



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Organization of new product development process

### Course

Field of study

Safety Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Tutorials

30

Laboratory classes

Projects/seminars

15

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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### Prerequisites



Student has knowledge of business processes, design, organization and implementation of the production processes, as well as in the area of design, evaluation, verification and implementation of production. Student is responsible and can interact with others and work in a team. Student understands the need for lifelong learning and acting in accordance with the rules.

### Course objective

Presenting knowledge of theoretical and practical problems connected with organization of production preparation and selected methods applied in this scope.

### Course-related learning outcomes

#### Knowledge

1. Knows concepts of technical safety, safety systems, Occupational Health and Safety and problems of hazards and their consequences [K1\_W02].
2. Knows advanced knowledge about concepts of the life cycle of industrial products and life cycle of objects, systems and technical systems [K1\_W06].
3. Knows advanced knowledge about concepts of engineering management in the field of product and process [K1\_W07].
4. Knows the fundamental problems of modern civilization and development trends as well as best practices [K1\_W10].

#### Skills

1. Is able to collect on the basis of the literature of the subject and other sources information on the problem, make critical analysis, assessment and synthesis [K1\_U01].
2. Is able to communicate using appropriately selected resources in a professional environment and in other environments [K1\_U02].
3. Is able to make a critical analysis of the way it functions and assess - in conjunction with Safety Engineering - existing technical solutions, in particular machines, devices, objects, systems, processes and services [K1\_U06].
4. Can design an object, system or process that meets the requirements of safety engineering using appropriate methods and techniques and make a preliminary economic assessment [K1\_U07].
5. Is able to take part in the debate, present using properly selected means, a problem within the framework of safety engineering [K1\_U09].
6. Is able to identify changes in requirements, standards, regulations and technical progress and the reality of the labor market, and based on them determine the needs of supplementing knowledge [K1\_U12].



### Social competences

1. Is aware of the importance of knowledge in solving cognitive and practical problems in the scope of safety engineering and continuous improvement of the knowledge [K1\_K02].
2. Is aware of responsibility for own work and readiness to comply with the rules of working in a team and taking responsibility for the tasks carried out jointly [K1\_K07].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Rating forming:

- a) projects: on the basis of an assessment of the current progress of tasks,
- b) tutorials: on the basis of an assessment of the current progress of tasks,
- c) lecture: in the range of lectures based on oral answers to questions about the material covered in the current and previous lectures.

Rating summary:

- a) projects: grade point average, passing threshold: 60% of the points.
- b) tutorials: grade point average, passing threshold: 60% of the points.
- c) lecture: test, open and closed questions, passing threshold: 60% of the points.

### Programme content

Lecture:

Production process components, range of tasks. Production process management, technical humanization and economical aspects. Product traits, quality and reliability. Objectives, tasks and functions of product production preparation in industrial company. Constructive, technological and organizational preparation of the production - planning and designing, far-reaching and current activity. Notion and significance of technology of products construction. Curve of product life cycle. Costs of the production preparation. Documentation of production preparation and flow. Organization structure of product preparation units. Innovative processes in activity of industrial company.

Tutorial:

Linear correlation function, Analysis of production data by using KPIs, Evaluation of production effectiveness by using OEE, Pareto analysis based on acquired production data.

Project:

Arranging the course of any production process.

### Teaching methods



Lecture - multimedia lecture, case study analysis.

Projects - multimedia lecture, work in teams, problem-solving tasks set by the teacher, presentation of solutions and forum discussion group.

Tutorials - multimedia lecture, work in teams, problem-solving tasks set by the teacher, presentation of solutions and forum discussion group.

## Bibliography

### Basic

1. Kawecka-Endler A., Organizacja technicznego przygotowania produkcji - prac rozwojowych, Wyd. Politechniki Poznańskiej, Poznań 2004.
2. Szatkowski K., Przygotowanie produkcji, PWN Warszawa 2013.
3. Lewandowski J., Skołod B., Plinta D., Organizacja systemów produkcyjnych. Polskie Wydawnictwo Ekonomiczne, Warszawa 2014.
4. Pająk E., Klimkiewicz M., Kosieradzka A., Zarządzanie produkcją i usługami, Polskie Wydawnictwo Ekonomiczne, Warszawa 2014.
5. Mazur A., Marczevska-Kuźma R., Assessment of Importance of Conditions and Safety of Work for Shaping Management Image, Procedia Manufacturing, 2015, vol. 3, s. 4884-4891.
6. Szwedzka, K., Szafer, P., Wyczółkowski R., (2017), Structural analysis of factors affecting the effectiveness of complex technical systems, 30-th IBIMA Conference Proceedings.

### Additional

1. Marczevska-Kuźma R., Sergot M., Inspection of radiation "doses" of X rays in dental practice [w:] Advances in mechanical engineering, red. Olaf Cizak (WIM), Wydawnictwo Politechniki Poznańskiej, Poznań, 2021, s. 65-71.
2. Szwedzka K., Szafer P., Gruszka J., (2016), Impact of technical and technological changes on energy efficiency of production company - case study, Mod Tech International Conference, Romania 2016 (10-th of June), Materials Science and Engineering Organization and Management of Industrial Processes, Vol.145.
3. Lange R., Ładna A., Konopczyński D., Kowalczyk M., Sztuczna Inteligencja w społeczeństwie igospodarce, NASK Państwowy Instytut Badawczy, Warszawa 2019.
4. Wójcik J., Wybrane problemy w przygotowaniu produkcji nowego wyrobu w małych i średnich przedsiębiorstwach, Zeszyty Naukowe Politechniki Śląskiej "Organizacji i Zarządzania", z. 83, Nr. kol. 1941, 2015.



5. Golińska P., Fertsch M., Organizacja produkcji i logistyki w przemyśle samochodowym, Wydawnictwo Politechniki Poznańskiej, Poznań 2012.
6. PN-EN ISO 9001:2015 Systemy zarządzania jakością wymagania.
7. PN-ISO 45001:2018 Systemy zarządzania bezpieczeństwem i higieną pracy. Wymagania i wytyczne stosowania.

#### Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	40	2,0

<sup>1</sup> delete or add other activities as appropriate