DEPARTMENT OF MATHEMATICS,

UNIVERSITY OF KARACHI,

Course Outline

MATH 661: ELECTROMAGNETICS – I

Pre Requisite: Physics in B. A. / B. Sc. / B. S.

Course contents:

Coulomb's law, Electrostatic Field and Potential, Gauss Law. Energy and Force in Electrostatic Field, Dielectric, Method of Images, Electric dipole, Electric Quadrupole, Electric Octopole, Dipole Radiations, Radiated Energy, Magnetic Dipole Radiations and Method of Solving the Electrostatic Problems

Books Recommended:

1. Coulson, C. A., Electricity, Fifth Edition, Oliver and Boyd, 1965.
2. Lorrain. 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, I., Engineering Electromagnetic, Second Edition, University of Akron, Springer-Verlag New York, I.I.C, 2004