

**FACULTY OF ENGINEERING  
STUDY COURSE DESCRIPTION**

<b>Course Title:</b>	<b>Geoinformation Systems</b>				
<b>Course code (LAIS):</b>	<i>The course will be registered in the study administration system after accreditation</i>				
<b>Study programme:</b>	<b>Information technologies</b>				
<b>Level of Study programme:</b>	<input type="checkbox"/>	1st level professional higher education			
	<input checked="" type="checkbox"/>	Professional Bachelor			
	<input type="checkbox"/>	Professional Master			
	<input type="checkbox"/>	Academic Master			
	<input type="checkbox"/>	PhD level			
<b>Type of Study programme:</b>	<input checked="" type="checkbox"/>	Compulsory course (Part A)			
	<input type="checkbox"/>	Professional specialization courses (Part B, compulsory)			
	<input type="checkbox"/>	Professional specialization optional courses (Part B, optional)			
	<input type="checkbox"/>	Elective courses (Part C)			
<b>Course Workload:</b>	<b>Credits</b>	<b>ECTS</b>	<b>Academic hours</b>	<b>Contact hours</b>	<b>Independent work hours</b>
<b>Full time</b>	2	3	80	32	48
<b>Part time</b>	2	3	80	10	70
<b>Course Author/ Tutor:</b>	<b>Michal Kepka</b>				
	Guest assistant professor, Academic, Ph.D.				
	e-mail: <a href="mailto:mkepka@kgm.zcu.cz">mkepka@kgm.zcu.cz</a>				
	Consultation: according to the schedule for each semester				
<b>Study Form:</b>	Full time studies/ Part time studies				
<b>Study year, semester:</b>	3 <sup>rd</sup> year 5 <sup>th</sup> semester				
<b>Language:</b>	English				
<b>Prerequisites for the Course:</b>	General IT				
<b>Course Summary:</b>	The goal of the course is to present to students fundamentals of GIS, processing and analysis of spatial data, web technologies for GIS, web services for GIS, fundamentals of spatial data visualization and web cartography.				
<b>Assessment:</b>	Written and practical exam covering topics and theme from individual lectures.				
<b>Requirements for Credits:</b>	Obtain 60% of points from written and practical exam.				
<b>Abiding by the Academic Ethics</b>	Students must abide by the academic and research ethics, Vidzeme University of Applied Sciences Ethics Regulations, incl.:				
	<ul style="list-style-type: none"> <li>– study papers must be independently developed;</li> <li>– the study work should reference all statements, ideas and data used that have been authored by someone else;</li> <li>– appropriate data acquisition methods should be used in the acquisition of data, the research ethics must be respected, empirical data must be collected independently and cannot be distorted or falsified;</li> <li>– the examination must be carried out by the student independently, without the use of supporting materials and/or consultations with other students, unless the lecturer states otherwise.</li> </ul> <p>In the event of non-compliance with the academic and research ethics, punishment is imposed in accordance with the ViA Ethics Regulations and the study course must be re-taken, unless the punishment is extramarital.</p>				
<b>Learning Outcomes; the evaluation methods and criteria</b>	<b>Learning Outcomes</b>			<b>The evaluation methods and criteria</b>	
	<b>Knowledge</b>				
	Define geographical information systems			Seminar project	
	Define concept of raster and vector data			Written exam	
	Define principles of spatial data processing				
	Define principles of spatial data visualization				
	<b>Skills</b>				
	Get spatial data from open repositories			Written exam	
Process spatial data by GIS methods			Practical exam		
Analyse spatial data by GIS algorithms			Seminar project		

	Visualize spatial data on the Web	
	<b>Competency</b>	
	Utilize of GIS methods to analyse data	Written exam
	Visualize data with spatial dimension	Practical exam
	Extract added value from spatial data	Seminar project
<b>Course Compulsory literature:</b>	Olaya, V. (2018). Introduction to GIS. online. <a href="https://volaya.github.io/gis-book/en/">https://volaya.github.io/gis-book/en/</a> Gimond, M. (2021). Intro to GIS and Spatial Analysis. Online. <a href="https://mgimond.github.io/Spatial/">https://mgimond.github.io/Spatial/</a>	
<b>Course additional literature:</b>	Burrough, P. A. (1986). Principles of Geographical Information Systems for Land Resources Assessment. New York, Oxford University Press. Longley, P. (2011). Geographic information systems & science. 3rd ed. Hoboken: John Wiley & Sons. ISBN 978-0-470-72144-5. Jedlička, K. (2007). Introduction to GIS. University of West Bohemia. Pilsen.	
<b>Course confirmation date:</b>	08.12.2022	
<b>Date of course description update:</b>		

### Study Course Plan for Full Time Students:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
<i>The date is specified before the implementation of the course</i>				
1	Introduction of GIS	5	6	Lecture / individual study
2	Relationships between spatial data and attributes	5	7	Lecture / individual study
3	Processing and storing of geographic data.	5	7	Lecture / individual study
4	Analysis and synthesis of information.	5	7	Practicum / individual study
5	Accessible and open applications, web services, standards	5	7	Lecture / individual study
6	Introduction of Computer cartography	4	7	Practicum / individual study
7	Visualization of data on the Web	3	7	Practicum / individual study
<b>Hours total:</b>		<b>32</b>	<b>48</b>	

### Study Course Plan for Part Time Students:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
<i>The date is specified before the implementation of the course</i>				
1	Introduction of GIS, Relationships between spatial data and attributes	2	15	Lecture / individual study
2	Processing and storing of geographic data, Analysis and synthesis of information.	2	15	Lecture / individual study
3	Accessible and open applications, web services, standards.	2	15	Lecture / individual study
4	Introduction of Computer cartography	2	15	Practicum / individual study



5	Visualization of data on the Web	2	10	Practicum / individual study
<b>Hours total:</b>		<b>10</b>	<b>70</b>	