INSTRUCTION DIVISION
SECOND SEMESTER 2019-2020
Course Handout Part II

Date: 04-01-2020

Course Number   : BITS G511
Course Title   : Advanced Project
Instructor-in-charge : Dr. Prasant Samantray

Scope and Objective of the Course: The course offers an introduction to Quantum Field Theory. The student essentially learns about the Feynman Path Integral, and functional techniques in QFT. The course then delves into interacting theory for scalar fields, Feynman rules, and finally culminates in calculating the one-loop effects in scalar QFT.

Textbooks:
1. M. Peskin and Daniel Schroeder : An introduction to quantum field theory

Reference books
1. Anthony Zee : Quantum field theory in a nutshell

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter(s) in the Text Book
1	Overview	Introduction to fields	
2-10	Scalar Field Theory	Lagrangian formulation for classical fields, and conserved charges	2,4
11-20	Path Integral in QFT	Path integral in QM and QFT, Feynman Rules	9
21-30	Feynman Rules and Amplitudes	Tree and loop level Calculations in scalar QFT	10
31-40	Quantum corrections in QFT	Divergences and Renormalization	11-12
41-42	Summary	Closing remarks and challenges ahead	

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Mid term Seminar	30 minutes	40	02-03-2020; 10 am	PPT
Compre Exam	120 minutes	60	30-04-2020, 10 am	Written Exam

Chamber Consultation Hour:4-5pm Wednesday

Notices: On CMS and Physics department notice board

Make-up Policy:Make up will be given only against the application forwarded by chief warden. No make up requests after completion of examination will be entertained.

INSTRUCTOR-IN-CHARGE