

Course description

Course abbreviation:	KPV/MPIA	Page:	1 / 3
Course name:	Industrial Engineering Methods		
Academic Year:	2023/2024	Printed:	03.06.2024 08:46

Department/Unit /	KPV / MPIA			Academic Year	2023/2024
Title	Industrial Engineering Methods			Type of completion	Exam
Accredited/Credits	Yes, 5 Cred.			Type of completion	Combined
Number of hours	Lecture 2 [Hours/Week] Tutorial 2 [Hours/Week]			Course credit prior to	YES
Occ/max	Status A	Status B	Status C	Counted into average	YES
Summer semester	0 / -	0 / -	0 / -	Min. (B+C) students	10
Winter semester	0 / -	0 / -	8 / -	Repeated registration	NO
Timetable	Yes			Semester taught	Winter semester
Language of instruction	English			Internship duration	0
Optional course	Yes			Ev. sc. – cred.	S/N
Evaluation scale	1 2 3 4				
No. of hours of on-premise					
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.				
Periodicity	K				
Substituted course	KPV/MPI				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

Aims are to familiarize the student with the problematics of industrial engineering methods. A further aim is to equip the student with knowledge of modelling and solving business practice situations using these methods. And a further aim is to equip the students with current modern knowledge of industrial engineering with relation to improving processes and elimination of wastage in business processes.

Requirements on student

Assesment methods and criteria linked to learning outcomes: The course-unit credit is awarded on condition of having worked out and successfully defended the term paper.

The exam consists of an oral part.

Content

The course acquaints students with industrial engineering methods and their practical use.

1. Introduction, history, definition of PI, importance of PI, classification of methods
2. Analytical methods - I.
3. Analytical methods - II.
4. Methods of process improvement - I.
5. Methods of process improvement - II.
6. Methods of designing production processes - I.
7. Methods of designing production processes - II.
8. Management and planning methods - I.
9. Management and planning methods - II.
10. PI methods in non-production areas - I.
11. PI methods in non-production areas - II.
12. Methods for team work support - I.
13. Methods for team work support - II.

Fields of study

Studijní opory formou prezentací.

Guarantors and lecturers

- **Guarantors:** Doc. Ing. Milan Edl, Ph.D. (100%)
- **Lecturer:** Doc. Ing. Milan Edl, Ph.D. (100%)
- **Tutorial lecturer:** Doc. Ing. Milan Edl, Ph.D. (100%)

Literature

- **Basic:** Salvendy, Gavriel. *Handbook of industrial engineering : technology and operations management*. 3rd ed. New York : John Wiley & Sons, Inc., 2001. ISBN 0-471-33057-4.
- **Basic:** Hodson, W. *Maynard's Industrial Engineering Handbook*, McGraw-Hill, New York. 1992.
- **Extending:** Yáñez, Fran. *The goal is Industry 4.0 technologies and trends of the fourth industrial revolution*. 2017. ISBN 978-1-973413-17-2.
- **Recommended:** Kuklíková, Hana. *English for industrial engineering and management = Angličtina pro průmyslové inženýrství a management : APIM 1*. 1. vyd. Plzeň : Západočeská univerzita. Fakulta právnická, 1998. ISBN 80-7082-456-5.

Time requirements**All forms of study**

Activities	Time requirements for activity [h]
Contact hours	52
Preparation for an examination (30-60)	55
Individual project (40)	30
Total:	137

assessment methods**Knowledge - knowledge achieved by taking this course are verified by the following means:**

- Oral exam
- Seminar work
- Group presentation at a seminar

Skills - skills achieved by taking this course are verified by the following means:

- Skills demonstration during practicum
- Oral exam
- Group presentation at a seminar

Competences - competence achieved by taking this course are verified by the following means:

- Oral exam

prerequisite**Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:**

- describe and explain methods for improving business processes
- use theoretical knowledge in the field of industrial engineering, logistics, communication, design of production systems, design of production processes, project management
- communicate to professionals and lay people information about professional problems by improving business processes

Skills - students are expected to possess the following skills before the course commences to finish it successfully:

use the professional skills in at least one foreign language

use their knowledge of the theoretical foundations of industrial engineering in solving practical problems in the field of business process improvement

be able to design suggestions for improving existing business processes based on the acquired knowledge

Competences - students are expected to possess the following competences before the course commences to finish it successfully:

N/A

N/A

N/A

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

Interactive lecture

Discussion

Skills - the following training methods are used to achieve the required skills:

Project-based instruction

Practicum

Multimedia supported teaching

Competences - the following training methods are used to achieve the required competences:

Discussion

Project-based instruction

learning outcomes

Knowledge - knowledge resulting from the course:

know more in detail the methods of industrial engineering

know the practical use of industrial engineering methods

comprehensively explain possible improvements of business processes in the production and non-production area

Skills - skills resulting from the course:

apply the theoretical knowledge of industrial engineering and applications of its methods

independently recognize problems related to the application of industrial engineering methods in industrial practice

to practically suggest the improvement of business processes in the production and non-production areas

independently evaluate the pros and cons of basic variants of proposals for improving business processes

Competences - competences resulting from the course:

N/A

N/A

N/A

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Design of Power Machines and Equipment	Postgraduate Master	Full-time	Digital Manufacturing	1	2021	2023	Compulsory courses	A	1	ZS
Design of Power Machines and Equipment	Postgraduate Master	Full-time	Manufacturing Machines and Technologies	1	2021	2023	Compulsory courses	A	1	ZS