

Module: Specialization I

Module No.: physics610

Course: Theoretical Hadron Physics

Course No.: physics616

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT

Requirements:

Preparation:

Advanced quantum theory (physics606)

Quantum field theory (physics755)

Group theory (physics751)

Form of Testing and Examination:

Requirements for the examination (written): successful work with the exercises

Length of Course:

1 semester

Aims of the Course:

Introduction to the theory of strong interaction, hadron structure and dynamics

Contents of the Course:

Meson and Baryon Spectra: Group theoretical Classification, Simple Quark Models

Basics of Quantum Chromodynamics: Results in Perturbation Theory

Effective Field Theory

Bethe-Salpeter Equation

Recommended Literature:

F. E. Close, An Introduction to Quarks and Partons (Academic Press 1980)

F. Donoghue, E. Golowich, B.R. Holstein; Dynamics of the Standard Model (Cambridge University Press 1994)

C. Itzykson, J.-B. Zuber; Quantum Field Theory (Dover Publications 2005)

S. Weinberg; The Quantum Theory of Fields (Cambridge University Press 1995)