

1.1 Semester 1

BA113 Physics I

COURSE INFORMATION

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laboratory	
None	1	1	2	2	1	3

COURSE AIM

To introduce the basic physical concepts of electricity, magnetism and optics, To introduce the applications of these physical concepts to engineering, To expand upon and reinforce these concepts in the laboratory.

COURSE WEEKLY CONTENTS

- 1 Revision on vectors, Electrostatics
- 2 Coulomb's law, Electric field
- 3 Electric flux, Gauss's law
- 4 Applications on Gauss's law: Infinite plane of charge, spherical shell of charge, infinite line of charge
- 5 Electrostatic potential and energy
- 6 Capacitors: Parallel plate capacitor, Dielectric effects
- 7 Midterm Exam
- 8 Electric current and DC circuits, Kirchhoff's rules
- 9 Magnetism: Force on a charge in a magnetic field
- 10 Magnetism: Motion of a charge in a magnetic field, Force on a current-carrying conductor in a magnetic field
- 11 Magnetism: Biot-Savart law, Magnetic fields of a current segment, arc and loop.
- 12 12th Week Assessment
- 13 Electromagnetic induction: Faraday's law, Lenz's law
- 14 Electromagnetic induction: Applications
- 15 Revision

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	10	MARKS		→	30
To be freely distributed among possible assessments							
8 to 12	←		20	MARKS		→	20
13 to 15	←		10	MARKS		→	10
16 or 17	40 Final						40
Total	Exams	Assign.	Quizzes	Reports	Present.	Lab.	100

REFERENCES

- Textbook** Serway and Jewett, Physics for Scientists and Engineers 9th edition (Chapter 23 - 31)
- Other** Randall D.Knight, "Physics For Scientists and Engineers A strategic Approach with Modern Physics", Pearson, 2014.