

Module:**Elective Advanced Lectures:
BCGS Courses****Module No.:** physics70d**Course:****Particle physics (E)****Course No.:**

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture	English	3	4	ST

Requirements for Participation:**Preparation:**

Quantum Mechanics

Form of Testing and Examination:

Part of the obligatory courses for area of specialisation Nuclear and Particle Physics, separate oral examination is possible exceptionally.

Length of Course:

1 semester

Aims of the Course:

Introduction into particle physics, accelerators and detectors

Contents of the Course:

- Relativistic kinematics
- Interaction of radiation with matter
- Particle accelerators
- Targets and detectors
- Symmetries in particle physics
- QED
- Weak interaction, neutrinos
- Quark model
- QCD
- Standard model
- Cosmology

Recommended Literature:

A script for course will be available on-line

- D.H. Perkins: Introduction to High Energy Physics, Cambridge University Press, ISBN 0521621968
 H. Frauenfelder, E.M. Henley: Subatomic Physics, Prentice Hall, ISBN 0138594309
 F. Halzen: A.D. Martin: Quarks and Leptons, John Wiley and Sons, ISBN 0471887412
 D. Griffiths: Introduction to Elementary Particles, John Wiley and Sons ISBN: 0471603864
 B. Povh, K. Rith, C. Scholz, F. Zetsche: Teilchen und Kerne, Springer-Verlag, ISBN 3540659285
 C. Berger: Elementarteilchenphysik, Springer-Verlag, ISBN 3-540-41515-7