

Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering			Institute: Institute of Mechanical Engineering and Technology		
Name of the subject: Basics of manufacturing BGXGA1ABNE / BAGGA1AMND Full time course Term: 2024/2025 I. Credit: 4					
Programme: Tech Manager BSc II English			Semiar: Mo. 08:00-09:40 Room 134. Lecture: Mo. 09:50-11:20 Room 134.		
Teacher responsible for the subject:		Mikó Balázs (PhD.habil; ass. prof.)		Teachers: MIKÓ Balázs (PhD.habil; ass. prof.)	
Prerequisites:		-			
Hours per week:	Lecture: 1	Practice.: 2	Labs: 0	Consultation:	
Way of closing the semester:	Exam				
Curriculum					
<i>The aim of the course is to familiarise students with the manufacturing technologies of mechanical components, the basic types of manufacturing tools and manufacturing processes. The course will cover the types of machining processes, tools, and the design of conventional and CNC machine tools. The technologies of fine surface machining (grinding, sanding, ...), laser, plasma and water jet machining, spark cutting technologies will be discussed. Special attention is paid to the production technologies of plastic and composite parts and to additive manufacturing processes. Basic measurement skills are also taught.</i>					
Schedule					
Week no.	Topics				
1	Introduction Manufacturing process planning, requirements and process elements		Blank materials, selection and calculation, tolerances and manufacturing errors		
2	Basics of cutting, Tool wear, forces, cooling		Project work discussion		
3	Basic cutting methods and machine tools: turning, drilling, milling		Cutting tools, geometry and materials		
4	Basic cutting methods and machine tools: planning, shaping, broaching, grinding		Manufacturing examples and cost analyses		
5	Plastic part production technologies		Safety and ergonomics in machining workshop		
6	Composite technologies, Additive manufacturing		Manufacturing workshop tour		
7	Education break				
8	Metrology		Manufacturing workshop activity (turning)		
9			Manufacturing workshop activity (turning)		
10			Measuring workshop		
11	Education break				
12			Presentation workshop		
13			Consultation		
14	Test		Project presentation		
Requirements					
1 test in 14th week (max 40 points), 3 small online tests (15 points) 1 homework (team work, manufacturing process analysis) (max 20 points)					
0-59 % – 1 (fail); 60-69 % – 2 (pass); 70-79 % – 3 (satisfactory) 80-89 % – 4 (good); 90-100 % – 5 (excellent)					

Literature:

- [1] S. Kalpakjian; S.R. Schmid: Manufacturing engineering and technology; Pearson Singapore 8th ed. 2020.
- [2] Handouts in the Moodle system

Dr. MIKÓ Balázs

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Schedule					
Week no.	Topics				
1	Cancelled				
2	Introduction Manufacturing process planning, requirements and process elements		Project work discussion		
3	Basics of cutting, Tool wear, forces, cooling		Blank materials, selection and calculation, tolerances and manufacturing errors		
4	Basic cutting methods and machine tools: turning, drilling, milling		Cutting tools, geometry and materials		
5	Basic cutting methods and machine tools: planning, shaping, broaching, grinding		Manufacturing examples and cost analyses		
6	Plastic part production technologies		Safety and ergonomics in machining workshop		
7	Education break				
8	Composite technologies, Additive manufacturing		Presentation workshop		
9	Metrology		Measuring workshop		
10			Manufacturing workshop tour		
11	Education break				
12			Manufacturing workshop activity (turning) 1		
13			Manufacturing workshop activity (turning) 2		
14	Test		Project presentation		
Requirements					
1 test in 14th week (max 40 points), 3 small online tests (15 points) 1 homework (team work, manufacturing process analysis) (max 20 points)					
0-59 % – 1 (fail); 60-69 % – 2 (pass); 70-79 % – 3 (satisfactory) 80-89 % – 4 (good); 90-100 % – 5 (excellent)					

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