

RTU Course "Work Environment and Ergonomics"

22000 Faculty of Engineering Economics and Management

General data

Code	IV0165
Course title	Work Environment and Ergonomics
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Elīna Gaile-Sarkane
Academic staff	Jānis Bartušauskis Vladimirs Šatrevičs Jānis Ieviņš Matīss Šmitiņš
Volume of the course: parts and credits points	1 part, 3.0 credits
Language of instruction	LV
Annotation	Study subject covers topics about working environment, labour protection and ergonomics issues. Subject is dedicated to legislation on labour protection at Republic of Latvia important for different levels of management at working environment, topics on equipment and technologies for the organization and for ensuring ergonomic issues are included in the study course. Within the study subject main characteristics of ergonomics, its tasks and main activities are covered. A system "man - machine - environment" and its optimization opportunities are analysed within the study subject. Rational human organization in the system "man - machine - environment" is analysed in the course.
Structure and tasks of independent studies	Independent and group work on the following subjects take place during the course: 1. A project of the company's occupational safety and health system 2. Rationalization of socio-technical and organizational systems. Analysis and evaluation of Human-Machine-Environment Systems. 3. Optimization of the employees' functional state. 4. Assessment of the risks related to the working environment, ergonomics and preventive measures
Recommended literature	Obligātā literatūra / Obligatory literature Ergonomika darbā Rīga: LR Labklājības ministrija, 2010.-191 lpp. Kaļķis V., Darba vides risku novērtēšanas metodes, Rīga: Latvijas Izglītības fonds, 2008, -245 lpp. Jansone I. . Darba organizācijas ergonomiskie aspekti, 1.daļa Rīga, RTU, 1992.-63 lpp. Ozoliņš P. . Nogurums Rīga: Zvaigzne, 1989,-64 lpp. Roja Ž. . Ergonomikas pamati Rīga: Drukātava, 2008. – 196lpp. Ziemelis V.. Elektrodrošība Rīga: RTU izdevniecība 2007, -217 lpp The handbook of human factors and ergonomics methods. CRC Press, Edited by Neville Stanton et.al., 2005, -681p. ISBN 0-415-28700-6 Ergonomic checkpoints: Practical and easy-to-implement solutions for improving safety, health and working conditions. Second edition, International Labour Office, 2010. – 330p. ISBN 978-92-2-12666-6. www.likumi.lv. Darba aizsardzības likums un Darba aizsardzības prasības Vietnes. www.osha.lv, www.hse.gov.uk un www.vdi.gov.lv ar priekšmetu saistītas informācijas ieguvei, publicētas internetā
Course prerequisites	According to the study programme

Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Introduction. Principles of application of labor protection legislation in a company	2	2	1	4
Characteristics and history of ergonomics	2	2	1	4
Factors influencing a person's professional activity. Ergonomics Dimensions	2	2	1	4
Cognitive and Physical Ergonomics. Requirements for work equipment.	4	4	1	5
Human-Machine-Environment system optimization capabilities	4	4	1	5
The working environment, its microclimate and lighting. Ergonomics requirements for office space and work equipment	2	2	1	4
Mechanical risks in the work environment	2	2	1	4
Noise and vibration at workplaces, electrical safety, static electricity. Preventive and protective measures	2	2	1	4
Psycho-emotional risk factors. Description of occupational stress and opportunities for optimizing stress levels, burnout syndrome and ways to prevent it	2	2	1	4
Rational work and rest regime. Dynamics of work capacity. Fatigue optimization options	4	4	1	4
Basic principles of occupational safety and health system in a company	4	4	1	5
Qualification of risks in the work environment and basic principles of their assessment. Biological and chemical risks of work environment	2	2	1	3

Organization of training and instruction on occupational safety and health and accident investigation in the company	4	4	1	5
Application of Standard Operating Procedures to a company. Company internal labor protection regulations, instructions, drafting procedure	1	1	1	3
Organizational ergonomics.	1	1	1	3
Optimization of the socio-technical system, including organizational structures, controls and processes. Participatory ergonomics and Society	2	2	1	3
Total:	40	40	16	64

Learning outcomes and assessment

Learning outcomes	Assessment methods
Is able to describe the occupational safety and health regulatory enactments in the Republic of Latvia	Test
Is able to describe the company's microclimate, lighting, factors influencing a person's professional activity in the work environment.	Individual work on a specific company as the research object.
Able to describe the human-machine-environment optimization capabilities.	Group work in classroom, presentation. Tests
Is able to describe the psycho-emotional risk factors. Stress level optimization options and elimination options	Test
Able to determine ergonomic requirements for office space and work equipment	Group work in classroom, presentation. Tests
Is able to describe the work environment risks, their classification and preventive measures.	Examination
Able to describe the organization ergonomics and planning rational work and rest arrangements	Examination

Evaluation criteria of study results

Criterion	%
Individual assignments	20
Group assignments (work)	20
Tests	20
Exam	40
Total:	100

Study subject structure

Part	CP	Hours			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	20.0	0.0	20.0		*	