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Study Plan of Electromagnetic Theory for Pre-recorded Batches

(For NET-JRF, GATE, JEST, TIFR Aspirant and M.Sc Students)

Days	Enter Your Dates	Topics
		PART-A: Vector Analysis
Day: 1		Lecture 1: Introduction and Cartesion Coordinate System
		Lecture 2: Spherical Polar Coordinate System
Day: 2		Lecture 3: Cylindrical Coordinates System and Tranformation of Vector
		Lecture 4: Gradient and Divergence
Day: 3		Lecture 5: Curl and Second Derivative
		Lecture 6: Line, Surface and Volume Integral, Gradient Theorem
		Solve Assignment No 1: Lect-1 to Lect-5
Day: 4		Lecture 7: Gauss Divergence Theorem
		Lecture 8: Stoke'ss Theorem
Day: 5		Lecture 9: Miscellaneous Example Part-1
		Lecture 10: Miscellaneous Example Part-2
		Lecture 11: Greens Theorem
Day: 6		**Solve Assignment No 2: Lect-6 to Lect-11**
Day: 7		**Class Test 1: Vector Analysis (Lect-1 to Lect-11)**
		PART-B: Electromagnetic Theory
Day: 8		Lecture: Syllabus Discussion of Electromgantic Theory
		Lecture 1: Coulomb's Law Part-1
		Lecture 2: Coulomb's Law Part-2
Day: 9		Lecture 3: Gauss Law Part-1
		Lecture 4: Gauss Law Part-2
Day: 10		Lecture 5: Gauss Law Part-3
		Lecture 6: Electrostatic Potential Part-1
Day: 11		Lecture 7: Electrostatic Potential Part-2
		Lecture 8: Electrostatic Energy
		Solve Assignment No. 1: Lect-1 to Lect-7
Day: 12		Lecture 9: Properties of Conductor
		Lecture 10: Electric Dipole
Day: 13		**Solve Assignment No. 2: Lect-8 to Lect-10**
Day: 14		**Class Test 1: Lect-1 to Lect-9**
Day: 15		Lecture 11: Polarisation Part-1
		Lecture 12: Polarisation Part-2
Day: 16		Lecture 13: Electrostatic Boundary Conditions
		Lecture 14: Multipole Exapansion Part-1
		Solve Assignment No. 3: Lect-11 to Lect-13
Day: 17		Lecture 15: Multipole Exapansion Part-2
		Lecture 16: Image Problem Part-1
Day: 18		Lecture 17: Image Problem Part-2
		Lecture 18: Motion of Charged Particles Part-1
		Solve Assignment No. 4: Lect-14 to Lect-17

