Plan for the field of study	**Management and Production Engineering**						
Study level	**Bachelor's degree**	Study profile	**General academic**	Form of study	**Full-time**	USOS/SOTS Code	**XXX-SI7/RB1**
						Valid from	**2023/2024**
The place where the classes are held	**Faculty of Organization and Management**						

Common part (A)

USOS course code	Course name	Responsible unit	ECTS	Total	W	Ć	L	P	S	Zt	Lk	K
General courses												
	Physical education	RJO3-KS	0	60		60						
	Foreign language	RJO3-KS	8	120							120	
	HES 1 - Protection of Intellectual Property	RJO3-KS	1	15	15							
	HES 2 - Communication techniques and tools	RJO3-KS	3	45	15	30						
	HES 3 - Introduction to entrepreneurship	RJO3-KS	1	15	15							
Basic courses												
	Mathematics	RJO3-KS	14	180	60	120						
	Physics	RJO3-KS	10	105	30	45	30					
Major courses												
	Computing Technologies and Information Processing (Computer Science and Basics of Programming)	ROZ3/RM1	11	120	30		90					
	Computer engineering graphics	ROZ3/RM1	10	105	30		30	45				
	Production engineering (Introduction to the field of study)	ROZ3/RM1	5	45	30		15					
	Introduction to Industry 4.0	ROZ3/RM1	5	45	15			30				
	Management and logistics in production enterprise	ROZ3/RM1	5	75	15	30		30				
	Statistics and data vizualization	ROZ3/RM1	4	45	15		30					
	Metrology	ROZ3/RM1	4	45	15		30					
	Environmental protection and sustainable development	ROZ3/RM1	3	45	15		15		15			
	Production processes and technologies	ROZ3/RM1	4	60	15	30	15					
	Technical mechanics	ROZ3/RM1	5	60	15	15	30					
	Materials science	ROZ3/RM1	3	45	15		30					
	Safety engineering	ROZ3/RM1	3	45	15		15		15			
	Quality engineering	ROZ3/RM1	3	30	15	15						
	Introduction to project work based on PBL method	ROZ3/RM1	4	30	15			15				
	Technical elective courses (PBL, 4 sem.)	ROZ3/RM1	8	75	15			60				
	Elective course from the university's elective courses database	-	10	150	150							
(A)	Number of hours of common subjects (A)	S	124	1560	555	345	330	180	30	0	120	0
(A)	Number of exams from common subjects (A)											
(A)	Number of hours during a week/semester (A)											

Division of hours into semesters (A)

Semester I

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Physical education			30							0
Foreign language								30		2
HES 1 - Protection of Intellectual Property		15								1
HES 2 - Communication techniques and tools		15	30							3
Mathematics		30	60							7
Computing Technologies and Information Processing (Computer Science and Basics of Programming)		30		30						6
Computer engineering graphics		15		30	15					6
Production engineering (Introduction to the field of study)	E	30		15						5
Number of hours of common subjects (A)		135	120	75	15	0	0	30	0	30
Number of exams from common subjects (A)	1									
Number of hours during a week/semester (A)	25					375				

Semester II

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Physical education			30							0
Foreign language								30		2
HES 3 - Introduction to entrepreneurship		15								1
Mathematics	E	30	60							7
Physics			30							2
Computing Technologies and Information Processing (Computer Science and Basics of Programming)				30						3
Computer engineering graphics		15			30					4
Introduction to Industry 4.0		15			30					5
Introduction to project work based on PBL method		15			15					4
Elective course from the university's elective courses database		30								2
Number of hours of common subjects (A)	0	120	120	30	75	0	0	30	0	30
Number of exams from common subjects (A)	1									
Number of hours during a week/semester (A)	25					375				

Semester III

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Foreign language								30		2
Physics		30	15	30						8
Computing Technologies and Information Processing (Computer Science and Basics of Programming)				30						2
Management and logistics in production enterprise	E	15	30		30					5
Statistics and data vizualization		15		30						4
Metrology		15		30						4
Environmental protection and sustainable development		15		15		15				3
Elective course from the university's elective courses database		30								2
Number of hours of common subjects (A)		120	45	135	30	15	0	30	0	30
Number of exams from common subjects (A)	1									
Number of hours during a week/semester (A)	25					375				

