<table>
<tr><td colspan="2">NAME OF THE COURSE</td><td colspan="5">SMART CITY MANAGEMENT</td></tr>
<tr><td>Code</td><td>EUBD03</td><td>Year of study</td><td colspan="4">2</td></tr>
<tr><td>Course teacher</td><td>Associate professor Vinko Muštra, PhD
Associate professor Maja Ćukušić, PhD
Associate professor Mario Jadrić, PhD</td><td>Credits (ECTS)</td><td colspan="4">5</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">Ivana Ninčević, mag. oec.
Experts:
Marko Bartulić, Nikola Letilović, univ. spec. oec., Tomislav Alujević Grgas, univ. spec. oec.</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>26</td><td></td><td>26</td><td></td></tr>
<tr><td>Status of the course</td><td>Elective</td><td>Percentage of application of e-learning</td><td colspan="4">40%</td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">• Get a complete insight into the concepts, approaches, standards, methods, tools and technologies needed to manage smart cities effectively.
• Develop students' ability to implement, optimise and manage e-services for citizens and businesses in the urban surrounding.</td></tr>
<tr><td>Course enrolment requirements and entry competencies required for the course</td><td colspan="5">There are no prerequisites for enrollment.
All graduate students of Business studies can enrol in this elective course.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="5">Course learning outcomes:
To critically evaluate the status and potential for the development and management of smart cities in the country and the world.

Specific expected learning outcomes of the course:
1. Re-examine the concept of smart city and fundamental challenges/problems for urban development. (topics 1-3)
2. Determine the role and functions of various technologies used to support smart city services and the way they are horizontally connected and managed. (topics 4-6)
3. Evaluate the effects of the implementation of individual technologies and services by designing and optimising analytical, process and simulation models to support strategic decision making. (topics 7-9)
4. Create a plan that will, through a focus on one of the six standard smart city domains, highlight the potential of using technologies to develop a city in the direction of being smart and sustainable. (topics 10-13)</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5"><table>
<tr><th colspan="2">Lectures</th><th colspan="2">Exercises</th></tr>
<tr><th>Topic</th><th>Hours</th><th>Topic</th><th>Hours</th></tr>
<tr><td>Course introduction, presentation of topics and lecturers.</td><td>2</td><td>Presentation of course work, purpose and structure of practical assignments and final assignment.</td><td>2</td></tr>
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	Topic 1. Basic concepts and perspectives of urban development.	2	**Assignment**. Initiatives for the development of EU cities (focus on Digital Cities Challenge). Caste study.	2
	Topic 2. Different concepts of urban development.	2	**Assignment**. Digital transformation of local governments. Case study.	2
	Topic 3. The importance and role of the smart city concept.	2	**Assignment**. Citizen engagement in decision making in smart cities. Case study.	2
	Topic 4. Smart cities support technologies (sensors, IoT, RFID, UAV).	2	**Assignment**. E-participation. Analysis and development of usage models for different tools.	2
	Topic 5. Importance of standardisation and interoperability of solutions for smart city development.	2	**Assignment**. Co-creation in smart cities. Working with co-creation kits.	2
	Topic 6. Big data and dashboards in cities.	2	**Assignment**. Creating a dashboard in Tableau.	2
	Test			
	Topic 7. Predictive Analytics for Managing Smart Cities.	2	**Assignment**. Creating an analytical model in Rapid Miner.	2
	Topic 8. Process mining and service optimisation in cities. Topic 9. Simulation modelling of smart services in cities.	2	**Assignment**. Creating process maps in Disco software. **Assignment**. Creating a Discrete Simulation Model in the Arena.	2
	Topic 10. Guest lecturer (city official) - selected topic from one of the six standard smart city domains.	2	**Assignment**. Case study with the expert.	2
	Topic 11. Guest lecturer (city official) - selected topic from one of the six standard smart city domains.	2	**Assignment**. Case study with the expert.	2
	Topic 12. Guest lecturer (city official) - selected topic from one of the six standard smart city domains.	2	**Assignment**. Case study with the expert.	2
	Topic 13. Guest lecturer (city official) - selected topic from	2	**Assignment**. Case study with the expert. Presentation of the **final assignment.**	2

