

CARD OF THE PROGRAM OF STUDIES

Name of the education program (field of study): **Management and production engineering**

Name of the Faculty: **Faculty of Production and Logistics Engineering**

Education programme	Resolution of the Faculty Council dated	24.04.2019
	Valid from the academic year	2019/2020
Level of education (first-cycle/second-cycle degree)		first-cycle degree
Education profile (general / practical)		general academic
The date and number of the resolution of the Senate adopting the directional learning outcomes		29.05.2019r resolution nr 322
Form of study (full-time / part-time)		full-time
Assignment to the field or fields of science		- <u>field of social sciences</u> - field of engineering and technical sciences
Indication of the discipline (science or art) or disciplines (in the case of a few to indicate - to underline - the leading discipline to which a minimum of 50% of learning outcomes applies)		- <u>field of social sciences</u> scientific disciplines: <u>management and quality sciences</u> - field of engineering and technical sciences scientific disciplines: mechanical engineering
Duration (in semesters)		7
Number of ECTS credits		210
Professional title received by the graduate		Engineer
ISCED classification		0488
Connection with the University's mission and its development strategy		<p>Educating highly qualified staff and developing with implementing new technologies, building a modern information society, respecting ethics, promoting individual development, cooperation with the business-economic environment, training in the labor market - these goals are included in the assumed learning outcomes.</p> <p>By completing the mission of the Opole University of Technology and strategic objectives included in the University Development Strategy, as well as the objectives set out in the Development Strategy of the Production Engineering and Logistics Department until 2020, and taking into account changes in the national labor market and the interests of future</p>

	<p>students, the Faculty offers management and engineering studies production, which has been popular for many years among young people choosing higher education.</p> <p>From the academic year 2017/2018, the following specialization was introduced in the first cycle program: industrial processes and systems engineering.</p>
<p>Learning objectives and employment opportunities and continuation of studies</p>	<p>The graduate has knowledge in the field of production engineering, which focuses on the organizational and technical preparation of production, innovation of products and technological processes and quality engineering. Graduate also has the necessary knowledge in the field of economic sciences and business management.</p> <p>The graduate has managerial skills and solving issues from organizational and technical preparation of production and quality engineering in production engineering, including:</p> <ul style="list-style-type: none"> • designing new and supervising existing production processes and systems; • supervision of facilities and management systems; • selection of construction materials; • business cost and finance management; • project management; • application of IT tools supporting production management; • management of production companies. <p>The graduate is prepared to:</p> <ul style="list-style-type: none"> • management of production processes in the area of organizational and technical preparation of production, innovation of products and technological processes and quality engineering; • coordinating and supervising activities in the field of industrial marketing and production logistics; • organizing and managing staff and coordinating the work of employee teams; • participation in the implementation and implementation of research and development works, in particular concerning technological and organizational innovations; • participation in works related to technical and organizational consultancy in manufacturing enterprises; • commencing second-cycle studies. <p>The graduate is prepared to work in:</p> <ul style="list-style-type: none"> • small, medium and large production companies; • design and advisory units dealing with organizational and technical preparation of production, innovation of products and

	<p>technological processes, and quality engineering;</p> <ul style="list-style-type: none"> • economic and administrative units in which technical, economic and IT knowledge as well as organizational skills are required. 	
Preliminary requirements- expected competences of a candidate (particularly in case of second-cycle degree studies)	It requires a candidate for first-cycle studies in the field of <i>management and engineering of production</i> of general knowledge in the field of preferred subjects such as: geography, mathematics, physics (with astronomy), computer science, Polish language, public knowledge, at secondary school level. Level 4 PRK.	
Principles of the recruitment (in accordance with the recruitment resolution)	The basis for admission to studies are the results of the matriculation examination (maturity) of a modern foreign language, and 2 subjects selected from the group of subjects: mathematics, physics, computer science, geography, knowledge of society, Polish language.	
Differences in relation to other programs with similarly defined goals and learning outcomes conducted at the Opole University of Technology	Due to area affinities in the field of <i>management and production engineering</i> with the field of <i>logistics</i> or <i>safety engineering</i> , common classes (mainly general classes) are implemented in the first year of studies. There are also similar content in several blocks at higher semesters, related to the field of mechanics and machine building. For this reason, in the recruitment for the second-cycle studies in the field of <i>management and production engineering</i> , these and other engineering specialization are taken into account.	
Ways to verify the assumed learning outcomes	The assumed learning outcomes for the field of management and production engineering formulated in Annex 16 to the Book of Education Quality, that is in the table of directional effects references to the characteristics of the second degree of the Polish Qualifications Framework (for education programs assigned to more than one area), will be subject to verification in the manner specified in individual cards of the subject description (Annex 1 to the Quality of Education Book), which are an integral part of the education program. Each form description card is accompanied by a table of ways to verify learning outcomes.	
Summary indicators characterizing the education program, includes:	The total number of ECTS credits that a student must obtain in the course of classes requiring direct participation of academic teachers	190
	The total number of ECTS credits that a student must obtain as part of the basic science classes to which the learning outcomes apply for a specific education program, the level and profile of education	43
	For the practical profile, the total number of	110

