General Relativity for Experimentalists (T) - physics768

Degree - M.Sc. in Physics (PO von 2014)

Module	**Elective Advanced Lectures: Theoretical Physics**
Module No.	physics70c

Course	**General Relativity for Experimentalists (T)**
Course No.	physics768

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

Requirements for Participation:

Preparation: Theoretische Physik I & II, Analysis I & II

Form of Testing and Examination: Weekly homework sets (50% required), Final exam

Length of Course: 1 semester

Aims of the Course: The students shall learn the basics of general relativity and be able to apply it to applications such as experimental tests of GR, GPS, astrophysical objects and simple issues in cosmology.

Contents of the Course:

Review of special relativity

Curved spacetime of GR

Experimental tests of GR

GPS

Black holes

Gravitational waves

Introductory cosmology

Recommended Literature:

GRAVITY, by James Hartle

A FIRST COURSE IN GENERAL RELATIVITY, by Bernard Schutz

EXPLORING BLACK HOLES, by Taylor and Wheeler