Day: 19		Lecture 19: Motion of Charged Particles Part-2
		Lecture 20: Motion of Charged Particles Part-3
Day: 20		**Solve Assignment No. 5: Lect-18 to Lect-20**
Day: 21		**Class Test 2: Lect-10 to Lect-17**
Day: 22		Lecture 21: Magnetic Force on Current Element in External Field
		Lecture 22: Biot Savart Law Part-1
Day: 23		Lecture 23: Biot Savart Law Part-2
		Lecture 24: Amperes Law Part-1
		Lecture 25: Amperes Law Part-2
		Solve Assignment No. 6: Lect-21 to Lect-25
Day: 24		Lecture 26: Magnetic Vector Potential
		Lecture 27: Magnetic Dipole Part-1
Day: 25		Lecture 28: Magnetic Dipole Part-2
		Lecture 29: Magnetisation Part-1
		Solve Assignment No. 7: Lect-26 to Lect-28
Day: 26		Lecture 30: Magnetisation Part-2
		Lecture 31: Magnetostatic Boundary Conditions
		Solve Assignmen No. 8: Lect-29 to Lect-31
Day: 27		**Class Test 3: Lect-18 to Lect-25**
Day: 28		**Class Test 4: Lect-26 to Lect-31**
Day: 29		Lecture 32: Faradays Law Part-1
		Lecture 33: Faradays Law Part-2
Day: 30		Lecture 34: Mutual and Self Inductance
		Lecture 35: Maxwell Equations
		Solve Assignment No. 9: Lect-32 to Lect-35
Day: 31		Lecture 36: EM Wave in Free Space
		Lecture 37: EM Wave in Free Space & Dielectric
Day: 32		Lecture 38: EM Wave Inside Conductor
		Lecture 39: Reflection and Transmission (Normal Incidence)
		Solve Assignment No. 10: Lect-36 to Lect-38
Day: 33		Lecture 40: Reflection and Transmission (Oblique Incidence) Part-1
		Lecture 41: Reflection and Transmission (Oblique Incidence) Part-2
		Solve Assignment No. 11: Lect-39 to Lect-41
Day: 34		**Class Test 5: Lect-32 to Lect-35**
Day: 35		**Class Test 6: Lect-36 to Lect-41**
Day: 36		Lecture 42: Rectangular Wave Guides Part-1
		Lecture 43: Rectangular Wave Guides Part-2
		Solve Assignment No. 12: Lect-42 to Lect-43
Day: 37		Lecture 44: Potential Formulation for Time Varying Fields
		Lecture 45: Retarded Potential
Day: 38		Lecture 46: Radiation from Moving Charges
		Lecture 47: Superposition Principle and coherence Sources-Interference (Optics-Electromagnetic Theory)
		Solve Assignment No. 13: Lect-44 to Lect-46
Day: 39		Lecture 48: Young Double Slit Experiment Part-1 (Optics-Electromagnetic Theory)
		Lecture 49: Young Double Slit Experiment Part-2 (Optics-Electromagnetic Theory)
Day: 40		Lecture 50: Young Double Slit Experiment Part-3 (Optics-Electromagnetic Theory)
		Lecture 51: Single Slit Diffraction (Optics-Electromagnetic Theory)
Day: 41		**Revision**
Day: 42		**Class Test 7: Lect-42 to Lect-46**
Day: 43		Lecture 52: Double Slit Diffraction (Optics-Electromagnetic Theory)
		Lecture 53: Polarisation by Reflection and Malus Law (Optics-Electromagnetic Theory)
Day: 44		Lecture 54: Problems on Malus Law (Optics-Electromagnetic Theory)
		Lecture 55: Polarisation by Double Refraction (Optics-Electromagnetic Theory)
Day: 45		Lecture 56: Production of Elliptical and Circular Polarised Light (Optics-Electromagnetic Theory)
		Lecture 57: Quarter-Wave and Half-Wave Plate Polarisation (Optics-Electromagnetic Theory)
		Solve Assignment No. 14: Lect-47 to Lect-57 (Optics-Electromagnetic Theory)

PART-C: Relativistic Electrodynamics (Special Theory of Relativity)		
Day: 46		Lecture 1: Special Theory of Relativity Part-1
		Lecture 2: Special Theory of Relativity Part-2
Day: 47		Lecture 3: Relative Velocity Theory and Basic
		Lecture 4: Problem on Relative Speed
Day: 48		**Revision**
Day: 49		**Class Test 8: Lect-47 to Lect-57 (Optics-Electromagnetic Theory)**
Day: 50		Lecture 5: Length Contraction
		Lecture 6: Time Dialation
		Solve Assignment No. 8: Special Theory of Relativity (Lect-1 to Lect-6)
Day: 51		Lecture 7: Loss of Simulataneity
		Lecture 8: Relativistic Mass Part-1
Day: 52		Lecture 9: Relativitstic Mass Part-2
		Lecture 10: Special Four Vectors
Day: 54		Lecture 11: Relativistic Electrodynamics
		Solve Assignment No. 9: Special Theory of Relativity (Lect-6 to Lect-11)
Day: 55		**Revision**
Day: 56		**Class Test 9: Special Thoery of Relativity (Lect-1 to Lect-11)**