



## COURSE BRIEF

<b>COURSE TITLE</b>	<b>Electromagnetics</b>	<b>PRE-REQUISITES</b>	<b>Nil</b>
<b>COURSE CODE</b>	<b>EPHY105L</b>	<b>TOTAL CREDITS</b>	<b>3</b>
<b>COURSE TYPE</b>	<b>Lecture + Laboratory</b>	<b>L-T-P FORMAT</b>	<b>2-0-2</b>

### Detailed Syllabus

#### Module 1 (Contact hours: 3)

- Topic 1: Introduction to vector calculus and coordinate systems,

#### Module 2 (Contact hours: 10)

- Topic 1: Gauss's Law and its applications
- Topic 2: Electric field in matter
- Topic 3: Polarization and displacement vector, Electric Permittivity and dielectric constant
- For a two-credit theory course, the suggested number of modules is 2 to 4
- For a Four-credit theory course, the suggested number of modules is 3 to 6

#### Module 3 (Contact hours:10)

- Topic 1: Magnetic field due to moving charges, Biot-Savart law and its applications
- Topic 2: , magnetic field in matter; Dia, Para and Ferro magnetic materials;
- Topic 3: Electromagnetic induction,

#### Module 4 (Contact hours: 5)

- Topic 1: Displacement current,
- Topic 2: Maxwell's equation, Electromagnetic waves.

## TEXTBOOKS/LEARNING RESOURCES:

1. *Introduction to Electrodynamics*, David. J. Griffiths, 4<sup>th</sup> Edition, Prentice-Hall International, Eastern Economy Edition, 2012

## REFERENCE BOOKS/LEARNING RESOURCES:

1. *Fundamentals of Physics*, D. Halliday, R. Resnick, & J. Walker, John Wiley & Sons, 10<sup>th</sup> Edition
2. *Physics, Vol. 1 & 2*, Resnick, Halliday and Krane, 5<sup>th</sup> edition, Wiley Student Edition

## EVALUATION POLICY

### **Theory:**

- a) **Mid-term examination: 15 %**
- b) **End-of-term examination: 35 %**
- c) **Quiz: 30%**

### **Lab:**

- (a) **Lab Report: 10%**
- (b) **End Term Lab Exam: 10%**