



LEARNING OUTCOMES

Major field of study: **Management and Production Engineering**
 Level of education: **First-cycle studies (Bologna first cycle)**
 Educational profile: **General academic**

Symbol for directional learning outcomes	Major field of study - learning outcomes	Assignations to the generic learning outcomes in The Polish Qualifications Framework (PQF)	
		PQF	engineering competences
KNOWLEDGE P6U_W Students are expected to have attained the following knowledge:			
ZIP1_W01	Knowledge of mathematics including algebra, analysis, statistics, financial mathematics, and operations research, including the mathematical methods necessary to solve engineering problems, and problems in the area of economics and management including the processes of mathematical modelling.	P6S_WG	
ZIP1_W02	Knowledge of physics, including mechanics (statics, kinematics, dynamics), fluid mechanics, thermodynamics, strength of materials, optics, electricity, and magnetism.	P6S_WG	
ZIP1_W03	Knowledge of the law including business law and intellectual property rights	P6S_WK	
ZIP1_W04	Knowledge of computer networks and operating systems, necessary to install, operate, and maintain basic Informatics Tools such as office suites, engineering graphics programs, computational programs, and programs for modelling.	P6S_WG	
ZIP1_W05	Knowledge of computer science including an analysis of algorithms, programming with object-oriented languages, building simple databases, and knowledge of the possibilities of using multimedia techniques.	P6S_WG	
ZIP1_W06	Knowledge regarding the creation and analysis of technical documentation with elements of engineering design with the use of graphical and computational programs.	P6S_WG	
ZIP1_W07	Knowledge of materials used in the manufacturing processes of products and technical equipment, and of wear processes during exploitation.	P6S_WG	P6S_WG
ZIP1_W08	Knowledge regarding the metrology and measurement systems in conjunction with the quality in the entire life cycle of a product or manufactured article.	P6S_WG	P6S_WG
ZIP1_W09	Knowledge regarding production processes and manufacturing techniques with taking account of quality assurance issues.	P6S_WG	P6S_WG
ZIP1_W10	Knowledge covering economic phenomena and economic processes in macro and micro aspects with taking account of the role of finance.	P6S_WG	
ZIP1_W11	Knowledge of control, foundations of automation, and elements of robotics, oriented on production processes.	P6S_WG	



ZIP1_W12	Knowledge of keeping records of economic events in the company in the field of accounting including the use of computer systems.	P6S_WG	
ZIP1_W13	Knowledge of management of an organization in a market economy in a manner favourable for development.	P6S_WK	P6S_WK
ZIP1_W14	Knowledge regarding the management of production processes and services in the logistics supply chain, taking account of the role of quality in contemporary organizations.	P6S_WK	P6S_WK
ZIP1_W15	Knowledge regarding the product life cycle in conjunction with the issues of ecology and environmental protection.	P6S_WG	P6S_WG
ZIP1_W16	Knowledge of methods of launching new products and services in market economy conditions.	P6S_WK	P6S_WK
ZIP1_W17	Knowledge and understanding of the importance of the humanities contents in the fields of technology and business.	P6S_WK	
ZIP1_W18	Knowledge of development trends in management and production engineering while taking account of innovation activities.	P6S_WK	P6S_WK
SKILLS P6U_U			
Students are expected to have attained the following skills:			
ZIP1_U01	Ability to collect information from literature, databases, and other sources; to connect the obtained information, to analyze and interpret data, conclude, formulate, and justify opinions.	P6S_UW P6S_UK	
ZIP1_U02	Ability to work individually and in a team, ability to estimate the amount of time needed for execution of the commissioned tasks; to schedule works to ensure meeting deadlines.	P6S_UO	
ZIP1_U03	Ability to develop documentation regarding the execution of engineering and organizational tasks, and ability to prepare a report on the task execution process and its results.	P6S_UK	
ZIP1_U04	Ability to prepare and give a multimedia presentation on the results of the engineering task.	P6S_UK	
ZIP1_U05	Speaks a foreign language at level B2 of the Common European Framework of Reference for Languages and to a degree sufficient to communicate and read with understanding of professional texts related to production engineering and management.	P6S_UK	
ZIP1_U06	Ability to carry on self-education to solve new tasks and enhance professional competencies.	P6S_UU	
ZIP1_U07	Ability to build simple databases (MS Access) related to management issues and develop simple applications using modern methods and programming languages.	P6S_UW	P6S_UW
ZIP1_U08	Ability to analyze and understand a quality management systems documentation, to apply quality tools in the decision-making process.	P6S_UW	P6S_UW
ZIP1_U09	Ability to perform basic measurements of geometric and electrical quantities related to the manufacturing process.	P6S_UW	P6S_UW
ZIP1_U10	Ability to keep the accounts of a small business independently or to work in a team performing accounting services for a large organization, taking account of elements of the economic law including balance sheet law.	P6S_UW	



ZIP1_U11	Ability to act per the intellectual property law, to use the Polish Patent Office's databases, and to appreciate the value of the novelty of products and services.	P6S_UW	
ZIP1_U12	Ability to perform financial analyses related to economic activities including elements of optimization.	P6S_UW	P6S_UW
ZIP1_U13	Ability to perform basic economic analyses of engineering activities associated with launching, upgrading and modernization of production.	P6S_UW	P6S_UW
ZIP1_U14	Ability to apply known mathematical models and methods and computer simulations in a process of analysis and evaluation of management and production decisions.	P6S_UW	P6S_UW
ZIP1_U15	Ability to see the linkage between engineering decisions and non-technical areas, including environmental, economic, and legal aspects.	P6S_UW	P6S_UW
ZIP1_U16	Ability to apply occupational safety and health rules and understand the importance of safety and health management systems compliant with the PN-N-18000 standards.	P6S_UW	P6S_UW
ZIP1_U17	Ability to do simple strength analyses and motion analyses of material bodies with the use of classical methods of computing.	P6S_UW	P6S_UW
ZIP1_U18	Ability to analyze and organize simple production systems taking account of the principles of production management.	P6S_UW	P6S_UW
ZIP1_U19	Ability to judge the usefulness of basic methods and tools for solving simple engineering tasks in the field of production engineering, and organizational and managerial types of tasks.	P6S_UW	P6S_UW
SOCIAL COMPETENCES P6U_K			
Students are expected to have attained the following social competences			
ZIP1_K01	Recognizes the importance of knowledge in solving problems, understands the need for continuous improvement (second and third cycle studies, postgraduate studies, courses), which leads to the improvement of personal and social professional competences.	P6S_KK	
ZIP1_K02	Is aware of the importance and understands the connections between engineering and non-technical activities in terms of environmental impact and responsibility for decisions made.	P6S_KO	
ZIP1_K03	Is aware of the importance of acting professionally, observing the principles of professional ethics and respecting the diversity of views and cultures.	P6S_KR	
ZIP1_K04	Is aware of the responsibility for one's own work and is ready to obey the principles of teamwork and be responsible for jointly performed tasks.	P6S_KR	
ZIP1_K05	Is ready to think and act in an entrepreneurial way with an understanding of the needs of society and the laws governing the natural environment.	P6S_KO	
ZIP1_K06	Is aware of the social role of a technical university graduate and understands the need to provide the public with information regarding achievements related to the field of study "Management and production engineering" in a generally understandable way.	P6S_KO	