



THE PROGRAM OF THE UNDERGRADUATE STUDY OF GEODESY AND GEOINFORMATICS

The undergraduate study of Geodesy and Geoinformatics at the Faculty of Civil Engineering, Architecture and Geodesy lasts three academic years and is organised in six semesters.

The syllabus (curriculum) consists of compulsory and elective and courses. It is aligned with the European Credit Transfer and Accumulation System (ECTS) of the European Higher Education Area (EHEA) and students accumulate minimum of 60 ECTS each academic year. In order to obtain qualification (bachelor degree, first cycle) students have to accumulate minimum of 180 ECTS.

Upon completion students are awarded the academic title and corresponding qualification sveučilišni prvostupnik/prvostupnica (baccalaureus/baccalaurea) inženjer/inženjerka geodezije i geoinformatike (University Bachelor in Geodesy and Geoinformatics). Students may continue their studies at graduate university study in geodesy and/or geoinformatics or similar engineering fields, or enter the labour market.

Syllabus

The table below shows information for the actual (spring) and the former (autumn) semester. Detail plans for specific semesters and academic years are published on the following Faculty's web site [link](#).

Teacher	Course	Related learning outcomes	Teaching and learning	Assessment	Code	Hours	ECTS
I. semester							
J. Sedlar	Analytical geometry and linear algebra	d	1, 2	1, 2	GAB031	30+30	5
S. Banić	Mathematical analysis	d	1, 2	1, 2	GAB032	30+30	5
N. Leder	Physics	d	1, 2	1, 2	GAB033	30+30	5
M. Baučić	Basics of geoinformatics	a,h,i	1, 3, 4	1, 2	GAZ001	30+30	5
I. Racetin	Geodetic instruments	a,e	1, 5	1, 2	GAZ002	30+30	5
I. Racetin	Engineering graphics in geodesy and geoinformatics	a,g,h	1, 3	1, 2	GAZ003	15+30	3
Elective courses (min. 2 ECTS)							
J. Sedlar, S. Pavasović	Basics of computer science	g,h,i,k	1, 3	1, 2	GAB034	15+15	2
T. Duplančić-Leder	Introduction to geodesy	a,m,n	1	1, 2	GAZ004	30+0	2
II. semester							
N. Lovričević	Computer geometry	d,h	1, 2, 3	1, 2	GAC031	30+30	5
Lj. Šerić	Programming	i,j	1, 3	1, 2	GAB035	30+30	5
L. Radovniković, M. Zrinjski	Land surveying	a,e,f,g,k	1, 3, 4	1, 2	GAZ005	30+60	5
M. Baučić	Field measurements	a,e,f,g,k,l	1, 3, 4	1, 2	GAZ006	30+30	5
S. Ivelić Bradanović	Basics of statistics	d	1, 3	1, 2	GAB036	30+15	4
S. Ivelić Bradanović	Vector analysis	d	1, 2	1, 2	GAB037	30+15	3
Elective courses (min. 3 ECTS)							
V. Kukoč	Introduction to architecture	c,g,h	1	1, 3	GAU001	30+0	3
S. Banić	Spherical trigonometry	d	1, 2	1, 2	GAB038	15+15	3
A. Mršić Zdilar	Basics of professional English	l,m,n	1, 3	1, 3	GAA032	15+15	3

Teacher	Course	Related learning outcomes	Teaching and learning	Assessment	Code	Hours	ECTS
III. semester							
M. Baučić	Databases	a,i,j	1, 3	1, 2	GAZ007	30+30	5
J. Sedlar	Differential geometry	d	1, 2	1, 2	GAB039	30+30	5
N. Rožić	Analysis and processing of geodetic measurements	a,d,f,k	1, 2	1, 2	GAZ008	30+45	5
Ž. Hećimović	Geodetic maps	a,g,h	1, 3	1, 2	GAZ009	30+30	5
J. Čizmić	Principles of land registration law	b,c,g,m,n	1	2	GAZ010	30+0	2
Elective courses (min. 8 ECTS)							
I. Racetin	Topography	a,h,i	1	1, 2	GAZ011	30+0	3
D. Cvitanić	Roads	g	1, 2, 3	1, 2	GAF121	30+30	5
Ž. Hećimović	Professional practice out of the Faculty	a,e,f,g	6	1, 2	GAZ035	0+80	3
IV. semestar							
I. Racetin	Cartography	a,g,h,i	1, 3	1, 2	GAZ012	30+30	5
Ž. Hećimović	Geodetic reference frames	a,d,g,k	1, 3	1, 2	GAZ013	30+30	5
M. Baučić	Photogrammetry	a,f,g,j,k,l	1, 3, 4	1, 2	GAZ014	30+30	5
M. Roić	Cadastré	a,b,c,f,g,i	1, 3	1, 2	GAZ015	30+45	5
M. Baučić	Geoinformation modelling	a,h,i,j	1, 3	1, 2	GAZ016	30+30	5
Elective courses (min. 5 ECTS)							
I. Racetin	Geoinformation quality	(a,c,f,g,h,i,k.m.n)	1, 3	1, 2	GAZ017	30+30	5
I. Racetin	Geoinformation management	(a,h,i)	1, 3	1, 2	GAZ018	30+30	5
V. semester							
Ž. Bačić	Satellite positioning	a,e,f,g,j,k	1, 3, 4	1, 2	GAZ019	30+30	5
Ž. Hećimović	Engineering geodetic control	a,e,f,g,k	1, 3, 4	1, 2	GAZ020	30+30	5
T. Duplančić Leder	Remote sensing	a,f,g,j,k	1, 3	1, 2	GAZ021	30+30	5
Ž. Hećimović	Land development	a,b,g	1, 3	1, 2	GAZ022	30+30	5
I. Racetin	Professional practice	a,e,f,g	3	1	GAZ033	0+45	3
Elective courses (min. 7 ECTS)							
Ž. Hećimović	Practical work with geodetic instruments	a,e,k	4, 5	1, 2	GAZ024	15+15	2