Semester IV

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Foreign language								30		2
Production processes and technologies		15	30	15						4
Technical mechanics	E	15	15	30						5
Materials science		15		30						3
Safety engineering		15		15		15				3
Quality engineering		15	15							3
Technical elective courses (PBL, 4 sem.)	E	15			60					8
Elective course from the university's elective courses database		30								2
Number of hours of common subjects (A)		120	60	90	60	15	0	30	0	30
Number of exams from common subjects (A)	2									
Number of hours during a week/semester (A)	25					375				

Semester V

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Elective course from the university's elective courses database		30								2
Number of hours of common subjects (A)		30	0	0	0	0	0	0	0	2
Number of exams from common subjects (A)	0									
Number of hours during a week/semester (A)	2					30				

Semester VI

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Elective course from the university's elective courses database		30								2
Number of hours of common subjects (A)		30	0	0	0	0	0	0	0	2
Number of exams from common subjects (A)	0									
Number of hours during a week/semester (A)	2					30				

Semester VII

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Number of hours of common subjects (A)		0	0	0	0	0	0	0	0	0
Number of exams from common subjects (A)	0									
Number of hours during a week/semester (A)	0					0				

Specialization (B)

Management of production systems in a modern enterprise

The place where the classes are held: **Faculty of Organization and Management**

USOS course code	Course name	Responsible unit	ECTS	Total	W	Ć	L	P	S	Zt	Lk	K
	Automation and robotics of production processes	ROZ3	3	45	15			30				
	Internet and mobile technologies	ROZ1	3	30	15		15					
	GIS systems in industrial environment	ROZ3	3	30	15		15					
	Technology Assessment	ROZ3	3	30	15			15				
	Process and product quality management	ROZ3	6	75	30		15	30				
	Machines and technological equipment	ROZ3	3	45	15		15	15				
	Implementation of innovations in technical systems	ROZ3	2	30	15			15				
	Industrial marketing	ROZ4	2	30	15	15						
	Occupational safety engineering	ROZ3	6	75	30	15	15	15				
	Competences of manager and engineer 4.0	ROZ3	2	30	15	15						
	Cost accounting for engineers	ROZ1	2	30	15	15						
	Artificial intelligence methods in engineering applications	ROZ3	2	45	15		15	15				
	Operational research	ROZ1	2	45	15		15	15				
	Engineering design (PBL)	ROZ3	5	60	15		15	30				
	Environmental management	ROZ3	3	60	30	15		15				
	Production systems engineering	ROZ3	2	30	15		15					
	Virtual and augmented reality	ROZ3	2	30	15		15					
	Theory and practice of decision making	ROZ4	2	30	15	15						
	Business intelligence and big data	ROZ1	2	30	15		15					
	Maintenance and reliability of technical systems	ROZ3	3	75	30		30	15				
	Designing of technological processes	ROZ3	2	45	15			30				
	Contemporary challenges of production engineering	ROZ3	4	75	15			60				
	Internship	-	4									
	Problem-based seminar	ROZ3	3	45					45			
	Engineering project	ROZ3	15	45				45				
(B)	Number of hours of classes (B)	S	86	1065	390	90	195	345	45	0	0	0
(B)	Number of exams in semester (B)											
(B)	Number of hours during a week/semester (B)											
(A+B)	Total number of hours of classes (A+B)	S	210	2625	945	435	525	525	75	0	120	0
(A+B)	Total number of exams in semester (A+B)											
(A+B)	Total number of hours during a week/semester (A+B)											

Division of hours into semesters (B)

Semesters I–IV

Course name	Semester	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Number of hours of classes (B)	I		0	0	0	0	0	0	0	0	0
Number of exams in semester (B)	I	0									
Number of hours during a week/semester (B)	I	0					0				
Total number of hours of classes (A+B)	I		135	120	75	15	0	75	15	0	30
Total number of exams in semester (A+B)	I	1									
Total number of hours during a week/semester (A+B)	I	25					375				
Number of hours of classes (B)	II		0	0	0	0	0	0	0	0	0
Number of exams in semester (B)	II	0									
Number of hours during a week/semester (B)	II	0					0				
Total number of hours of classes (A+B)	II		120	120	30	75	0	75	15	0	30
Total number of exams in semester (A+B)	II	1									
Total number of hours during a week/semester (A+B)	II	25					375				
Number of hours of classes (B)	III		0	0	0	0	0	0	0	0	0
Number of exams in semester (B)	III	0									
Number of hours during a week/semester (B)	III	0					0				
Total number of hours of classes (A+B)	III		120	45	135	30	15	75	15	0	30
Total number of exams in semester (A+B)	III	1									
Total number of hours during a week/semester (A+B)	III	25					375				
Number of hours of classes (B)	IV		0	0	0	0	0	0	0	0	0
Number of exams in semester (B)	IV	0									
Number of hours during a week/semester (B)	IV	0					0				
Total number of hours of classes (A+B)	IV		120	60	90	60	15	75	15	0	30
Total number of exams in semester (A+B)	IV	2									
Total number of hours during a week/semester (A+B)	IV	25					375				

