

Basic data of the subject			
Academic Unit:	Faculty of Architecture, Design and Wood Technology		
Program:	Interior Architecture and Furniture Design		
Subject title:	Digitalization of Production		
Study level:	Bachelor		
Subject status:	Mandatory		
Year of study:	II		
Number of hours per week:	3		
Value of credits - ECTS:	4		
Lecturer of the subject:	MSc. Bujar Jashari		
Contact details:	bujar.jashari@ushaf.net		
Subject description:	<p>The subject prepares students in the field of industry 4.0, starting from the basics of industry and the principles of SMART technology; production systems, communication systems and industry standards 4.0; application of artificial intelligence in production, environmental safety of production systems and use of CNC machines in the production of interior furniture.</p>		
Purpose of subject:	<p>The purpose of this subject is to prepare students for the digitalization of industrial production. The implemented examples are characterized by connecting machines through networks. The subject provides a comprehensive overview of data digitization in production line systems with modern machinery which serve for production in the wood industry.</p>		
Expected learning outcomes:	<p>After completion of this module, students will be able to:</p> <ul style="list-style-type: none"> • Know and understand the chain of technological lines in the industry; • Know and understand the SMART industry; • Plan and implement timely targeted technical projects on CNC machines; • Ability to design and use leading CNC machines in the interior furniture production department. 		
Contribution to student workload			
(which should correspond to the students learning outcomes)			
Activity	Hours	Days/week	Total
Lectures	2	15	30

Theoretical / laboratory exercises	1	15	15
Practical work			
Contacts to the Lecturer / Consultations	1	5	5
Field exercises	2	5	10
Tests, student seminars	1	2	2
Home work	4	5	20
Time of self-study (in the library or home)	2	15	30
Final preparation for the exam			
Time spent in assessment (tests, quiz, final exam)	2	1	2
Projects, presentations, etc.	6	1	6
Total			120
Teaching methodology: <i>Lectures, team work, lab work, practical visit</i>			
Assessment methods: <i>Final Exam 60%</i> <i>Seminars 40%</i>			
Literature			
Basic literature:	<ol style="list-style-type: none"> 1. Shaping the Fourth Industrial Revolution by Klaus Schwab Satya Nadella Nicholas Davis 2. Steve K.& Arthur G. Computer Numerical Control CNC 		
Additional literature	<ol style="list-style-type: none"> 3. Elena G. Popkova, Yulia V. Ragulina, Aleksei V. Bogoviz (2019), Industry 4.0: Industrial Revolution othe 21st Century. 		

Designed plan of teaching:	
Weeks	Lecture to be held
<i>Week 1:</i>	Introduction to the subject of production digitalization
<i>Week 2:</i>	Concept and characteristics of the digitized industry
<i>Week 3:</i>	Industrial application 4.0 in the furniture manufacturing plant
<i>Week 4:</i>	Intelligent factories and technologies to enable the Digitized Industry
<i>Week 5:</i>	The main operating system of the digitalization network
<i>Week 6:</i>	Technological lines for their production and their organization

Week 7:	Test I
Week 8:	Application of software in CNC machines
Week 9:	CNC machine component
Week 10:	Identification of machines based on table and axis manipulation (axis X, Y, Z
Week 11:	CNC machine software (G-Codes, Drivers, etc.)
Week 12:	Basics of programming and application of programs in CAD / CAM
Week 13:	Test II
Week 14:	Presentation of seminars by students
Week 15:	Presentation of seminars by students

Academic Policies and Rules of Conduct:
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<i>Regular attendance, keeping calm and active engagement in dialogue during lectures and exercises is mandatory.</i>
