHAFEZ KANDIEL	
Assistant Lecturer	Nada El Said Abdallah Hassan Salem	30
Assistant Lecturer	Mahmoud Ahmed Nasr Kamal Abdo Mostafa	16
Assistant Lecturer	Lamia Hamdy Ahmed Kamal Shehab Eldin	6
Teaching Assistant	Younna Elsayed Abd Elalem Mohamed Sayed Ahmed	
Teaching Assistant	AHMED NAGUIB ABDELAZIZ ABDELAZIZ GHONIM	
Teaching Assistant	Taha Abdelhamid Abdelmaqsoud Abdelhamid Yehia	
Teaching Assistant	Ahmed Abdelfattah Abdelaziz Abdelfattah	
Teaching Assistant	Shahd Muhammed Anwer Muhammed Hamed	
Teaching Assistant	Ahmed Mahmoud Mohamed Mahmoud Hegazy	
Teaching Assistant	Romisaa Gamal Mahmoud Abdelrhman	15
Teaching Assistant	Mariam Mohamed Kamal Abdelaziz	
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	
Teaching Assistant	Mohamed Osama Mohamed Abbas	
Teaching Assistant	Omar Salah Abdelmoniem Ghareeb	4

**Area Of Study :**

Properties of Matter: Units in the SI system of units and conversion of units, Dimensions, Dimension analysis, Elastic Properties of Solids, Stress, Strain, Young's Modulus Shear modulus, Properties of Fluids, Pressure inside a fluid, Bulk Modulus, Buoyant Force, Hydrodynamics, Continuity equation for a laminar Flow, Bernoulli's equation, Pilot tube, Venturi meter, Torricelli's Law, Viscosity, Poiseuille's law, viscous drag and Stoke's law.  
Heat and thermodynamics: Zeroth law of thermodynamics, Quantity of heat, First law of thermodynamics, Heat transfer mechanisms, Entropy and the second law of thermodynamics, Some one way processes, Reversible and irreversible processes, Carnot cycle and Carnot engine, The absolute temperature scale, Principles of heat engines and refrigeration.

**Description :**

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**Course outcomes :**

**a.Knowledge and Understanding: :**

1 -	Review SI-system of units, dimensions and dimensional analysis to construct physical laws.
2 -	Describe the stress, strain and different elastic moduli for elastic matter.
3 -	Define pressure inside fluid, buoyancy forces for floating and emerged solid object in fluids.
4 -	Describe the continuity and Bernoulli's equations for a laminar flow.
5 -	Recognize fundamentals of heat and thermodynamics.

**b.Intellectual Skills: :**

1 -	Think in creative way to solve physical engineering problems related to fluids.
2 -	Evaluate different parameters of elasticity applied on wide range of disciplines.
3 -	Apply heat and thermodynamic principles to determine related parameters.

**c.Professional and Practical Skills: :**

1 -	Perform experiments on different physical phenomena including properties of matter, heat and thermodynamics.
2 -	Measure different physical parameters related to studied topics.

**d.General and Transferable Skills: :**

1 -	Work effectively in a team.
2 -	Communicate effectively.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Units and Dimension analysis	7	1	2
Elastic properties of Matter	14	2	4
Hydrostatics and Buoyancy Force	12	2	3
Hydrodynamics and viscosity	16	2	5
Zeroth Law of Thermodynamics	5	1	1
Absolute temperature scale	9	1	3
First Law of Thermodynamics	9	1	3
Heat transfer Mechanics	18	2	6
Entropy and 2nd Law of thermodynamics	5	1	1
Reversible, Irreversible process, Carnot Cycle and Engine	5	1	1
Principles of heat engines and refrigeration	5	1	1

**Teaching And Learning Methodologies :**

Interactive Lecturing

Discussion

Problem solving

Experimental learning

Cooperative learning

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Assignment	5.00		
Final Exam	40.00		
Lab.	10.00		
Mid- Exam 1I	20.00		
Mid- Exam I	10.00		
Participation	10.00		

**Course Notes :**

**Recommended books :**

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**Periodicals :**

**Web Sites :**