<table>
<tr><td><b>NAME OF THE COURSE</b></td><td colspan="6"><b>Visual Programming Languages and Environment</b></td></tr>
<tr><td>Code</td><td>PMID38</td><td>Year of study</td><td colspan="4"></td></tr>
<tr><td>Course teacher</td><td>pred. Divna Krpan
izv. prof.dr. sc. Ivica Boljat</td><td>Credits (ECTS)</td><td colspan="4">2,5</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>E</td><td>F</td></tr>
<tr><td>15</td><td></td><td>15</td><td></td></tr>
<tr><td>Status of the course</td><td></td><td>Percentage of application of e-learning</td><td colspan="4"></td></tr>
<tr><td colspan="7"><b>COURSE DESCRIPTION</b></td></tr>
<tr><td>Course objectives</td><td colspan="6">Understand, acquire and learn procedures and problem solving activities. Understand, acquire and learn basic programming concepts for developing teaching scenarios.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">None</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">1. classify algorithmic structures
2. develop programs in visual programming environments
3. develop extensions
4. apply visual programming environments
5. design teaching scenarios</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="6">1. Introduction and comparison of different visual programming environments.
2. Practical excercises and examples in visual programming environments (eg. Scratch, Tynker)
3. Developing programs, extensions and advanced concepts.
4. Extend environments with custom commands.
5. Teaching object-oriented programming using VPL.
6. Mediated transfer from visual to text-based programming languages.
7. Introduction to frameworks for mediated transfer.
8. Simulations in VPL.
9. Developing simulations.
10. Midterm exam
11. Teaching advanced concepts in VPL (eg. graph)
12. Deomstrating concurrency in visual programming languages.
13. Developing in VPL (eg. Stencyl).
14. Mobile applications in VPL.
15. Project preparation</td></tr>
<tr><td>Format of instruction</td><td colspan="2">☐ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="4">☒ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor
☒ homework assignments</td></tr>
<tr><td>Student responsibilities</td><td colspan="6">Attendance, active participation in learning and teaching process, midterm exams, exam</td></tr>
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	Name	Ects	Name	Ects	Name	Ects
Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance		Research		Experimental work	
	Oral exam	1	Report		Homework assignments	
	Seminar essay		Essay			
	Tests	0,5	Practical training	1		
	Written exam		Project			

Grading and evaluating student work in class and at the final exam	Practical work (lab assignments and homework) 40%, exams 30%, final project (30%).

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Harvey, B., & Monig, J. „Snap! Reference Manual „, University of Berkely (https://snap.berkeley.edu/SnapManual.pdf)	0	online
	Hour of Code Teacher Giude, 2016 (https://www.tynker.com/hour-of-code/teacher)	0	online
	SCRATCH - Vodič za korisnike i korisnice, Otvoreno društvo za razmjenu ideja (ODRAZI), Zagreb	0	online
	A. Lane, B. Meyer, J. Mullins: Simulation with Cellular: A Project Based Introduction to Programming, Monash University, BlockBooks, 2012.	0	online
	Charlotte Wilson, Steven Bird, Programming with Edgy, Monash University, Alexandria Repository, 2016.	0	online

Optional literature (at the time of submission of study programme proposal)	Badger, Michael. Scratch 1.4. Packt Publishing Ltd, 2009. Marji, Majed. Learn to Program with Scratch: A Visual Introduction to Programming with Games, Art, Science, and Math. No Starch Press, 2014. Principles of Visual Programming Systems, S. K. Chang (Ed.), Prentice Hall, 1990 (ISBN 0-13-710765-X). B. Broll i dr. NetsBlox: a Visual Language and Web-based Environment for Teaching Distributed Programming, Institute for Software Integrated Systems / Vanderbilt University, 2016 (članak).

	Journal of Visual Languages and Computing, časopis.
Quality assurance methods that ensure the acquisition of exit competences	Talk with students, student evaluation using the anonymous survey, the success of students in the exam, self-assessment.
Other (as the proposer wishes to add)	