Teacher	Course	Related learning outcomes	Teaching and learning	Assessment	Code	Hours	ECTS
T. Duplančić Leder	Land information systems	a,i	1, 3	1, 2	GAZ025	30+30	5
I. Racetin	Topographic cartography	a,h,i	1, 3	1, 2	GAZ026	30+30	5
N. Jajac	Business communication	m	1, 2	1, 3	GAA031	15+15	2
VI. semester							
R. Paar	Engineering geodesy	a,e,f,g,k	1, 4	1, 2	GAZ027	30+30	5
T. Bašić	State survey	a,d,f,g,k	1, 3	1, 2	GAZ028	30+30	5
M. Baučić	Map projections	a,g,h,i	1, 3	1, 2	GAZ029	30+30	5
T. Duplančić-Leder	Hydrographic survey	a,f,g,k	1, 3	1, 2	GAZ030	30+30	5
I. Racetin	Final exam	a-n	1	1	GAZ050	0+30	2
Elective courses (min. 8 ECTS)							
N. Jajac	Introduction to management	l,n	1, 2	1, 3	GAL031	15+15	2
V. Denić-Jukić	Selected hydrological topics	b	1, 3	1, 2	GAI021	15+15	3
I. Racetin	Web cartography	a,h,i,j	1, 3	1, 2	GAZ032	15+15	3
J. Sedlar	Discrete mathematics	d	1, 2	1, 2	GAB040	30+30	5
Ž. Hećimović	Geoinformation infrastructure	a,c,i	1, 3	1, 2	GAZ031	30+30	5

Learning outcomes – Undergraduate University Study of Geodesy and Geoinformatics

Label	Units of learning outcomes
a	To evaluate measurement methods, technologies, computation and visualisation of measurements and geospatial data.
b	To critically assess and to develop real estate registrations, land development actions and methods for land valuation.
c	To independently interpret the laws and regulations governing geodetic and geoinformatic tasks.
d	Recommend and apply mathematical and physical methods in solving non-standard geodetic and geoinformatic tasks.
e	To independently operate with and examine the validity of geodetic instruments and measuring accessories.
f	To perform geodetic measurements independently and evaluate their quality.
g	To plan and independently perform geodetic works on state survey, maintenance of real estate registrations, construction of buildings, valuation and real estate management.
h	To design and independently compose large and small scale maps and geospatial analysis.
i	To independently maintain geospatial databases and geographic information systems.
j	To propose the application of recently developed information technologies for the collection, processing and management of data.
k	To differentiate the sources and nature of errors in geodetic measurements or computer data processing and select the method for errors removal.
l	To organize teamwork on jobs in office or field in cases where the task is more complex, has large volume or has long duration.
m	To communicate with parties and geodetic and related experts in the interpretation of regulations, standards and norms, interpretation of results, and prevention of possible misunderstandings.
n	To evaluate and plan the professional development of team members in conditions of intensive development of technology and services, legal framework, and professional norms and standards.

Teaching and learning:

1. Lectures: a teacher teaches ex-cathedra or uses some forms of interactive lectures.
2. Theoretical exercises: teacher demonstrates to students how to solve standard mathematical or engineering tasks.
3. Practical exercises: students solve and prepare practical assignments under supervision of the teacher in standard or IT equipped classrooms.
4. Field exercises: students and teachers visit relevant companies, or students perform small-scale practical work and measurements outdoor, etc.
5. Lab exercises: the teacher demonstrates experiments/tasks to students, or students perform their own experiments/tasks in the laboratory under the supervision of teachers and/or technicians.
6. Internship: students perform practical work at relevant companies during semester or summer vacations.
7. Independent work: theoretical or practical assignment under the supervision of a teacher.

Assessment:

1. Written exams: students solve tasks as the paperwork or by a computer in IT equipped classrooms. They may be performed throughout the semester or during the examination period.
2. Oral exams: a teacher poses questions to students in a spoken form.
3. Presentation or defence of a practical or written assignment.