DEPARTMENT OF MATHEMATICS,

UNIVERSITY OF KARACHI,

Course Outline

MATH 665: QUANTUM MECHANICS – I

Course contents:

Diract's bra and ket vectors, Observables, representation theory. Quantum conditions, quantum dynamics. Symmetry properties and conservation theorems. Schrodinger's and Heisenberg's pictures. Schrodinger momentum and energy representation. Schrodinger equation, motion in one dimension, Simple harmonic oscillator. Motion of wave packets. Piecewise continuous potentials.

Books Recommended:

1. Dirac, P. A. M., The Principles of Quantum Mechanics, Clarendon, 1958.
2. Landu, L. D. and Lifshitz, E. M., Quantum Mechanics – Non-relativistic Theory, Pergamon, 1959.
3. Merzbacher, E., Quantum Mechanics John Wiley, 1970.
4. Schiffs, L. I., Quantum Mechanics, Third Edition, McGraw Hill, 1979.
5. Dicke, R. H. and Wittke, J.P., Introduction to Quantum Mechanics, Addison Wesley, 1978.
6. Messiah, A., Quantum Mechanics, Vols. I and II, North Holland, 1961 and 1983.
7. Mand, M. A., Quantum Mechanics, Butterworths, 1957.
8. Levine, I. N., Quantum Chemistry, Vols. I and II, Allyn and Benjamin, 1970
9. Anderson, J. M., Mathematics for Quantum Chemistry, Benjamin, 1966.
10. Histler, W., The Quantum Theory of Radiation, Clarendor, 1960.