	ECTS credits assigned to classes related to practical vocational preparation, for the general academic profile, the total number of ECTS credits assigned to classes related to scientific research in the field of science or art related to the field of study.	
	The number of ECTS credits that a student must obtain as part of classes in the humanities or social sciences.	121
	In the case of full-time or full-time master's studies, the number of hours of physical education classes	60
	Percentage share of the number of ECTS credits for the discipline of science (or art) "and" in the total number of ECTS credits - necessary to determine for each discipline, in the case of a study program associated with more than one discipline (or art).	58% in discipline management and quality sciences 42% in discipline mechanical engineering

Study program approved by the faculty student self-government body

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Signature of the faculty representative of
the student self-government body

.....
date, signature and Dean's stamp

The Table of Major-Related Learning Outcomes

Curriculum (Field of Studies): Management and Production Engineering The Level of Education: First-Level Degree Studies Educational Profile: General Academic Studies	
Symbols of Major-Related Learning Outcomes	Learning Outcomes (Content)
KNOWLEDGE	
K1_W01	The graduate has good underpinning knowledge of mathematics (including elements of algebra and mathematical analysis) and physics needed to formulate and solve simple tasks in scope of management and production engineering
K1_W02	The graduate has good underpinning knowledge of statistics and mathematical management methods, including operations research useful for formulating and solving economic and technical issues relating to management and production engineering
K1_W03	The graduate has good underpinning knowledge of fields of study related to management and production engineering
K1_W04	The graduate has knowledge of the company management, including quality and safety management, logistics and marketing management
K1_W05	The graduate has knowledge of conducting business activities, also in the scope of their financial effects, and of creation and development of forms of individual entrepreneurship
K1_W06	The graduate has good underpinning knowledge of organising production and logistic systems and processes
K1_W07	The graduate has good underpinning knowledge of engineering design and ways of carrying out computer aided engineering works
K1_W08	The graduate has knowledge about the life cycle of devices, facilities, technical systems and their impact on the environment, as well as the activities and the application of information systems
K1_W09	The graduate has the methods, techniques, tools and materials used in solving the basic engineering tasks in the field of management and production engineering
K1_W10	The graduate has the basic knowledge needed to understand social, economic, legal, as well as ethical and environmental conditions of the engineering activities characteristic of production engineering
K1_W11	The graduate knows and understands the basic concepts and principles in the field of industrial and intellectual property protection as well as commercial law
K1_W12	The graduate has knowledge about the possibility of using IT solutions in the field of management and production engineering
K1_W13	The graduate has knowledge of material science, including the principles of selection of engineering materials and metrology characteristic of production engineering
K1_W14	The graduate has knowledge about the engineering measurements, including the uncertainties of measurement and methods, techniques and measurement tools used in simple measuring tasks
K1_W15	The graduate knows and understands the theories and terminology in the field of foreign language that enable to the usage of a foreign language at the B2 level of the European System of Language Description
SKILLS	
K1_U01	The graduate can search, analyse, estimate, select and make use of the information originating from various and properly selected sources, also in a foreign language at B2 level of the Common European Framework of Reference for Languages; The graduate can elaborate written work within the field of management and production engineering
K1_U02	The graduate can organize and supervise the staff and coordinate team work
K1_U03	The graduate can coordinate and supervise the activities within the field of production, quality, logistics and industrial marketing management
K1_U04	The graduate can elaborate written work within the field of management and production engineering, both in Polish as well as in a foreign language at B2 level of the Common European Framework of Reference for Languages
K1_U05	The graduate can prepare and make a short presentation on performing an engineering or managerial task, also in a foreign language at B2 level of the Common European Framework of Reference for Languages

