

Study Programme: Geodesy
Course Unit Title: Gravimetry
Course Unit Code:
Name of Lecturer(s): Associate Professor Vukan Ogrizović
Type and Level of Studies: Bachelor Academic Degree
Course Status (compulsory/elective): Elective
Semester (winter/summer): Summer
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 5
Prerequisites: None
Course Aims: Introducing applications of Gravimetry in Geodesy, instruments and methods for determination of Earth's gravity field acceleration
Learning Outcomes: After the course completion, the students will be skilled in: measuring acceleration of Earth's gravity field, processing performed measurements, and applying obtained results in other disciplines.
Syllabus: <i>Theory</i> <ol style="list-style-type: none"> 1. Application of Gravimetry in Geodesy and Geophysics. 2. Historical development of Gravimetry. 3. Methods of gravimetric determinations. 4. Determination of the Earth's gravity field acceleration applying the free-fall principle. 5. Determination of the Earth's gravity field acceleration applying the pendulum principle. 6. Dynamic and static methods of determination of Earth's gravity field acceleration. 7. Dynamic and static methods of determination of Earth's gravity field acceleration. 8. Error sources and accuracy of determination of Earth's gravity field acceleration. 9. Instruments for determination of Earth's gravity field acceleration. 10. Ballistic instruments. 11. Absolute gravity meter. 12. Relative gravity meter. 13. Gravimetric survey. 14. Changes of Earth's gravity field acceleration in time. 15. Satellite Gravimetry methods and missions. <i>Practice</i> A-priori accuracy estimation of gravimetric measurements. Measuring absolute acceleration of Earth's gravity field. Measuring relative acceleration of Earth's gravity field. Calculating luni-solar influence. Processing of field measurements.
Required Reading: <ol style="list-style-type: none"> 1. Vaniček P., Krakivsky E., Геодезија, концепти, Савез геодета Србије, 2005.

2. Heiskanen Weiko H. Moritz, Физичка геодезија, Грађевински факултет Универзитета у Београду.
3. Torge W., Gravimetry, Walter de Gruyter, Berlin-New York, 1989,
4. Starčević, M.: Gravimetrijske metode istraživanja, Nauka, Beograd, 1991.

Weekly Contact Hours: 60	Lectures: 30	Practical work: 30
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Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	Final exam	points
Active class participation		written exam	
Test I and Test II	50	oral exam	50
Preliminary exam(s)		
Seminar(s)			

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.