Course Unit Descriptor

Study Programme: Bachelor Academic Studies in Physics
Course Unit Title: Fundaments of astronomical spectroscopy
Course Unit Code: F18OAS
Name of Lecturer(s): Full professor Tijana Prodanovic
Type and Level of Studies: Bachelor Academic Degree
Course Status (compulsory/elective): Elective
Semester (winter/summer): Winter
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 6
Prerequisites: None
Course Aims: Spectroscopy is the main tool, which helps us learn about physical properties of astronomical objects. The goal of this course is to teach the students about different spectroscopic methods that are used in studying different astrophysical objects.
Learning Outcomes: After the sucessfull completion of the course titled «Spectroscopy of the Universe» the students will be trained to process and interpret spectra of different astronomical objects and based on that to learn about their physical properties such are temperature, rotation speed, distance, composition etc.
Syllabus: *Theory* Introduction to spectroscopy and history; Spectrographs; Continuous spectra; Line spectra and transition probabilities; Line profile, width and intensity; Solar spectra and determination of elemental abundances; Stellar spectra, spectral classes, spectra of binary systems; Spectra of supernova remnants; Nebular spectra; Spectra of galaxies; Quasar spectra, Lyman alpha forest; Spectra of the cold interstellar medium and the 21 cm line. *Practice* With the goal of solidifying the material covered in class, large attention will be given to practical work where students will be encouraged to process spectra, apply spectroscopic methods as well as to solve problems in class which will help prepare them for homework problems and written exam.
Required Reading: 1. D. Emerson, Interpreting Astronomical Spectra, Cambridge University Press ISB N 0 471 94176 X

Weekly Contact Hours:	**Lectures:** 3	**Practical work:** 2

Teaching Methods: Lectures, practical work and seminars
Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	30

Practical work	15	oral exam	30
Preliminary exam(s)		…….	
Seminar(s)	20		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			