

### DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Geographic Information Systems				
Head of course	Damir Malnar, Lecturer				
Study programme	Professional undergraduate study Telematics				
Status of a course	Obligatory				
Year of study	3.	Semester	V	ECTS credits	5
Teaching plan (L + E + S+ Pr)	2+2+0+0				
Goals of a course					
Adopt basic concepts related to geographic information systems, which include modelling of entities and real-world phenomena with vector and raster types of data, understanding of coordinate systems and projections, basics of cartography and basic techniques of spatial analysis.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 5: Use computer principles and methods related to programming languages, databases, and operating systems. Outcome 6: Design and implement desktop, web and mobile computer applications and computer programs for microcomputers and microcontrollers, with or without a database. Outcome 10: Analyse and implement an information system in the field of telematics. Outcome 11: Design and develop solutions for components, circuits and software for application in signal processing and telecommunications, with the preparation of supporting project documentation. Outcome 12: Design and develop solutions for components, circuits and software for application in computer networks and information systems, with the preparation of supporting project documentation. Outcome 15: Participate in teamwork and independently present professional content in written and spoken form in Croatian and English.					
Expected learning outcomes on a level of a course					
1. Explain and apply the types and models of data used to describe real geospatial entities 2. Explain and apply the basic principles of cartography to create maps in GIS 3. Define and apply basic spatial analysis concepts and techniques 4. Explain the manners and collect and prepare geospatial and other data for GIS tool processing 5. Create documentation and present results of spatial analysis					
Content of a course					
GIS basic functions. Data compilation. Standards. Attributes. Layer attribute table. Symbol Attributes. Determination of geographical position. Co-ordinate systems. Cartographic projections. Main structures of geographical data. Vector data. Screen data. Geographical data base. Meta data. Georeference. Arranging spatial and attribute data. Data search. Spatial analysis. Presenting data.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					
Requirements for admission to the full exam are Activities 1 and 2. Requirements for the project are activities 1 and 2.					
Grading, evaluation and monitoring of students' work continuously during lectures and exams					

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

**Continuous check-up:**

Outcomes	Activity 1	Activity 2	Written test	Laboratory exercises	Project	Threshold	Max
Outcome 1			7 %	8 %	5 %	10 %	20%
Outcome 2			7 %	8 %	5 %	10 %	20%
Outcome 3			7 %	8 %	5 %	10 %	20%
Outcome 4			7 %	8 %	5 %	10 %	20%
Outcome 5	8 %	7 %			5 %	10 %	20%
Percentage of ECTS	0,5	0,5	1	2	1		
Total	8%	7%	28%	32%	25%	50%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

**Exam term:**

Outcomes	Activity 1	Activity 2	Written test	Project	Threshold	Max
Outcome 1			7 %	13 %	10 %	20%
Outcome 2			7 %	13 %	10 %	20%
Outcome 3			7 %	13 %	10 %	20%
Outcome 4			7 %	13 %	10 %	20%
Outcome 5	8 %	7 %		13 %	10 %	20%
Percentage of ECTS	0,5	0,5	1	3		
Total	8%	7%	28%	65%	50%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

**Grading:**

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

**Obligatory literature**

1. Lecture notes
2. FOSS4G Academy Curriculum, (<http://spatialquerylab.com/foss4g-academy-curriculum/>)

**Additional literature**

1. Jovanović V. et al.: Geografski informacioni sistemi, Univerzitet u Novom Sadu, Beograd, 2012
2. QGIS Training Manual, ([https://docs.qgis.org/3.4/en/docs/training\\_manual/](https://docs.qgis.org/3.4/en/docs/training_manual/))
3. A Gentle Introduction to GIS, ([https://docs.qgis.org/3.4/en/docs/gentle\\_gis\\_introduction/](https://docs.qgis.org/3.4/en/docs/gentle_gis_introduction/))

