

Second-cycle studies leading to MSc degree

Field of study: Management and Production Engineering

Type of studies: full-time second-cycle studies

Learning outcomes

K_W01	has the extended and deep knowledge of the application of mathematical methods to formulate and solve complex tasks related to <i>Management and Production Engineering</i> .
K_W02	has the extended and deep knowledge of the branch of physics and chemistry useful to formulate and solve complex tasks related to <i>production engineering</i> .
K_W03	has the extended and deep knowledge of the application of computer aided numerical methods in the range of source and data analysis,
K_W04	has the extended and deep knowledge of the branch of operational research and numerical methods useful to formulate and solve complex tasks related to <i>management and production engineering</i> .
K_W05	has the extended and deep knowledge of the branch of computer science and network useful to formulate and solve complex tasks related to <i>management and production engineering</i>
K_W06	has detailed knowledge of selected issues of broadly understood Mechanical Engineering, associated with the Production Engineering, and computer aided techniques (CAD / CAM, Cax).
K_W07	has theoretical knowledge connected to some range of Management and Production Engineering according to chosen speciality, in quality control, engineering materials, form of structure and investigation of mechanical, technological and exploitative properties of engineering material and final products, produced by different technologies.
K_W08	has the ordered, theoretical knowledge of strategic management, in particular: - the role of business development strategies and their types, - drawing up a strategic plan - portfolio methods - an integrated process of strategic management and marketing
K_W09	has well-ordered, theoretical knowledge in the field of computer-aided management in an enterprise.
K_W10	the well-ordered, theoretical knowledge of forecasting and simulation in an enterprise.
K_W11	has the ordered, theoretical knowledge in the field of integrated management systems,
K_W12	has the ordered, theoretical knowledge of the organization of production systems.
K_W13	has the ordered, theoretical knowledge of project management and innovation
K_W14	has the ordered, theoretical knowledge of decision support systems and knowledge management with regard to ethics.
K-W15	has the ordered, specific theoretical knowledge of the branch of chosen speciality (Quality engineering, Logistic, Production and service management)

K_W16	has knowledge of development trends and new developments in the field of management, information technology, manufacturing engineering.
K_W17	has knowledge of life cycle of devices, objects, and technical systems related to Management and Production Engineering
K_W18	knows basic methods, techniques, tools and materials used to solving complex tasks related to production engineering
K_W19	has general knowledge necessary to understand social, economic, legal and other non-technical aspects of ethical engineering activities and the importance of taking them into account in engineering practice.
K_W20	has knowledge of quality management and business management.
K-W21	has basic knowledge in the field of protection of the industrial properties, authors, can use patent information's data.
K_W22	knows the general principles for the foundation and development of individual entrepreneurship, based on knowledge of the Management and Production Engineering Mechanical
K_U01	the student is able to obtain information from literature, databases and other sources, integrate, interpret and critically evaluate it as well as to draw conclusions and formulate and sufficiently justify opinions.
K-U02	The student is able to plan of experiment and engineering activities in the field of mechanical engineering, can work out results of experiment, draw out conclusions and formulate and sufficiently justify opinions.
K_U03	can work individually and in a team; they are also able to select team members for a specific task , assign tasks for the members and manage a small team.
K_U04	The student is able to obtain, integrate, interpret knowledge, draw conclusions and formulate opinions on the basis of: catalog entries issued by manufacturers of appliances , advertising materials, information obtained from literature, databases and other modern means of communication, which relate to issues of mechanical engineering and management methods in this field.
K_U05	The student is able to prepare, document and elaborate issues for the field of technical sciences and scientific disciplines relevant to the Management and Production Engineering (production engineering, engineering of materials, machinery building and exploitation, mechanic, automatic, robotic and management) in writing, presenting the results of their research (in polish and english).
K-U06	The student is able to prepare and feature (oral) presentation connected to some issues related to <i>Management and Production Engineering</i> from
K_U07	The student is able to determine the directions of further learning and pursue the process of self-education, in order to increase skills and professional competence with the use of library resources, electronic resources and databases.
K_U08	Has sophisticated skills, using different techniques, to communicate in scientific and others communities, also in foreign language approved as international language in Management and Production Engineering

K_U09	The student is able to speak at least one foreign language, at the level of B2 + (at least) according to European Framework of Reference for Languages of the Council of Europe, especially English or other foreign languages considered to be the language of international communication in their professional activities and everyday life.
K_U10	Student uses terminology related to management and production engineering in English.
K_U11	The student is able to choose and use appropriate computer applications for calculation, simulation, design and solution verification related to Management and Production Engineering.
K_U12	Student is able to choose the relevant modules and to use integrated management information systems.
K_U13	The student is able to use known analytical, simulational and experimental methods for solving problems of mechanical engineering as well as in the decision-making process for production planning and control.
K_U14	The student is able to select and use appropriate methods of optimization to solve simple research problems related to Management and Mechanical Production Engineering .
K_U15	The student is able to document the progress of work in the form of test or measurements reports and to elaborate the results of the work, to formulate directions for further research and to present them in a clear report.
K_U16	The student can use known methods and mathematical models and computer simulations to analyze and evaluate management and decision-making systems.
K_U17	The student is able to formulate and solve tasks related to production engineering and management; to use a system approach, taking into account ethical, economic, legal and social aspects.
K_U18	The student is able to integrate knowledge in the range of technical field and appropriate science disciplines relevant to the Management and Production Engineering (production engineering, engineering of materials, machinery building and exploitation, mechanic, automatic, robotic and management)
K_U19	The student is able to formulate and test hypotheses related to engineering problems and simple research problems related to Management and Production Engineering.
K_U20	The student is able to assess the usefulness and applicability of the latest techniques and technologies in the area of Management and Production Engineering, in terms of quality and modern marketing.
K_U21	Applies safe working and hygiene practice , can design and use safety working conditions in complex production systems.
K_U22	The student is able to plan and carry out engineering experiments, including measurements of parameters of technological processes and computer simulations; to interpret the results and draw conclusions.
K_U23	The student is able to assess the initial costs and the estimated costs of implemented engineering projects; to make a preliminary economic analysis of undertaken engineering activities.

K_U24	Student is able to design a complex manufacturing system and to choose methods for managing the flow of the processes (using innovative methods) to design workplaces and to make a critical analysis of the functioning of the proposed solutions.
K_U25	The student is able to formulate the requirements for supply chain and to design complex logistics system.
K_U26	The student is able to choose the method for decision-making support in management and to introduce modifications of the methods applied.
K_U27	The student is able to design and apply tools of quality control processes and products of mechanical engineering
K_U28	The student is able to design and management of date base in the area of mechanical engineering
K_U29	Can make proposition aimed to improve/modify existing technical solution, can estimate usefulness of new methods and techniques related with quality management and improvement of processes and select and use right methods and instruments.
K_K01	The student understands the need for learning throughout life, can inspire other people to learn and organize the learning process for them.
K_K02	The student is aware of the importance and understanding of the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for their decisions.
K_K03	The student is able to interact and work in a group accepting various roles
K_K04	The student is able to state priorities servant to carry defined by own and others task out.
K_K05	Rightly identifies and determines dilemmas related to occupation.
K_K06	The student is able to think and act in a creative and entrepreneurial way
K_K07	The student is aware of the social role of a technical university graduate, and especially understands the need to formulate opinions and to inform the public, e.g. through the mass media, about technological achievements and other aspects of engineering; endeavours to provide such information and opinions in a manner commonly understood, and justifies various points of view.