BACHELOR 'S PROGRAMME
2nd YEAR OF STUDY, 2nd SEMESTER

COURSE TITLE	SPECIALITY PRACTICE
COURSE CODE	
COURSE TYPE	full attendance
COURSE LEVEL	1st cycle (bachelor's degree)
YEAR OF STUDY, SEMESTER	2nd year of study, 2nd semester
NUMBER OF ECTS CREDITS	4
NUMBER OF HOURS PER WEEK	4
NAME OF LECTURE HOLDER	-
NAME OF SEMINAR HOLDER	Lect. dr. Ionuţ TOPALĂ
PREREQUISITES	Advanced level of English

A GENERAL AND COURSE-SPECIFIC COMPETENCES

General competences:

- → Mastery of research methods and techniques, specific to Physics and Astrophysics;
- → Use of communication and information technologies;
- → Use the software for analysing and processing experimental data and to perform virtual experiments;
- → Understanding and ability to apply the principles and the values of the professional and research ethics.

Course-specific competences:

- → Identification and proper use of laws, principles, notions and physical methods in various circumstances;
- → Analysis and communication of Physics information with didactical, scientific and popularization character;
- → Capacity to teach Physics at secondary and post-secondary education levels;
- → Capacity of interrelationing and team working;
- → Application of Physics knowledge to practical situations;
- → Opening to lifelong learning.

B LEARNING OUTCOMES

On successful completion of this activity, the students will be able to:

- correctly identify and use of the physical notions, laws and principles related, within a given context,
- understand and explain general physical phenomena.
- describe the operation mode of different experimental and observational tools.
- operate complex laboratory equipment and solve medium complexity problems in physics and astrophysics.

C LECTURE CONTENT

Basic research activity, within Faculty's research centres and research groups.
Introduction to Experimental Astrophysics
Work visits to Observatories, Planetarium
Introduction to academic remote observing programs for telescopes around the world, as well remote experiments
Introduction to educational activities from Romanian Space Agency and European Space Agency

D RECOMMENDED READING FOR LECTURES

[1] M. I. Pergament, Methods of Experimental Physics (Graduate Student Series in Physics), 1st Edition, CRC Press (2014)
[2] Hugh Young, Roger Freedman, Sears and Zemansky's University Physics : with Modern Physics, 13th Edition (2012)
[3] Drake, R.P., High-energy-density physics: fundamentals, inertial fusion, and experimental astrophysics, Springer Science & Business Media (2006).
[4] Léna, P., Rouan, D., Lebrun, F., Mignard, F. and Pelat, D., Observational astrophysics. Springer Science & Business Media (2012).
[5] Gallaway, M., An introduction to observational astrophysics. Springer (2016).
[6] Zhang, Q. and Cen, S. eds., Multiphysics Modeling: Numerical Methods and Engineering Applications. Elsevier (2015).

E SEMINAR CONTENT

- active participation to practical works and experiments;
- the capacity of using in practice the acquired knowledge.

F	RECOMMENDED READING FOR SEMINARS	
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G	EDUCATION STYLE	
LEARNING AND TEACHING METHODS		Guided discovery, thematic debates, explanations, demonstration. Laboratory experiments. Observations.
ASSESSMENT METHODS		• 1. Formative assessment (during all activities). • Summative assessment (oral presentation of the final report)
LANGUAGE OF INSTRUCTION		English