

Fall 2017

1	Course code	PHY 655/461
2	Course Title	Quantum Field Theory
3	Credits	3/4
4	Course Coordinator & participating faculty(if any)	Arun Thalapillil
5	Nature of Course	L&T- Lectures & Tutorials
6	Pre requisites(if any)	Classical Mechanics (PHY 311) Quantum Mechanics II (PHY 322)
7	Objectives & Outcomes (goals, students for whom offered, outcomes etc)	This will be a basic course in the techniques of quantum field theory. Among its aims will be to introduce the canonical quantisation formalism for scalars, fermions and gauge fields.  The primary audience is intended to be students in high energy physics and condensed matter physics, where the techniques of quantum field theory find application.
8	Course contents	Classical field theory, Symmetry principles, Scalar fields, Dirac fields, Electromagnetic fields, Interactions, Applications.
9	Evaluation / assessment	a. Assignments 40 % b. Mid-sem examination 30% c. End-sem examination 30%
10	Suggested readings	1. "An Introduction to Quantum Field Theory", Michael E. Peskin & Daniel V. Schroeder, Westview Press (1995) 2. "Quantum Field Theory & the Standard Model", Matthew D. Schwartz, Cambridge University Press (2014) 3. "Field Theories of Condensed Matter Physics", Eduardo Fradkin, Cambridge University Press (2013)