K1_U06	The graduate has the ability of self-education and knowledge development, especially within the contemporary methods and techniques applied in management and production engineering
K1_U07	The graduate can make use of appropriate information techniques and properly selected computer programmes which support the implementation of tasks connected with management and production engineering
K1_U08	The graduate can plan and carry out physical experiments as well as measurement and computer simulations connected with engineering work; The graduate can interpret the results and make conclusions
K1_U09	The graduate can apply techniques related to science in order to solve typical problems connected to engineering and managerial operations
K1_U10	The graduate can generate the analysis and assessment of the process, systems and services functioning with the use of methods and techniques applied in management and production engineering considering their specifics as well as systemic and non-technical approach
K1_U11	The graduate can generate the analysis and choose the relevant company management principles including quality, safety and environment and apply them in various production and service organizations
K1_U12	The graduate acquires the preparation necessary to work within the industrial environment as well as obeys safety rules related to this work
K1_U13	The graduate can generate the evaluation of the undertaken engineering operations according to various criteria including costs and company finance management
K1_U14	The graduate can generate the identification and detailed analysis of simple engineering tasks of practical nature characteristic for management and production engineering
K1_U15	The graduate can evaluate the applicability of advanced methods, tools and materials eligible for solving simple engineering tasks concerning management and production engineering and choose as well as apply a relevant method and tools
K1_U16	The graduate can design a simple device, object, system or process typical for management and production engineering with the use of relevant methods, techniques, tools and materials
K1_U17	The graduate can apply the acquired knowledge to settle dilemmas arising during the professional operations
SOCIAL COMPETENCES	
K1_K01	The graduate understands the need for permanent learning and improvement of their professional and social competences
K1_K02	The graduate understands the importance of non-technical aspects and effects of engineering activities taking into account its impact on the environment, is aware of their own responsibility for decisions
K1_K03	The graduate understands the relevance and role of teamwork in solving problems related to management and production engineering, and is able to interact and cooperate in a group
K1_K04	The graduate can assess the importance of individual tasks and set priorities for their implementation
K1_K05	The graduate is conscious with regard to the principles of professional ethics and the importance of professional behavior while performing various professional engineering and managerial activities
K1_K06	The graduate can think and act in an entrepreneurial way
K1_K07	The graduate is aware of the social role of a technical university graduate and understand the need to formulate and communicate information and opinions on achievements in the field of management and production engineering to the public

Symbols

The symbol of the outcome contains:

- letter K – characteristics denoting the major-related outcomes,
- number 1 – undergraduate studies,
- symbol_ (underscore),
- letters: W, U and K – denote the categories of the outcomes (W – knowledge, U – skills, K – social competences),
- 01, ... - number of outcome in a given category, expressed by two digits (numbers 1-9 are preceded by 0).

PLANY I PROGRAMY STUDIÓW
STUDY PLANS AND PROGRAMS

KIERUNEK STUDIÓW - *FIELD OF STUDY*****

- MANAGEMENT AND PRODUCTION
ENGINEERING
- *MANAGEMENT AND PRODUCTION
ENGINEERING*

***Studia stacjonarne
pierwszego stopnia
- wg specjalności***

First Cycle Programme - Full-Time Studies

CHARAKTERYSTYKA OGÓLNA

kierunek studiów: MANAGEMENT AND PRODUCTION ENGINEERING

specjalność: INDUSTRIAL PROCESSES AND SYSTEMS ENGINEERING

profil: OGÓLNOAKADEMICKI

nazwa wydziału: WYDZIAŁ INŻYNIERII PRODUKCJI I LOGISTYKI

plan studiów	uchwała Rady Wydziału z dnia	24.04.2019
	obowiązuje od roku akademickiego	2019/2020
forma studiów (stacjonarne / niestacjonarne)	stacjonarne	
poziom studiów (I stopnia / II stopnia)	I-go stopnia	
czas trwania (w sem.)	7	
tytuł zawodowy otrzymywany przez absolwenta	inżynier	
liczba punktów ECTS	210	

PLAN STUDIÓW – STUDY PLAN

POLITECHNIKA OPOLSKA WYDZIAŁ INŻYNIERII PRODUKCJI I LOGISTYKI	OPOLE UNIVERSITY OF TECHNOLOGY FACULTY OF PRODUCTION ENGINEERING AND LOGISTICS
Kierunek studiów: MANAGEMENT AND PRODUCTION ENGINEERING	Field of study: MANAGEMENT AND PRODUCTION ENGINEERING
STUDIA STACJONARNE PIERWSZEGO STOPNIA – INŻYNIERSKIE	
FIRST CYCLE PROGRAMME - FULL-TIME STUDIES (Engineer's degree)	

