COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Methods of spectroscopic data analysis	

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: dr. Vidas Dobrovolskas **Other(s): dr. Arūnas Kučinskas**	Faculty of Physics

Study cycle	Type of the course unit (module)
Second (Master)	Optional

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Face-to-face	Semester 2	Lithuanian/English

Requirements for students	
Prerequisites: Astrophysics	**Additional requirements (if any):**

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
5	140	64	76

Purpose of the course unit (module): programme competences to be developed		
The purpose of this module is to get the student acquainted with different methods of spectroscopic data analysis and their application to interpret observed properties of stars.		
Learning outcomes of the course unit (module)	**Teaching and learning methods**	**Assessment methods**
Ability to understand methods of spectroscopic data analysis	Problem teaching, autonomous work	Assessmet of laboratory work, written and oral examination
Ability to use different software packages of spectrscopic data analysis	Problem teaching, autonomous work	Assessmet of laboratory work, written and oral examination
Ability to interpret observed properties of stars applying different methods of spectroscopic data analysis	Problem teaching, autonomous work	Assessmet of laboratory work, written and oral examination

Content: breakdown of the topics	Contact hours							Self-study work: time and assignments	
	Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship/work placement	Contact hours	Self-study hours	Assignments
1. Stellar model atmospheres and corresponding software packages.	4				12		**16**	**16**	Preparation of laboratory work
2. Methods of spectroscopic data analysis and corresponding software packages.	4				12		**16**	**20**	Preparation of laboratory work
3. NLTE methods of spectroscopic data analysis and corresponding software packages.	4				12		**16**	**20**	Preparation of laboratory work
4. Methods of automatic spectroscopic data analysis and corresponding software packages.	4				12		**16**	**20**	Preparation of laboratory work
Total	**16**				**48**		**64**	**76**	

Assessment strategy	Weight, %	Deadline	Assessment criteria
Examination	50	During the exam session	Understanding of the main topics of the module
Laboratory work	50	Presentation during the final lecture of the module	Understanding of the main astrophysical phenomena and processes and their interaction which was discussed during laboratory work, understanding of a wider astrophysical context in relation to the module topic.

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
Compulsary reading				
Gray, D.F.	2005	The Observation and Analysis of Stellar Photospheres		Cambridge University Press
Optional reading				
Tennyson, J.	2011	Astronomical Spectroscopy		World Scientific