

Study programme "Computerised Control of Electrical Technologies"

Main attributes

Title	Computerised Control of Electrical Technologies
Identification code	EGO0
Education classification code	47522
Level and type	Professional Master Study
Higher education study field	Power and Electrical Engineering, Electrical Technologies
Head of the study field	Oskars Krievs
Deputy head of the study field	Pāvels Gavrilovs
Department responsible	Faculty of Electrical and Environmental Engineering
Head of the study programme	Leonīds Ribickis
Professional classification code	215101
The type of study programme	Full time, Extramural
Language	Latvian, English
Accreditation	14.09.2022 - 15.09.2028; Accreditation certificate No 2022/21-A
Variant 1	
Volume (credit points)	40.0
Duration of studies (years)	Full time studies - 1,0; Extramural - 1,5
Degree or/and qualification to be obtained	Professional master degree in electrical engineering / leading electrical engineer
Qualification level to be obtained	The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Professional bachelor degree in electrical engineering, energy or electronics and qualification of electrical engineer or comparable education and sixth level professional qualification
Variant 2	
Volume (credit points)	80.0
Duration of studies (years)	Full time studies - 2,0; Extramural - 2,5
Degree or/and qualification to be obtained	Professional master degree in electrical engineering / leading electrical engineer
Qualification level to be obtained	The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF); the 7th level of professional qualification
Programme prerequisites	Bachelor degree of engineering science in electrical science, energy, electronics and automatics or comparable education

Description

Abstract	Professional master studies are the next level of studies after the bachelor degree in the fields of electrical engineering, power engineering and electronics. During the studies, essential study courses in the field of speciality are mastered, as well as internship at the industry. At the end of the studies, the main task is to elaborate Master Theses where on the base of theoretical knowledge principles of automation of certain electrical technologies, as well as a possible automation system pattern is developed.
Aim	The aim of the study programme is to provide higher professional education and prepare high level specialists with engineering qualification and master degree, who would be able to formulate and solve complex electrical equipment automation tasks in various economic sectors, at research institutions and companies, as well as perform pedagogical activities.
Tasks	The study programme includes lectures, practical classes, laboratory works and projects to acquire in-depth knowledge in electrical engineering and to acquire skills in the basics of scientific research work and in-depth knowledge in economic, social and pedagogical study courses.
Learning outcomes	The graduates of the study programme are able: - to apply theoretical and practical knowledge in the field of development and operation of electrical equipment; - to implement scientific and pedagogical activity; - to design, create and operate new computer control systems for electrical equipment of all sectors of the economy; - to design, build and operate modern electronic equipment, semiconductor energy converters and drive systems; - to use computer equipment, compile programmes for the automation of technological processes; - to develop technologies for saving and rational use of electrical energy.

Final/state examination procedure, assessment	Master Thesis takes place at an open meeting of the State Examinations Commission, where the student defends his work and answers the questions asked by members of the commission, supervisor, reviewer and those present. The State Examination Commission appointed by the rector of RTU consists of five people: representatives of the Faculty of Electrical and Environmental Engineering, representatives of the industry and the chairman, Alnis Kaļāns (EK Sistēmas Ltd). The volume of Master Paper is 50 pages with descriptions, schemes and figures, considering the investigation of some electrical equipment operations, as well as proposals for the technical implementation of such equipment. The final assessment of Master Paper is expressed in accordance with the RTU Regulations of the Assessment of Learning Outcomes.
Description of the future employment	Study programme graduates can work as highly qualified specialist in the field of electrical technologies and their automation at any enterprise, scientific research organization and educational institution.
Special enrollment requirements	-
Opportunity to continue studies	Doctoral studies.

Courses

No	Code	Name	C.p. [1]	C.p. [2]
A		Compulsory Study Courses	9.0	19.0
1	EEP584	Theory of Electronic Converters of Electrical Energy	4.0	4.0
2	EEP504	Microprocessors - based Automation Systems	3.0	3.0
3	EEI502	Industrial Process Automation (study project)	2.0	2.0
4	EEP582	Control Technique with Microprocessor Controllers		3.0
5	EEI350	Power Electronics Systems (study project)		3.0
6	EEI729	Power Electronics		4.0
B		Compulsory Elective Study Courses	5.0	5.0
B1		Field-Specific Study Courses	5.0	5.0
		<i>Industrial electronics and electrical technologies</i>		
1	EEP342	Application of Computers in Electrical Equipment Design	2.0	2.0
2	EEP581	Electro-Magnetic Compatibility in Industrial Electronic Equipment	2.0	2.0
3	EEP583	Industrial Frequency Converters and Inverters	2.0	2.0
4	EEP426	Alternative Contactless Electromechanical Converters	2.0	2.0
5	EEP586	Innovation Strategy Management	3.0	3.0
		<i>Computerised control of electric transport</i>		
1	EEI781	Control and design of smart electrical transport	3.0	3.0
2	EEI782	Artificial neural networks in electric transport control	2.0	2.0
3	EEI783	Genetic algorithms in electrical transport optimal control	2.0	2.0
4	EEI784	Adaptive Systems in Industrial Electronics	2.0	2.0
D		Practical Placement	6.0	26.0
1	EEI715	Practical training	6.0	6.0
2	EEI785	Internship		20.0
E		Final Examination	20.0	30.0
1	EEP002	Master Thesis	20.0	20.0
2	EEI786	Engineering Design Project		10.0
<i>K.p.[*] kredītpunkti studiju programmas variantā</i>				