SPECJALNOŚĆ – SPECIALIZATION:
INDUSTRIAL PROCESSES AND SYSTEMS ENGINEERING - INDUSTRIAL PROCESSES AND SYSTEMS ENGINEERING

SEMESTR: 1 (1st Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot Subject unit – semester curricular	W (Lecture)	C (Practical classes)	L (Laboratory classes)	P (Project)	S (Seminar)		
1.1	Information technology Technologie informacyjne	15	–	30	–	–	3	KO
1.2	Intellectual property protection Ochrona własności intelektualnej	30	–	–	–	–	2	KO
1.3	Humanistic course 1 Przedmiot humanistyczny 1	30	–	–	–	–	2	KO
1.4	Algebra with geometry Algebra z geometrią	30E	15	–	–	–	5	P
1.5	Ecology Ekologia	15	–	–	–	–	1	P
1.6	Mathematical analysis Analiza matematyczna	30E	30	–	–	–	6	P
1.7	Physic Fizyka	15E	15	30	–	–	6	P
1.8	Microeconomics Mikroekonomia	15	15	–	–	–	3	P
1.9	Economic law Prawo gospodarcze	30	–	–	–	–	2	P
Liczba godzin w semestrze (Number of hours in a semester)		210	75	60	–	–	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		345						

SEMESTR: 2 (2nd Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot Subject unit – semester curricular	W (Lecture)	C (Practical classes)	L (Laboratory classes)	P (Project)	S (Seminar)		
2.1	Fundamentals of management Podstawy zarządzania	30E	30	–	–	–	6	K
2.2	Engineering graphics Grafika inżynierska	30	30	–	15	–	6	K
2.3	Material science Materiałoznawstwo	30E	15	–	–	–	4	K
2.4	Humanistic course 2 Przedmiot humanistyczny 2	30	–	–	–	–	3	KO

2.5	Environmental management Zarządzanie środowiskowe	30	-	-	-	-	2	P
2.6	Statistics Statystyka	30E	-	30	-	-	5	P
2.7	Macroeconomics Makroekonomia	30E	15	-	-	-	4	P
Liczba godzin w semestrze (Number of hours in a semester)		210	90	30	15	-	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		345						

SEMESTR: 3 (3 rd Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot Subject unit – semester curricular	W (Lecture)	C (Practical classes)	L (Laboratory classes)	P (Project)	S (Seminar)		
3.1	Processes and production techniques Procesy i techniki produkcyjne	30E	15	15	-	-	6	K
3.2	Information technology in production engineering Informatyka w inżynierii produkcji	30	-	30	-	-	5	K
3.3	Finance and accounting Finanse i rachunkowość	30E	30	-	-	-	6	K
3.4	Safety management Zarządzanie bezpieczeństwem	15	15	-	-	-	2	K
3.5	Foreign language Język obcy	-	-	30	-	-	2	KO
3.6	Physical education Wychowanie fizyczne	-	30	-	-	-	0	KO
3.7	Operational research Badania operacyjne	30E	15	15	-	-	6	P
3.8	Marketing Marketing	30	15	-	-	-	3	P
Liczba godzin w semestrze (Number of hours in a semester)		165	120	90	-	-	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		375						

SEMESTR: 4 (4 th Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot Subject unit – semester curricular	W (Lecture)	C (Practical classes)	L (Laboratory classes)	P (Project)	S (Seminar)		
4.1	Automation and robotics of production processes Automatyzacja i robotyzacja procesów produkcyjnych	30E	15	-	15	-	6	K
4.2	Fundamentals of metrology Podstawy metrologii	30	-	15	-	-	3	K
4.3	Databases Bazy danych	15	-	15	-	-	3	K
4.4	Cost accounting for engineers Rachunek kosztów dla inżynierów	30E	-	-	30	-	5	K
4.5	Management of production and services Zarządzanie produkcją i usługami	30E	30	15	-	-	6	K
4.6	Fundamentals of engineering design Podstawy projektowania inżynierskiego	30	15	-	15	-	5	K
4.7	Foreign language Język obcy	-	-	30	-	-	2	KO

4.8	Physical education	-	30	-	-	-	0	KO
	Wychowanie fizyczne							
Liczba godzin w semestrze (Number of hours in a semester)		165	90	75	60	-	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		390						

