Physics of Supernovae and Gamma-Ray Bursts - astro8502

Course	**Physics of Supernovae and Gamma-Ray Bursts**
Course No.	astro8502

Category	**Type**	**Language**	**Teaching hours**	**CP**	**Semester**
Elective	Lecture with exercises	English	2+1	4	WT

Requirements for Participation:

Preparation: Introductory astronomy and cosmology lectures

Form of Testing and Examination: Written or oral examination, successful exercise work

Length of Course: 1 semester

Aims of the Course: The student will learn basic physics on supernova and gamma-ray burst, and will have an overview on their applications to various fields of astrophysics.

Contents of the Course:

Basic physics on stellar hydrodynamics, radiation processes, and stellar death.

Type Ia supernova: observations and theory. Application to cosmology

Core collapse supernova: observations and theory

Gamma-ray bursts: observations and theory.

Implications for massive star population and star-formation history

Supernova nucleosynthesis and chemical evolution of galaxies

Explosions of the first generations of stars

Some related issues: supernova remnants, neutrinos, shock break-out, etc.

Recommended Literature: Lecture notes with key references for each topic will be provided.

PDF version of this page.