Study programme: Astronomy and Astrophysics – PhD Studies

Course: Close binary systems

Teacher or teachers: Bojan Arbutina

Status: optional

ECTS credits: 9

Requirements: none

Course objective: Acquiring advanced knowledge about close binary systems.

Course outcome: At the end of the course, student has enough skills to start a research on close binary systems.

Course description:
Close binary systems: historical overview. Two body problem – orbital motion. Orbits determination. Perturbations, Roche model, mass transfer/mass loss. Spectroscopic binaries. Photometry and polarimetry: stellar sizes and shapes. Masses and absolute dimensions of stars in binary systems. Surface and accretion structures mapping. Evolution of close binary systems.

Recommended literature:
Hilditch R. W. 2001, An Introduction to Close Binary Stars, Cambridge: Cambridge Univ. Press;
Hansen C. J., Kawaler S. D., Trimble V., 2004, Stellar Interiors - Physical Principles, Structure, and Evolution, New York: Springer;
Eggleton P., 2006, Evolutionary Processes in Binary and Multiple Stars, Cambridge: Cambridge University Press

Excercises: Hansen C. J., Kawaler S. D., Trimble V., 2004, Stellar Interiors - Physical Principles, Structure, and Evolution, New York: Springer

Total number of classes: 10	**Theoretical classes**: 4	**Practical classes**: 6

Teaching methods:
Ex cathedra, group work, student research

Grading system (maximum number of points: 100)

Pre-exam requirements	points	**Final exam**	points
Activity in class		Written exam	
Practical work	30	Oral exam	70
Colloquia			
Seminars			