Semester V

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Automation and robotics of production processes		15			30					3
Internet and mobile technologies		15		15						3
GIS systems in industrial environment		15		15						3
Technology Assessment	E	15			15					3
Process and product quality management	E	30		15	30					6
Machines and technological equipment		15		15	15					3
Implementation of innovations in technical systems		15			15					2
Industrial marketing		15	15							2
Occupational safety engineering		15		15						3
Number of hours of classes (B)		150	15	75	105	0	0	0	0	28
Number of exams in semester (B)	2									
Number of hours during a week/semester (B)	23					345				
Total number of hours of classes (A+B)		180	15	75	105	0	75	15	0	30
Total number of exams in semester (A+B)	2									
Total number of hours during a week/semester (A+B)	25					375				

Semester VI

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Occupational safety engineering	E	15	15		15					3
Competences of manager and engineer 4.0		15	15							2
Cost accounting for engineers		15	15							2
Artificial intelligence methods in engineering applications		15		15	15					2
Operational research		15		15	15					2
Engineering design (PBL)		15		15	30					5
Environmental management	E	30	15		15					3
Internship										4
Problem-based seminar						15				1
Engineering project					15					4
Number of hours of classes (B)		120	60	45	105	15	0	0	0	28
Number of exams in semester (B)	2									
Number of hours during a week/semester (B)	23					345				
Total number of hours of classes (A+B)		150	60	45	105	15	75	15	0	30
Total number of exams in semester (A+B)	2									
Total number of hours during a week/semester (A+B)	25					375				

Semester VII

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Production systems engineering		15		15						2
Virtual and augmented reality		15		15						2
Theory and practice of decision making		15	15							2
Business intelligence and big data		15		15						2
Maintenance and reliability of technical systems		30		30	15					3
Designing of technological processes		15			30					2
Contemporary challenges of production engineering		15			60					4
Problem-based seminar						30				2
Engineering project					30					11
Number of hours of classes (B)		120	15	75	135	30	0	0	0	30
Number of exams in semester (B)	0									
Number of hours during a week/semester (B)	25					375				
Total number of hours of classes (A+B)		120	15	75	135	30	75	15	0	30
Total number of exams in semester (A+B)	0									
Total number of hours during a week/semester (A+B)	25					375				

Specialization (C)

Management of sustainable consumption and production

The place where the classes are held: **Faculty of Organization and Management**

USOS course code	Course name	Responsible unit	ECTS	Total	W	Ć	L	P	S	Zt	Lk	K
	Economics and finance of sustainable consumption and production	ROZ3	5	60	30	30						
	Management systems and standards for sustainability	ROZ3	4	45	15	30						
	Design of technological processes for sustainable production	ROZ3	8	120	60		30	30				
	IT and ICT technologies in sustainable enterprise	ROZ3	7	90	30		30	30				
	Closed loop economy	ROZ3	5	60	30	30						
	Implementation of innovations in technical systems	ROZ3	2	30	15			15				
	Sustainability reporting	ROZ3	2	30	15			15				
	Sustainable quality management	ROZ3	5	75	30	15		15				15
	Life Cycle Assessment (LCA)	ROZ3	3	60	30		30					
	Eco-innovation and eco-product development	ROZ3	4	75	30	15		30				
	Safety engineering in the work environment (PBL)	ROZ3	5	60	15		15	30				
	Renewable energy management	ROZ3	3	60	30			30				
	Industry 4.0 and artificial intelligence technologies	ROZ3	4	75	30		30	15				
	Sustainable management of logistics processes	ROZ3	3	60	30		30					
	Contemporary challenges of production engineering	ROZ3	4	75	15			60				
	Internship	-	4									
	Problem-based seminar	ROZ3	3	45					45			
	Engineering project	ROZ3	15	45				45				
(C)	Number of hours of classes (C)	S	86	1065	405	120	165	315	45	0	0	15
(C)	Number of exams in semester (C)											
(C)	Number of hours during a week/semester (C)											
(A+C)	Total number of hours of classes (A+C)	S	210	2625	960	465	495	495	75	0	120	15
(A+C)	Total number of exams in semester (A+C)											
(A+C)	Total number of hours during a week/semester (A+C)											

