



SILVER OAK UNIVERSITY

Engineering and Technology (B.Tech.)
Department of CE/ IT/ ME/ Civil/ Aero/ EC/ EE
Subject Name: Physics
Semester: 1st Year

Prerequisite:

Objective:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
3	0	2	4	40	50	60	--	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	Dielectric Definitions: Electric field intensity, Electric flux, Dielectric parameters Types of dielectric materials: Solid, Liquid and Gaseous Classification of electrical insulating materials Claussius – Mosotti equation, Uses of Dielectric Materials Capacitors: Single and Multilayer, Polymeric Film, Electrolytic; Power and Distribution transformers, other applications.	6	15
2	Magnetic Materials Definitions : Magnetic moment, Magnetic dipole, Magnetic Filed strength, Magnetic flux density, Intensity of magnetization, Magnetic dipole moment, Magnetic Field intensity, Magnetic permeability, magnetic susceptibility, Bohr magnetron Classification of Magnetic Materials on the basis of magnetic moment Soft and Hard Magnetic Materials Anti-ferromagnetic materials	6	15

	Ferrites		
3	Acoustics and Ultrasonics Acoustic Wave motion, transverse and longitudinal vibration Sound absorption and reverberation Sabine's formula and usage (excluding derivation) Acoustic of building Ultrasonics Ultrasonic waves Properties of ultrasound Production of ultrasonic waves : Piezoelectric and magnetostriction method Detection of ultrasound Application of ultrasound	10	25
4	Superconductivity and Semiconductor Superconductivity Superconductivity General Properties of superconductors Types of Superconductors High Temperature superconductors Applications: Magnets, Josephson effect, SQUID, Maglev, other Semiconductor Free electron theory, E-k diagram, Direct and indirect bandgaps, Intrinsic and extrinsic semiconductors PN Junction diode, Transistor.	8	15
5	Lasers and Introduction to Fiber Optics LASER Introduction Characteristics of laser radiation Spontaneous and stimulated emission Working of LASER with basic idea about Population Inversion, Pumping mechanism, Optical Resonators Nd:YAG LASER Applications of LASER: Medical, Industrial, Communication and other FIBER OPTICS Introduction of Optical Fiber	7	20

	Advantages of Optical Fiber Total Internal Reflection Numerical Aperture and Acceptance angle Modes of Propagation Types of Optical Fiber Applications of optical fiber		
6	Nanophysics Nanoscale Surface to volume ratio Surface effects on Nanomaterials	5	10

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	The students will have the ability to understand the core concept of physics and its technical applications.	
CO-2	The students will have skill of problem solving by using appropriate mathematical techniques and basic concepts.	
CO-3	The students have the ability to	

Teaching & Learning Methodology:-

List of Experiments/Tutorials:

Major Equipment:

Books Recommended:-

List of Open Source Software/learning website: