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Study Plan of Electromagnetic Theory for Pre-recorded Batches

Days	Enter Your Dates	(For NET-JRF, GATE, JEST, TIFR Aspirant and M.Sc Students)
		Topics: 3. Electromagnetic Theory
		Part-A Vector Analysis
Day 1		Lecture 1: Introduction and cartesian coordinate system (Mathematical Methods)
		Lecture 2: Spherical Polar and Cylindrical coordinate system (Mathematical Methods)
Day 2		Lecture 3: Transformation of vectors from one system to other (Mathematical Methods)
		Lecture 4: Gradient and its Applications (Mathematical Methods)
Day 3		Lecture 5: Divergence and curl (Mathematical Methods)
		Lecture 6: Introduction to line, surface & volume integrals (Mathematical Methods)
Day 4		Lecture 7: Fundamental Theorem of Divergence (Mathematical Methods)
		Lecture 8: Fundamental Theorem of curl (Mathematical Methods)
Day 5		Lecture 9: Miscellaneous Example on Fundamental Theorems (Mathematical Methods)
		Lecture 10: Green's Theorem (Mathematical Methods)
		Class Test 1: Vector Analysis (Mathematical Methods of Physics)
		Part - B (Electromagnetic Theory)
Day 6		Lecture 1: Coulomb's law and Superposition Principle Part-1(Electromagnetic Theory)
		Lecture 2: Coulomb's law and Superposition Principle Part-2(Electromagnetic Theory)
Day 7		Lecture 3: Gauss Law and its application part-1(Electromagnetic Theory)
		Lecture 4: Gauss Law and its application part-2(Electromagnetic Theory)
Day 8		Lecture 5: Electrostatic Potential (Electromagnetic Theory)
		Lecture 6: Laplace and Poission Equation and Electrostatic Energy (Electromagnetic Theory)
Day 9		Lecture 7: Properties of conductors (Electromagnetic Theory)
		Class Test 1: Coulomb's Law, Gauss Law, Electrostatic Potential, Poisson's & Laplace Equations, Electrostatic Energy and Properties of Conductor [EMT]
Day 10		Lecture 8: Electric Dipole (Electromagnetic Theory)
		Lecture 9: Dielectric Polarisation Part - 1 (Electromagnetic Theory)
Day 11		Lecture 10: Dielectric Polarisation Part - 2 (Electromagnetic Theory)
		Lecture 11: Electrostatic Boundary Conditions (Electromagnetic Theory)
Day 12		Lecture 12: Multipole Expansion (Electromagnetic Theory)
		Lecture 13: Image Problem (Electromagnetic Theory)
		Class Test 2: Electric Dipole, Polarisation, Electrostatic Boundary Conditions, Multipole Expansion and Image Problem (EMT)
Day 13		Lecture 14: Motion of charged Particles - Part - 1 (Electromagnetic Theory)
		Lecture 15: Motion of charged Particle - Part - 2 (Electromagnetic Theory)
Day 14		Lecture 16: Current and Magnetic Force (Electromagnetic Theory)
		Lecture 17: Biot-savart Law and Superposition Principle (Electromagnetic Theory)
Day 15		Lecture 18: Ampere's Law and its Applications (Electromagnetic Theory)
		Class Test 3: Motion of Charged Particles in Electric and Magnetic Fields, Magnetic Force Experienced by Current Elements, Biot Savart Law and Amperes Law (EMT)
Day 16		Lecture 19: Magnetic Vector Potential (Electromagnetic Theory)
		Lecture 20: Magnet Dipole (Electromagnetic Theory)
Day 17		Lecture 21: Magnetisation (Electromagnetic Theory)
		Lecture 22: Magnetostatic Boundary Conditions (Electromagnetic Theory)
		Class Test 4: Magnetic Vector Potential, Magnetic Dipole, Magnetisation,Magnetostatic Boundary Conditions (EMT)
Day 18		Lecture 23: Motional EMT Part - 1 (Electromagnetic Theory)
		Lecture 24: Motional EMT Part - 2 (Electromagnetic Theory)
Day 19		Lecture 25: Faraday's Law (Electromagnetic Theory)
		Lecture 26: Inductance (Electromagnetic Theory)

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Day 20		Lecture 27: Maxwell Equations (Electromagnetic Theory)
		Class Test 5: Elecromagnetic Induction, Maxwell Equations (EMT)
Day 21		Lecture 28: E.M. Wave in Free Space and Dielectric Part - 1 (Electromagnetic Theory)
		Lecture 29: E.M. Wave in Free Space and Dielectric Part - 2 (Electromagnetic Theory)
Day 22		Lecture 30: E.M. Wave inside conductor Part - 1 (Electromagnetic Theory)
		Lecture 31: E.M. Wave inside conductor Part -2 (Electromagnetic Theory)
Day 23		Lecture 32: Reflection and Transmission Part -1 (Electromagnetic Theory)
		Lecture 33: Reflection and Transmission Part - 2 (Electromagnetic Theory)
Day 24		Lecture 34: Reflection and Transmission Part - 3 (Electromagnetic Theory)
		Class Test 6: E.M. Wave in Free Space, Dielectrics, Conductors, Reflection and Transmission (EMT)
Day 25	Advance part	Lecture 35: Potential Formulation (Electromagnetic Theory)
	New Lecture to be Add	Lecture 36: Gauge Transformation (Electromagnetic Theory)
Day 26		Lecture 37: Retarded Potentials (Electromagnetic Theory)
		Lecture 38: Radiation Part-1 (Electromagnetic Theory)
Day 27		Lecture 39: Radiation Part-2 (Electromagnetic Theory)
		Lecture 40: Rectangular Waveguide Part-1 (Electromagnetic Theory)
Day 28		Lecture 41: Rectangular Waveguide Part-2 (Electromagnetic Theory)
		Class Test 7: Rectangular Wave Guide, Potential Formulation for Time Varying Fields, and Radiation from Moving Charges (EMT)
		Part- C Optics- Electromagnetic Theory
Day 29		Lecture-42 Superposition Principle and coherence Sources-Interference(Optics-Electromagnetic Theory)
		Lecture 43: Young Double Slit Experiment Part-1 (Electromagnetic Theory)
Day 30		Lecture 44: Young Double Slit Experiment Part-2 (Electromagnetic Theory)
		Lecture 45: Young Double Slit Experiment Part-3 (Electromagnetic Theory)
Day 31		Lecture 46: Single-Slit Diffraction (Electromagnetic Theory)
		Lecture 47: Double-Slit Diffraction (Electromagnetic Theory)
Day 32		Lecture-48 Polarisation by Reflection and Malus Law (Optics-Electromagnetic Theory)
		Lecture-49 Problems on Malus Law (Optics-Electromagnetic Theory)
Day 33		Lecture-50 Polarisation by Double Refraction (Optics-Electromagnetic Theory)
		Lecture-51 Production of Elliptical and Circular Polarised Light (Optics-Electromagnetic Theory)
Day 34		Lecture-52 Quarter-Wave and Half-Wave Plate Polarisation (End of Electromagnetic Theory)
		Class Test 8: to be added