Sir Syed University of Engineering & Technology

Department of Software Engineering

COURSE INFORMATION SHEET

Course Code	:	MS-110 (Sec A)
Course Title	:	APPLIED PHYSICS
Credit Hours	:	3+1
Prerequisites	:	NIL
Instructor Name	:	**Dr.Akhlaque Ahmed**
Email & Contact Info.	:	fizzaa@ssuet.edu.pk Ext: 224

COURSE OUTLINE :

The objective of Applied Physics course is to know the basic laws, definitions, concepts, theories of Physics in engineering fields. The course taught to covered several branches of Physics in detail such as Electrostatic, Electromagnetism, Electronics, Heat and Thermodynamics, Waves and Oscillation, Light, Elasticity and Hydraulics. Furthermore this course will give theory and practical understanding of the above mentioned branches

COURSE LEARNING OUTCOMES (CLOs):

Upon completion of this course, students will be able to:

CLO #	CLO Statement	Bloom's Taxonomy
CLO 1	**Describe** the fundamental of physics laws.	C1 (Remembering)
CLO 2	**Explain** different concepts of Physics. Also discuss their mathematical formulas..	C2 (Understanding)
CLO 3	**Apply** the derived formula for calculating numerical values.	C3 (Applying)

COURSE ASSESSMENT METHOD:

Assessment Tools	Percentage (%)
Quizzes/Assignments	20%
Midterm Exam	30%
Final Exam	50%
Total	**100 Marks**

TEXT BOOK:

- Physics By Resnick, Halliday And Krane: Volume I and II, 4th Edition, Published by John Wiley & Sons. Inc. 1992

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REFERENCE BOOKS:

- Physics for Scientist and Engineers with Modern Physics by A. Rayond Serway
- University Physics with Modern Physics by Hugh Young and Roger Freedman

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COURSE PLAN

Week #	Date	Course plan	Recommended Reading	Assessment Tools
Week 1	18-2-2021	Electric charge, Coulomb's Laws, Electric field, Infinite line of charge,	Chp27. Pg 594,595,606-607	
	22-2-2021	Ring of charge, Gauss's Law and its applications. Electric potential, Potential difference,	Chp28,29,30 Pg 634,655-657	
Week 2	25-2-2021	Capacitor, Dielectric, Energy storage, Electric current, Ohm's Law, Faraday's Law,	Chp 31,32 Pg705,706	
	1-3-2021	Lenz's Law, Ampere's Law & its applications. Numerical	Chp 35 785,770	
Week 3	4-3-2021	RC circuit with D.C field, graphs	Chp 33 824-826	Assignment # 1
	8-3-2021	LR circuit with D.C field, graphical respresntation of circuit behaviour. Numerical		
Week 4	11-3-2021	LC Circuit with an A.C field,	pg 810,809	
	15-3-2021	Behavior of LRC separately with AC field. Numerical, graphs	Pg 813-814	Quiz # 1
Week 5	18-3-2021	Magnetic properties of materials, Ferro, Para & Diamagnetism.	Chp 37 Pg 809-810	
	22-3-2021	Ferromagnetism, hysteresis curve ,numericals	Pg 13-814	
Week 6	25-3-2021	Conduction of electron in semiconducting material, Free electron & hole.	Chp 53 Pg707	
	29-3-2021	N-type, P-type Semi Conductors, energy gap (Band), P-N Junction, Biasing, Characteristic curve of diode.	Pg 596,706-708	
Week 7	1-4-2021	Bipolar Junction Transistor (BJT) & its characteristics,	Pg 1123-1124	
		Junction Field effect Transistor (JFET)& its characteristics, Numerical		

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Week 8	MID TERM EXAMINATION			
Week 9	12-4-2021	Waves and oscillations, SHM oscillators	Chp15 316	
	15-4-2021	Derivations, Numerical		Assignment#2
Week 10	19-4-2021	Theories of light, Interference & Diffraction, Young double slit experiment,	Chp 45 Pg 947,957	
	22-4-2021	Fraunhafer & Fresnel Diffraction, Single slit diffraction Numerical	Chp 46 Pg 970-967	
Week 11	26-4-2021	Laser its construction ,working & uses,	Chp 48 Pg 1003,1007	Quiz # 2
	29-4-2021	Polarization and double refraction	Chp 52 Pg 1095,1097,1104	Assignment # 3
Week 12	3-5-2021	Viscosity, Poiseuille's Formula, Stokes law, Fluids, Bernoulli's equation.	Chp 18 Pg 398,-405	
	6-5-2021	Surface Tension formula(Capillary rise method), Numerical		
Week 13	10-5-2021	Elasticity, stress and starin curve,Moduli of Elasticity, Torsion.	Chp15 326-325	
	13-5-2021	Relation b/w Elastic constants, Numerical		
Week 14	17-5-2021	Heat, Temperature, Theories of heat, Laws of Thermodynamics	Chp 25 Pg 547,555,558	Quiz # 3
	20-5-2021	, Carnot heat engine. Entropy, Thermodynamic function, Numerical	Chp 26 Pg 571,575,576	
Week 15	24-5-2021	Nuclear radiation, Radioactivity, Radioactive decay, Half life, Mean life time, Characteristics of α, β, γ rays and α, β, γ decay,	Chp 55 Pg 1167,1169,1175	
	27-5-2021	Fission & Fusion nuclear reaction, G.M counter, Scintillation Counter,		
FINAL EXAMINATION				

Instructor Name & Signature (With Date): Dr.Akhlaque Ahmed

Chairman, Department of ----------: _____