Department: PHYSICS

1st YEAR: SEMESTER – II (UG/SHPHS/201/C-3) CORE-3

ELECTRICITY AND MAGNETISM (ELECTRICAL CIRCUITS & NETWORK THEOREMS)

Credit-4; Full Marks: 25

Subject Teacher: Mahitosh De

SYLLABUS UNITIZATION

Month	Week	Topics to be taught
March	2	Fundamentals of AC circuits; Average and RMS value of an AC.
March	3	Kirchoff's laws for AC circuits.
March	4	Complex representation of AC circuit quantities, Circuit containing pure resistance, pure inductance, pure capacitance.
April	1	AC circuit containing inductance and resistance in series.
April	2	AC circuit containing a resistance, inductance and capacitance in series.
April	3	Sharpness of resonance of a series LCR circuit.
April	4	Quality factor of a circuit and parallel resonance circuit.
May	1	Class Test
May	2	Ideal constant-voltage and constant-current sources.
May	3	Thevenin's theorem and application to DC circuits.
May	4	Norton's theorem and applications to DC circuits.
June	1	Superposition theorem and Reciprocity Theorem and Maximum power transfer theorem.
June	2	Class test.
June	3	Revision and problem solving exercise.
June	4	Revision and problem solving exercise.

References;

1. Electricity and Magnetism. J.H. Fewkes & Yarwood. Vol1, 1991 Oxford University Press
2. Electricity, Magnetism & Electromagnetic Theory, S. Mahajan and Choudhury, 2012 Tata Mc Graw.
3. Electricity and Magnetism with Electronics, K.K. Tewary