

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Flexible Manufacturing Systems		Code 1011101251011110225
Field of study Logistics - Full-time studies - First-cycle studies	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 15 Classes: - Laboratory: - Project/seminars: 15		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 2 100%
Responsible for subject / lecturer: dr inż. Ireneusz Gania email: ireneusz.gania@put.poznan.pl tel. 616653385 Wydział Inżynierii Zarządzania ul. Strzelecka 11 60-965 Poznań		Responsible for subject / lecturer: dr inż. Ireneusz Gania email: ireneusz.gania@put.poznan.pl tel. 616653385 Wydział Inżynierii Zarządzania ul. Strzelecka 11 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student knows the basic concepts related to construction, design, implementation, operation of flexible manufacturing systems in the engineering industry companies.
2	Skills	Student has the ability to perceive, association, interpretation of the phenomena occurring in the sphere of production and organization of both conventional.
3	Social competencies	Student understands and is prepared to take on social responsibility for decisions related to the design and implementation
Assumptions and objectives of the course: Acquaint students with the nature, scope and methods of design and implementation of flexible manufacturing systems.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. He has knowledge of mathematical statistics required for the selection and application of the methods of descriptive statistics in the study of economic phenomena structure and logistics - [K1A_W05]		
2. He has a basic knowledge of: engineering graphics, design and technology and the construction and operation of machinery - [K1A_W06]		
3. has a basic knowledge of social sciences and humanities: management, psychology, sociology, philosophy and law - [K1A_W09]		
Skills:		
1. He is able to prepare and present an oral presentation concerning the specific issues of logistics in Polish and foreign language - [K1A_U04]		
2. He can independently develop a set, housed in the subject being studied issue - [K1A_U05]		
3. He can be formulated using analytical methods, simulation or experimental located within the subject being studied design task and solve the task in the field of logistics and its specific issues (inventory management, logistics, distribution, logistics, manufacturing and sourcing, logistics service,) and supply chain management - [K1A_U09]		
4. He is able to select appropriate tools and methods to solve the problem of falling within the logistics and supply chain management as well as how to use them effectively - [K1A_U15]		
Social competencies:		

1. He is aware of the need for lifelong learning; inspire and organize the learning process of others in the coming within studied concerning issues - [K1A_K01]
2. He is willing to cooperate and work in teams to resolve contained within the subject being studied problems - [K1A_K03]
3. He is able to plan and manage in an entrepreneurial manner - [K1A_K06]

Assessment methods of study outcomes		
Score executed project. Written test of the scope of the content of the lecture		
Course description		
Flexibility The concept and development of flexibility Flexible automation of production Construction of flexible manufacturing systems Functional subsystems ESP Machines with ESP Position control with ESP Auxiliaries Designing flexible manufacturing systems Design methods ESP Designing functional subsystems ESP Rating flexible manufacturing systems? Assessment methods ESP Evaluation of the effects of irrational ESP The development of flexible manufacturing systems Development of ESP in Poland Development of ESP in the world		
Basic bibliography:		
1. Lis S., Santarek K.: Strzelczak S., Organizacja elastycznych systemów produkcyjnych, Państwowe Wydawnictwa Naukowe, Warszawa 1994. 2. Świć A.: Elastyczne systemy produkcyjne. Technologiczno-organizacyjne aspekty projektowania i eksploatacji. Wydawnictwo Politechniki Lubelskiej, Lublin 1998		
Additional bibliography:		
1. Sawik T., Łebkowski P.: Elastyczne systemy produkcyjne, Wydawnictwo Akademii Górniczo-Hutniczej, Kraków 1992. 2. Zawadzka L.: Podstawy projektowania elastycznych systemów sterowania produkcją. Problemy techniczno-ekonomiczne. Wydawnictwo Politechniki Gdańskiej, Gdańsk 2000.		
Result of average student's workload		
Activity	Time (working hours)	
1. Stand alone development project	15	
2. Participation in class lecture	15	
3. Preparing to written exam	2	
4. The consultation	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	30	2
Contact hours	15	2
Practical activities	15	0