

Syllabus

Basic data of the subject	
Academic unit:	Faculty of Engineering and Informatics
Title of the subject:	Design of Technological Processes
Level:	Master
Course Status:	Obligatory
Year of studies:	I
Number of hours per week:	3
Value of Credits - ECTS:	6
Time / location:	
Course lecturer:	Prof. Ass. Gjelosh Vataj, Dr. Sc.
Contact details:	gjelosh.vataj@ushaf.net
Course Description	
	<p><i>This course will introduce students to the proper way of designing technological processes, types of production technologies.</i></p> <p><i>Knowledge and understanding of the work of designers, issues and trends that affect their work, knowledge and understanding and skills in innovation, creativity and entrepreneurship, etc.</i></p>
Objectives of the course:	<p><i>The aim of this course is to provide students with knowledge on the basic concepts of design, operations, services, planning, equipment, scheduling of technological processes and design operations of technological processes.</i></p> <p><i>To enrich students with knowledge and understanding and skills of quality management of funds and design solutions of technological processes.</i></p>
Expected learning outcomes:	<p><i>Upon successful completion of this course, the student will be able to:</i></p> <ul style="list-style-type: none"> <i>• understanding of design concepts and processes,</i> <i>• assessing the impact of the past, present and new technologies on the individual, society and the environment,</i> <i>• analyse the work of designers, issues and trends that affect their work,</i> <i>• apply innovation and creativity skills in design ideas and problem solving approaches in real industrial environment,</i>
Contribution to the student load (which must correspond with learning outcomes)	

Activity	Hour	Day/Week	In total
Teaching (lecture and exercises)	3	15	45
Internship			
Contacts with teacher / consultations	2	5	10
Field exercises			
Midterm, seminars and projects.	3	5	15
Homework			
Self-learning time student (at the library or at home)	3	15	45
Final preparation for the exam	3	10	30
Time spent on evaluation (tests, quiz and final exam)	2	2	4
Projects and presentations.	1		1
Total			150
Teaching methodology:	<p><i>The subject takes 15 weeks with 2 hours of lectures and 1 hour weekly individual and group exercises.</i></p> <p><i>Exercises will be held in the form of individual and group work in which concrete examples will be discussed.</i></p> <p><i>Active participation is extremely important so students are encouraged to attend lectures and exercises regularly and contribute to the discussions that take place in lectures.</i></p> <p><i>Lectures, exercise, individual work, discussions and group work.</i></p>		
Assessment methods:	<p><i>Seminar paper 20%</i></p> <p><i>Regular attendance at class 10%</i></p> <p><i>Final exam 70% (test 1, 35% + Test 2, 35%)</i></p>		
Literature			
Basic Literature:	<ol style="list-style-type: none"> <i>Prof. Fatmir Çerkini, Projektimi i Proceseve Teknologjike (Authorized lectures),</i> <i>Prof. Asoc. Dr. Nexhat Qehaja, Projektimi i Proceseve Teknologjike,</i> 		
Additional Literature:	<ol style="list-style-type: none"> <i>Jan Buijs, Modelling product innovation processes, from linear logic to circular chaos. Creativity and Innovation Management.</i> <i>Serape Kalpakjian, Steven R. Schmid, Manufacturing Processes for Engineering Materials,</i> <i>Brown, Tim. (2008). "Design Thinking." Harvard Business Review 86, no. 6 (2008)</i> 		
The ratio of theory and practice	<i>60% theory with numerical exercises and 40% laboratory work.</i>		

Designed learning plan	
Week:	Lectures and exercises to be held

Week one:	<i>Introduction. General Model of Technological Process. Technological Process. The difference between technological and production processes. Technological documentation.</i>
Week two:	<i>Design of technological processes. General rules for the design of technological processes. Factors influencing the design of technological processes.</i>
Week three:	<i>Technological analysis (Technology) of Machinery parts. Determining the order of processing in accordance with the rules and priorities.</i>
Week four:	<i>Study visits to the company that uses: Business system, production, technological and processing. Geometric model of the processing system. Cyber model of the processing system.</i>
Week five:	<i>Technological processes of product processing. Technological process as the basis of the production system. Elements of the technological process. Basic elements of technological process evaluation.</i>
Week six:	<i>Variants of technological processes. Main design subsystems of technological processes. The conceptual solution of the technological process.</i>
Week seven:	<i>Test 1</i>
Week eight:	<i>Practical work in the USHAF laboratory. Systematization of surfaces, auxiliary surfaces, basic surfaces. Basics for processing. Requirements for the selection of bases for processing. Requirements for the selection of bases for processing. Order of processing performance.</i>
Week nine:	<i>Practical work in the USHAF Laboratory or Study visit to the company. Determination of layers for processing. External measurements, internal measurements, actions for determining the layers for processing. Conceptual choice of technological process.</i>
Week ten:	<i>Processing quality. Processing accuracy. Quality of processed surfaces. Roughness of processed surfaces. Typical processing operations.</i>
Week eleven:	<i>Design of technological processes with the help of computers. Design models. Technological production system with unit operators. System for automatic technological design. Model system for automatic design of technological processes for the class of rotational parts, PROTEK-R system modules.</i>
Week twelve:	<i>Cutting economics and processing regimes. Processing time structure. Processing costs. Durability of the processing tool.</i>
Week thirteen:	<i>Presentation of seminar papers.</i>
Week fourteen:	<i>Presentation of seminar papers.</i>
Week fifteen:	<i>Test 2</i>
Academic policies and rules of conduct	
<i>Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.</i>	