

DRONACHARYA COLLEGE OF ENGINEERING, GURGAON

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NPTEL Links

ELECTROMAGNETIC THEORY (EE-208-F)

<u>SECTION</u>	<u>TOPIC NAMES</u>	<u>NPTEL LINKS</u>
Section A	<ul style="list-style-type: none">Coordinate systems and transformation: Cartesian coordinates, circular cylindrical coordinates, spherical coordinates	http://www.cdeep.iitb.ac.in/nptel/Core%20Science/Engineering%20Physics%202/Course_home-lec-2.html
	<ul style="list-style-type: none">Vector calculus: Differential length, area and volume, line surface and volume integrals, del operator	http://nptel.ac.in/courses/117103065/4
	<ul style="list-style-type: none">Gradient of a scalar, divergence of a vector and divergence theorem	http://nptel.ac.in/video.php?subjectId=108106073 http://nptel.ac.in/courses/117103065/5
	<ul style="list-style-type: none">curl of a vector and Stoke's theorem	http://nptel.ac.in/courses/117103065/6
	<ul style="list-style-type: none">Laplacian of a scalar	http://nptel.ac.in/courses/115101005/downloads/lectures-doc/Lecture-5.pdf
Section B	<ul style="list-style-type: none">Electrostatics: Electrostatic fields, Coulombs law and field intensity, Electric field due to charge distribution, Electric flux density,	http://nptel.ac.in/courses/108106073/3 http://nptel.ac.in/courses/108106073/4 http://nptel.ac.in/courses/108106073/5
	<ul style="list-style-type: none">Gauss Law – Maxwell's equation, Electric dipole and flux lines, energy density in electrostatic fields. Electric field in material space: Properties of materials, convection and conduction currents, conductors, polarization in dielectrics, dielectric constants,	http://nptel.ac.in/courses/108106073/6 http://nptel.ac.in/courses/108106073/8

	<p>continuity equation and relaxation time, boundary condition.</p> <ul style="list-style-type: none"> Electrostatic boundary value problems: Poisson's and Laplace's equations, general procedures for solving Poisson's or Laplace's equations, resistance and capacitance, method of images. 	<p>http://nptel.ac.in/courses/108106073/3</p>
Section C	<ul style="list-style-type: none"> Magnetostatics: Magneto-static fields 	<p>http://nptel.ac.in/courses/108106073/18</p>
	<ul style="list-style-type: none"> Biot-Savart's Law, Ampere's circuit law, Maxwell's equation, application of ampere's law, magnetic flux density- Maxwell's equation, Maxwell's equation for static fields, magnetic scalar and vector potential. 	<p>http://nptel.ac.in/courses/108106073/19 http://nptel.ac.in/courses/108106073/22 http://nptel.ac.in/courses/108106073/23 http://nptel.ac.in/courses/108106073/24</p>
	<ul style="list-style-type: none"> Magnetic forces, materials and devices: Forces due to magnetic field, magnetic torque and moment, a magnetic dipole, magnetization in materials, magnetic boundary conditions, inductors and inductances, magnetic energy 	<p>http://nptel.ac.in/courses/108106073/25 http://nptel.ac.in/courses/108106073/26 http://nptel.ac.in/courses/108106073/27 http://nptel.ac.in/courses/108106073/28 http://nptel.ac.in/courses/108106073/29 http://nptel.ac.in/courses/108106073/30</p>
Section D	<ul style="list-style-type: none"> Waves and applications: Maxwell's equation, Faraday's Law, transformer and motional electromotive forces, displacement current, Maxwell's equation in final form. 	<p>http://nptel.ac.in/courses/115101004/1 http://nptel.ac.in/courses/115101004/2 http://nptel.ac.in/courses/115101004/3 http://nptel.ac.in/courses/115101004/4</p>
	<ul style="list-style-type: none"> Electromagnetic wave propagation: Wave propagation in lossy dielectrics, plane waves in lossless dielectrics, plane wave in free space, plain waves in good conductors, power 	<p>http://nptel.ac.in/courses/108106073/34 http://nptel.ac.in/courses/108106073/32 http://nptel.ac.in/courses/108106073/33</p>

	and the pointing vector, reflection of a plain wave in a normal incidence.	
	<ul style="list-style-type: none">• Transmission lines: Transmission line parameters, Transmission line equations, input impedance, standing wave ratio and power	http://nptel.ac.in/courses/108106073/41 http://nptel.ac.in/courses/108106073/42