

4.2.1.2.Science Electives**EBA1106 Advanced Physics****COURSE INFORMATION**

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laboratory	
EBA1110	1	2	2	0	2	3

COURSE AIM

- Understand the essential background of wave motion.
- Make several experiments to absorb the nature of light.
- Write technical reports and results.
- Realize the concepts of relativity

COURSE WEEKLY CONTENTS

1	Heat, Temperature and Temperature scales
2	Zeroth law of thermodynamics- Thermal Equilibrium – Thermal expansion (linear coefficient, volume coefficient)
3	Specific heat capacity, Specific latent heat, Q-T diagram
4	First law of thermodynamics, thermodynamics processes, P-v diagram
5	Classification of waves, longitudinal, transverse, Electromagnetic spectrum, continuous spectrum (applications and properties)
6	Properties of light waves (reflection, refraction (Snell's law), diffraction, dispersion, interference (Young double slits expt.)
7	Young double slits, expt.
8	Early Atomic structure models, Hydrogen Atom, Hydrogen atomic spectra, properties of Hydrogen atom spectra
9	quantum view of light, Definition of quanta, photo-electric Effect, Plank's constant.
10	Work function, kinetic energy of transmitted electrons from the metal surface and their velocities.
11	Black Body Radiation, Infra-red types
12	Infra-red-types
13	Modern physics of X-ray, generation of X-ray, properties of X-ray, Applications of X-ray in real life (medical, industrial,.....)
14	Gamma-rays (generation and application,...) in comparison to X-rays
15	Laser, generation of laser beam, Types of Lasers, properties of Laser light, Applications of lasers. Plasma matter, generation and application in modern life
15	General Revision

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	←		30	MARKS		→	30
8 to 12	←		20	MARKS		→	20
1 to 15	←		10	MARKS		→	10
16 or 17	40	Final					40

REFERENCES

Textbook	Serway and Jewett, Physics for Engineers and Scientists, Thomson Brooks/Cole.
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