SEMESTR: 5 (5 th Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot	W	C	L	P	S		
		Subject unit – semester curricular	(Lecture)	(Practical classes)	(Laboratory classes)	(Project)	(Seminar)	
5.1	Methodology of engineering design	30	15	-	-	-	4	K
	Metodyka projektowania inżynierskiego							
5.2	Organization of industrial systems	30E	15	-	-	-	4	K
	Organizacja systemów przemysłowych							
5.3	Management of plant maintenance	15	30	-	-	-	3	K
	Zarządzanie utrzymaniem ruchu							
5.4	Computer graphics	30	-	15	-	-	3	K
	Grafika komputerowa							
5.5	Technical preparation of production	30	15	-	-	-	4	K
	Techniczne przygotowanie produkcji							
5.6	Quality management	30E	15	15	-	-	5	K
	Zarządzanie jakością							
5.7	Logistics in enterprise	30E	30	-	-	-	5	K
	Logistyka w przedsiębiorstwie							
5.8	Foreign language	-	-	30	-	-	2	KO
	Język obcy							
Liczba godzin w semestrze (Number of hours in a semester)		195	120	60	-	-	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		375						

SEMESTR: 6 (6 th Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot	W	C	L	P	S		
		Subject unit – semester curricular	(Lecture)	(Practical classes)	(Laboratory classes)	(Project)	(Seminar)	
6.1	Computer aided engineering	30	15	30	-	-	5	K
	Komputerowe wspomaganie prac inżynierskich							
6.2	Design of technological processes	30E	15	15	-	-	6	K
	Projektowanie procesów technologicznych							
6.3	Selected programming languages	15	-	30	-	-	4	K
	Wybrane języki programowania							
6.4	Computer aided machine technology	15	-	30	-	-	4	K
	Komputerowe wspomaganie technologii maszyn							
6.5	Design of production and logistic processes	30E	-	15	-	-	4	K
	Projektowanie procesów produkcyjnych i logistycznych							
6.6	Normalization in quality management	15	30	-	-	-	4	K
	Normalizacja w zarządzaniu jakością							
6.7	Introduction to scientific research	-	-	-	-	15	1	KO
	Wprowadzenie do badań naukowych							
6.8	Foreign language	(E)	-	30	-	-	2	KO
	Język obcy							

Liczba godzin w semestrze (Number of hours in a semester)	135	60	150	-	15	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)	360						

SEMESTR: 7 (7 th Semester)		Liczba godzin zajęć w semestrze; E – egzamin Working time (hours) a semester; E – Exam					ECTS	TYP
Nr	Przedmiot Subject unit – semester curricular	W (Lecture)	C (Practical classes)	L (Laboratory classes)	P (Project)	S (Seminar)		
7.1	Modelling and simulation of production processes Modelowanie i symulacja procesów produkcyjnych	15	-	30	-	-	2	K
7.2	Commercialization and technology transfer Komercjalizacja i transfer technologii	30E	15	-	-	-	3	K
7.3	Integrated manufacturing systems Zintegrowane systemy wytwarzania	15	30	-	-	-	2	K
7.4	Processes and systems of logistics Procesy i systemy logistyczne	30	15	-	-	-	2	K
7.5	Diploma seminar Seminarium dyplomowe	-	-	-	-	30	1	K
7.6	Diploma work (Engineering project) Praca dyplomowa (Projekt inżynierski)	E - godziny niekontaktowe (un-contact hours)					15	K
7.7	Practice Praktyka	godziny niekontaktowe (un-contact hours)					5	K
Liczba godzin w semestrze (Number of hours in a semester)		90	60	30	-	30	30	
Razem godzin/ECTS w semestrze (Total hours/ECTS in a semester)		210						

PLAN STUDIÓW RAZEM (TOTAL STUDY PLAN)		ECTS
Łącznie godzin kontaktowych/ECTS w planie studiów		210
Total contact hours/ECTS in study plan		

STATYSTYKA PROGRAMU KSZTAŁCENIA			
Typ	Przedmioty - p. ECTS razem	wg planu	udział
KO	Kształcenia ogólnego	19	9.05 %
P	Podstawowe	43	20.48 %
K	Kierunkowe	148	70.48 %
Łącznie:		210	100.00 %

Program kształcenia dostosowany do wydziałowych efektów uczenia się dla kierunku studiów MANAGEMENT AND PRODUCTION ENGINEERING (studia pierwszego stopnia)
Plan i program studiów:
– uchwalony przez Radę Wydziału Inżynierii Produkcji i Logistyki w dniu 24.04.2019
– zaopiniowany przez wydziałowy organ samorządu studenckiego.