

DEPARTMENT OF MATHEMATICS,
UNIVERSITY OF KARACHI,

Course Outline

MATH 662: ELECTROMAGNETICS - II

Course contents:

Steady currents. Magnetic fields of currents, vector potential, magnetic materials and permanent magnetism, Electromagnetic induction. Electromagnetic Waves, Plane Electromagnetic Waves, Plane Harmonic Waves, Waves in Conducting Media, Telegraphy Waves, Inhomogeneous Waves Equations, Poynting Vectors, Scattering Theory, Scattering by Circular Cylinder, and Sphere.

Books Recommended:

1. Coulson, C. A., Electricity, Fifth Edition, Oliver and Boyd, 1965.
2. Lorain, P. and Crson, D. R., Introduction to Electromagnetic Fields and Waves, Second Edition, W.H. Freeman, 1970.
3. Chambers, L. G., An Introduction to the Mathematics of Electricity and Magnetism, Chapmean Hall, 1973.
4. Ferraro, V. C. A., Electromagnetic Theory, Athlone, 1967.
5. Jones, D. S., The Theory of Electromagnetism, Macmillan, 1964.
6. Cheaton, W. B., Elementary Theory of Electric and Magnetic Fields, John Wiley, 1964.
7. Cook, D. M., The Theory of the Electromagnetic Field, Prentice Hall, 1975.
8. Shadowitz, A., The Electromagnetic Field, McGraw Hill, 1975.
9. Jackson, J. D., Classical Electrodynamics, Second Edition, John Wiley, 1975.
10. Panofsky, W. K. H. and Phillips, M., Classical Electricity and Magnetism, Second Edition, Addison Wesley, 1977.
11. Nathan Ida, Engineering Electromagnetic, Second Edition, University of Akron, Springer-Verlag New York, I.I.C, 2004.