	one of the six standard smart city domains.					
	Test					

Format of instruction	x lectures x seminars and workshops x exercises ☐ *on line* in entirety x partial e-learning ☐ field work	x independent assignments x multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	Requirement for taking the test: 4 out of 7 assignments completed for the first test, and 4 out of 6 for the second test. Requirements for the exam are completed final assignment, as well as participating in at least 50% of all class meetings (25% for the part-time students).	

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	1,7 ECTS	Research		Practical training	
	Experimental work		Report		Tests (Other)	
	Essay		Seminar essay		Final assignment (Other)	1 ECTS
	Tests	2 ECTS	Oral exam		Workshop attendance (Other)	0,3 ECTS
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	As a method of continuous student progress evaluation, the model of point accumulation is chosen as it enables the collecting of points through different activities. The goal is that every student collects a sufficient number of points to get a grade for their work during the semester. The total of 100 points can be collected through following activities: 2 theory tests (each 18 points), 13 practical assignments during Exercises (every 3 points), final assignment preparation (25 points). Bonus points can be collected by preparing critical reviews of theoretical topics and by solving additional tasks. The written exam can be waived by students who get 66 points and more. Written and oral exam can be waived by students who get 71 points and more. In the case of exam exemption, the score is based on the total number of points where every five points equals a higher grade. Up to 10 points can be achieved in the oral part of the exam. If a student does not have enough points from the assessment activities during the semester, written and oral exam are required.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Oliver Gassmann, Jonas Böhm, Maximilian Palmié, 2019. **Smart Cities: Introducing Digital Innovation to Cities.** Emerald Publishing Ltd https://books.emeraldinsight.com/page/detail/smart-cities-oliver-gassmann/?k=9781787696143	10	e-book available

Optional literature (at the time of submission of study programme proposal)	1. Townsend, Anthony M., 2014. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia. W. W. Norton & Company. (https://wwnorton.com/books/Smart-Cities) 2. Leighton Evans, Liam Heaphy, Rob Kitchin, Claudio Coletta (Editor), 2018. Creating Smart Cities (Regions and Cities). Routledge.

	(https://www.routledge.com/Creating-Smart-Cities-1st-Edition/Coletta-Evans-Heaphy-Kitchin/p/book/9780815396253) 3. Scientific and professional papers authored by researchers in the project UIP-2017-05-7625
Quality assurance methods that ensure the acquisition of exit competences	• Monitoring attendance and performance of other student obligations (teacher) • Teaching Supervision (Vice-dean for Teaching) • Analysis of the success of studies in all subject studies (Vice-dean for Teaching) • Student Survey on the Quality of Teachers and Teaching for Each Subject Study (UNIST, Center for Quality Improvement) • The exam conducted by the subject teacher examines all learning outcomes of the subject. Periodic examination of the content of the exam is conducted on the basis of which the appropriateness of the method of checking the learning outcomes (Vice-dean for Teaching)
Other (as the proposer wishes to add)	Within the project funded by the Croatian Science Foundation (no. UIP-2017-05-7625: *User-oriented process (re)design and information systems modelling based on smart city services*), a series of activities are planned to engage different stakeholders in research and teaching activities at the doctoral and graduate level. Among others, curricular activities are planned relating to the topic of the project (such as summer and winter schools, elective courses, mentoring graduate thesis). Through this course, students will be able to achieve predicted learning outcomes relevant for their graduate theses, which they prepare under the mentorship of project researchers. Mandatory and supplementary literature for students is purchased with project funds, papers that qualify the course lecturers were prepared within the framework of the project, and project partners participate as guest lecturers.