

**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 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		→	
To be freely distributed among possible assessments							
8 to 12	←		20	MARKS		→	
13 to 15	←		10	MARKS		→	
16 or 17	40 Final						
<b>Total</b>	<b>70</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>100</b>

**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