Division of hours into semesters (C)

Semesters I–IV

Course name	Semester	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Number of hours of classes (C)	I		0	0	0	0	0	0	0	0	0
Number of exams in semester (C)	I	0									
Number of hours during a week/semester (C)	I	0					0				
Total number of hours of classes (A+C)	I		135	120	75	15	0	75	15	0	30
Total number of exams in semester (A+C)	I	1									
Total number of hours during a week/semester (A+C)	I	25					375				
Number of hours of classes (C)	II		0	0	0	0	0	0	0	0	0
Number of exams in semester (C)	II	0									
Number of hours during a week/semester (C)	II	0					0				
Total number of hours of classes (A+C)	II		120	120	30	75	0	75	15	0	30
Total number of exams in semester (A+C)	II	1									
Total number of hours during a week/semester (A+C)	II	25					375				
Number of hours of classes (C)	III		0	0	0	0	0	0	0	0	0
Number of exams in semester (C)	III	0									
Number of hours during a week/semester (C)	III	0					0				
Total number of hours of classes (A+C)	III		120	45	135	30	15	75	15	0	30
Total number of exams in semester (A+C)	III	1									
Total number of hours during a week/semester (A+C)	III	25					375				
Number of hours of classes (C)	IV		0	0	0	0	0	0	0	0	0
Number of exams in semester (C)	IV	0									
Number of hours during a week/semester (C)	IV	0					0				
Total number of hours of classes (A+C)	IV		120	60	90	60	15	75	15	0	30
Total number of exams in semester (A+C)	IV	2									
Total number of hours during a week/semester (A+C)	IV	25					375				

Semester V

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Economics and finance of sustainable consumption and production		30	30							5
Management systems and standards for sustainability		15	30							4
Design of technological processes for sustainable production	E	30			30					5
IT and ICT technologies in sustainable enterprise		15		15	30					5
Closed loop economy	E	30	30							5
Implementation of innovations in technical systems		15			15					2
Sustainability reporting		15			15					2
Number of hours of classes (C)		150	90	15	90	0	0	0	0	28
Number of exams in semester (C)	2									
Number of hours during a week/semester (C)	23					345				
Total number of hours of classes (A+C)		180	90	15	90	0	75	15	0	30
Total number of exams in semester (A+C)	2									
Total number of hours during a week/semester (A+C)	25					375				

Semester VI

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Design of technological processes for sustainable production		30		30						3
IT and ICT technologies in sustainable enterprise		15		15						2
Sustainable quality management		15	15							2
Life Cycle Assessment (LCA)		30		30						3
Eco-innovation and eco-product development	E	30	15		30					4
Safety engineering in the work environment (PBL)	E	15		15	30					5
Internship										4
Problem-based seminar						15				1
Engineering project					15					4
Number of hours of classes (C)		135	30	90	75	15	0	0	0	28
Number of exams in semester (C)	2									
Number of hours during a week/semester (C)	23					345				
Total number of hours of classes (A+C)		165	30	90	75	15	75	15	0	30
Total number of exams in semester (A+C)	2									
Total number of hours during a week/semester (A+C)	25					375				

Semester VII

Course name	E	W	Ć	L	P	S	Zt	Lk	K	ECTS
Sustainable quality management		15			15				15	3
Renewable energy management		30			30					3
Industry 4.0 and artificial intelligence technologies		30		30	15					4
Sustainable management of logistics processes		30		30						3
Contemporary challenges of production engineering		15			60					4
Problem-based seminar						30				2
Engineering project					30					11
Number of hours of classes (C)		120	0	60	150	30	0	0	15	30
Number of exams in semester (C)	0									
Number of hours during a week/semester (C)	25					375				
Total number of hours of classes (A+C)		120	0	60	150	30	75	15	15	30
Total number of exams in semester (A+C)	0									
Total number of hours during a week/semester (A+C)	25					375				

Elective courses

W1	W2	W3	W4
Technical elective courses (1) Basics of machine science (PBL, 4 sem.) - 15W 30P (5 ECTS) 3D printing (PBL, 4 sem.) - 30P (3 ECTS)			

Notes

Form of classes: W - Lecture, Ć - Exercises, L - Laboratory, P - Project, S - Seminar, Zt - Outdoor activities, Lk - Language course, K - Discussion seminar, E - Exam