Course description

Department/Unit /	KPV / ŘOP			**Academic Year**	2023/2024	
Title	Labour Organization and Management			**Type of completion**	Exam	
Accredited/Credits	Yes, 5 Cred.			**Type of completion**	Oral	
Number of hours	Lecture 2 [Hours/Week] Tutorial 2 [Hours/Week]					
Occ/max	Status A	Status B	Status C	**Course credit prior to**	YES	
Summer semester	50 / -	0 / -	2 / 15	**Counted into average**	YES	
Winter semester	0 / -	0 / -	0 / -	**Min. (B+C) students**	10	
Timetable	Yes			**Repeated registration**	NO	
Language of instruction	Czech, English			**Semester taught**	Summer semester	
Optional course	Yes			**Internship duration**	0	
Evaluation scale	1|2|3|4			**Ev. sc. – cred.**	S|N	
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	None					
Preclusive courses	N/A					
Prerequisite courses	N/A					
Informally recommended courses	N/A					
Courses depending on this Course	KPV/ZSZP1					

Course objectives:

The main goal of this subject is to familiarize students with three science areas dealing with work optimization. The areas are work rationalization, job standardization and ergonomics. Students will in this subject understand basic findings and mutual linkage of these science areas.

Requirements on student

Continuous assessment: individual assignments
Final assessment: combined examination

Content

This course aims to point out the importance of optimizing work with regard to productivity of the production system. The attention is paid to various areas of work rationalization, work standardization and ergonomics. In the area of work rationalization, students will be introduced to concepts such as productivity, added value or losses in the production system. In the field of labor standardization, students will learn to use methods to determine time consumption either by measurement or by calculation according to normative (MTM). The last area, ergonomics, is given the greatest attention. Students will get acquainted with the systemic view of ergonomics and links to other scientific disciplines. The attention is paid in detail to the three main components of production systems, which are human - standing - environment. Finally, modern software tools supporting the aforementioned fields of science are introduced in this course.

1. Introduction, schedule of lectures, exam conditions, Rationalization of work
2. Ergonomics - introduction, history, system man-machine-environment, contemporary conception, Ergonomics - man (anthropometry)
3. Ergonomics - human (physiology, occupational diseases)
4. Ergonomic methods
5. Ergonomic methods
6. Ergonomics - workplace (basic parameters and arrangement, types of spaces)

7. Ergonomics - workplace (workplace equipment, load handling)
8. Standardization of work and methodology of REFA
9. Moment study, alternative ways of determining time consumption
10. Determination of time consumption according to MTM-1 method
11. Determination of time consumption according to MTM-1 method
12. Determination of time demands according to the MOST method
13. Determination of time demands according to the MOST method

Fields of study

Guarantors and lecturers

- **Guarantors:** Doc. Ing. Michal Šimon, Ph.D. (100%)
- **Lecturer:** Ing. Marek Bureš, Ph.D. (50%), Doc. Ing. Michal Šimon, Ph.D. (50%)
- **Tutorial lecturer:** Ing. Marek Bureš, Ph.D. (100%), Ing. Tomáš Macháč (100%)

Literature

- **Basic:** Slamková, Eva; Dulina, Ľuboslav; Tabaková, Michaela. *Ergonómia v priemysle*. 1. vyd. Žilina : GEORG, 2010. ISBN 978-80-89401-09-3.
- **Basic:** Chundela, Lubor. *Ergonomie*. Vyd. 2. Praha : Nakladatelství ČVUT, 2007. ISBN 978-80-01-03802-4.
- **Basic:** Lhotský, Oldřich. *Organizace a normování práce v podniku*. Vyd. 1. Praha : ASPI, 2005. ISBN 80-7357-095-5.
- **Basic:** Chundela, Lubor. *Strojírenská ergonomie : příklady*. Vyd. 2. V Praze : Nakladatelství ČVUT, 2007. ISBN 978-80-01-03801-7.
- **Extending:** *ČSN normy třídy 8335*.
- **Extending:** Bureš, Marek. *Tvorba a optimalizace pracoviště*. [Plzeň] : SmartMotion, 2013. ISBN 978-80-87539-32-3.
- **Extending:** Bureš, Marek; Sekulová, Kateřina; Přibáňová, Vendulka. *Tvorba a optimalizace pracoviště - cvičení*. [Plzeň] : SmartMotion, 2013. ISBN 978-80-87539-33-0.
- **Recommended:** Musilová, Iva. *Bezpečná kancelář*. Vyd. 1. Praha : Výzkumný ústav bezpečnosti práce, 2005. ISBN 80-903604-3-2.
- **Recommended:** Gilbertová, Sylva; Matoušek, Oldřich. *Ergonomie : optimalizace lidské činnosti*. Praha : Grada, 2002. ISBN 80-247-0226-6.
- **Recommended:** Král, Miroslav. *Metody a techniky užité v ergonomii*. 1. vyd. Praha : Výzkumný ústav bezpečnosti práce, 2002.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Contact hours	26
Presentation preparation (report) (1-10)	12
Preparation for an examination (30-60)	42
Graduate study programme term essay (40-50)	32
Practical training (number of hours)	26
Total:	**138**

assessment methods

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

Combined exam

Test

Seminar work

Project

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

Skills demonstration during practicum

Seminar work

Project

Combined exam

prerequisite

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

be able to optimize production system using industrial engineering methods

have a basic overview of Czech legislation

be able to independently use theoretical knowledge of industrial engineering

to acquire further professional knowledge by self-study

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

acquire additional professional skills on the basis of practical experience and their evaluation

be able to optimize elements of the production system based on the acquired knowledge

be able to elaborate an independent work on the basis of a framework assignment

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:

Lecture supplemented with a discussion

Interactive lecture

Self-study of literature

Individual study

E-learning

One-to-One tutorial

Lecture

Multimedia supported teaching

Lecture with visual aids

Task-based study method

Lecture with a video analysis

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

Practicum

Skills demonstration

Self-study of literature

Task-based study method

Individual study

learning outcomes

Knowledge - knowledge resulting from the course:

define the concepts of ergonomics and rationalization of work

to define ergonomic parameters of the working place

describe the basics of selected ergonomic analyzes

list possible approaches to work standardization

explain principles of predetermined times

Skills - skills resulting from the course:

use human anthropometric parameters in workplace optimization

to carry out ergonomic analyzes

perform a time analysis of the operation

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Industrial Engineering and Management	Postgraduate Master	Full-time	Industrial Engineering and Management	1	2020	2023	Compulsory courses	A	1	LS
Industrial Engineering and Management	Postgraduate Master	Combined	Industrial Engineering and Management	1	2020	2023	Compulsory courses	A	1	LS
Machining, Additive Technology and Quality Assurance	Postgraduate Master	Full-time	Machining, Additive Technology and Quality Assurance	1	2020	2023	Compulsory courses	A	1	LS
Certifikátové programy	Postgraduate Master	Full-time	Quality Control	1	1	2023	Core elective courses	B		LS