ADVANCED ELEMENTARY PARTICLE PHYSICS

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SSD	FIS/01	Course credit	8	Year (I, II)	II	Semester (I , II)	I

CONTENTS

Introduction to Quantum Field Theory.
Weak interaction in the current-current model and comparison with experiments
Gauge Theories and Higgs Mechanism
GWS model of electro-weak interactions
Tree level predictions and experimental measurements.
Radiative corrections and renormalization
Experimental tests of the Standard Model at e+ e- colliders
Higgs Boson Physics
Quantum Chromodynamics and most relevant experimental measurements
CP, T e CPT symmetries violations. Cabibbo-Kobayashi-Maskawa Matrix
Flavour Physics
Oscillations, mass and nature of neutrinos
Introduction to Grand Unified models and supersymmetry

Bibliography

M. Napolitano – Dispense delle lezioni AA 2016-17
Peskin and Schroeder – Introduction to Quantum Field Theory
Aitchison Hey – Gauge Theories in Particle Physics vol 1 e vol 2
Leader Predazzi – An introduction to Gauge Theories and Modern Particle Physics
Cahn Goldhaber The experimental foundation of Particle Physics