RĪGAS TEHNISKĀ UNIVERSITĀTE

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Study programme "Engineering Technology, Mechanics and Mechanical Engineering"

Main attributes

Title	Engineering Technology, Mechanics and Mechanical Engineering
Identification code	MMM0
Education classification code	45521
Level and type	Academic Master Study
Higher education study field	Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering
Head of the study field	Aldis Balodis
Department responsible	Faculty of Mechanical Engineering, Transport and Aeronautics
Head of the study programme	Marina Čerpinska
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	16.11.2022 - 17.11.2028; Accreditation certificate No 2022/30-A
Volume (credit points)	80.0
Duration of studies (years)	Full time studies - 2,0
Degree or/and qualification to be obtained	Master degree of engineering science in mechanical engineering / –
Qualification level to be obtained	The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Bachelor degree of engineering science in mechanical engineering, mechanics and metal processing, or comparable education

Description

Abstract	The study programme is being implemented in Riga Technical University Faculty of Mechanical Engineering Transport and Aeronautics Department of Theoretical Mechanics and Strength of Materials in close cooperation with the eight largest technical universities in Europe. The study programme is implemented in Latvian and English, and its duration is two years. The study programme is focused on gaining an in-depth understanding of the operation of mechanical systems and their control (study courses “Technical System Vibration and Stability”, “Shock Theory”, “Dynamics and Control of Machines” etc.), acquisition of knowledge and skills in the use of computer programmes and performance of simulations (study courses “Vibrotechnology and Vibromachines”, “Rotary Machines”, “Computer-Aided Analysis of Mechanical Systems of Machines” etc.), which allows graduates to work in both local and international companies, which are focused on the production and project management of customer-tailored mechanical equipment, systems or components, as well as to continue their studies in a four-year PhD study programme.
Aim	To prepare engineers with a wide range of knowledge in the field of mechanics and mechanical engineering, who are able to compete well for their place in the labour market and can work in their profession in both local and international companies and projects, as well as to prepare students for further studies in the PhD study programme.
Tasks	The tasks of the study programme are: - to provide students with the in-depth theoretical knowledge, skills and abilities in engineering, mechanics and mechanical engineering; - to acquaint students with the latest research and development tendencies in the field of mechanics and mechanical engineering; - to strengthen skills in working with computer programs used in the field with the help of laboratory works, as well as to develop an understanding of continuous development of computer programmes, so that after completing the study programme the student is able to work with various similar alternatives; - to develop an understanding of the cycle of the creation of innovative engineering products, cooperation of specialists in various fields.
Learning outcomes	Graduates of the study programme: - understand technical processes in mechanics and mechanical engineering, as well are able to give their suggestions for its’ improvement; - are able to evaluate descriptions of technological processes, perform their analysis, assess the quality of operation of mechanical systems, influencing factors and risks, determine preventive measures appropriate to the risks; - are able to evaluate the operation processes of mechanical equipment, provide suggestions for process improvements; - are able to plan the necessary resources to ensure the successful operation and improvement of engineering systems; - know and are able to design, install and operate mechanical systems after additional training on the specific system; - are able to build an engineering career by effectively cooperating with specialists of other profiles and jointly developing innovative engineering products; - are able to continue PhD studies.

Final/state examination procedure, assessment	Master Thesis.
Description of the future employment	Graduates of the study programme work in companies that focus on the design and production of new and customer-tailored products - mechanical equipment and their components, as well as in companies where maintenance of mechanical equipment must be provided and in projects where calculations and simulations are performed in computer programs. After additional specific training, graduates can work in the field of technical measurement and diagnostics.
Special enrollment requirements	English language proficiency equivalent to at least CEFR B2 level.
Opportunity to continue studies	It is possible to continue studies in the four-year full-time doctoral study programme “Engineering Technology, Mechanics and Mechanical Engineering” or in other RTU doctoral study programmes, as well as it is possible to study abroad, or in similar study programmes abroad.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**38.0**
1	MTM409	Technical System Vibration and Stability	4.0
2	MSE432	Thermodynamics and Gas Dynamics	3.0
3	MMP532	Mechanics of Composite Materials	3.0
4	MTH505	Rotary Machines	3.0
5	MSE541	Theory of Boundary Layer	4.0
6	MTM408	Optimization Methods	4.0
7	MTH503	Computer-Aided Analysis of Mechanical Systems of Machines	4.0
8	MTH507	Lifting and Transporting Machines	4.0
9	MTM516	Analysis and Optimization of Machines, Structures and Technological Processes	3.0
10	MSE535	Non-Standard Sources of Energy	3.0
11	MRA253	Basics of Technical Design	2.0
12	IDA700	Basics of Labour Protection	1.0
B		**Compulsory Elective Study Courses**	**18.0**
B1		**Field-Specific Study Courses**	**14.0**
0	MMP518	Theory of Elasticity,Viscoelasticity and Plasticity	4.0
1	MTM411	Shock Theory	4.0
2	MEE412	Biomaterials	2.0
3	MMP519	Finite and Boundary Element Methods	4.0
4	MTM514	Vehicle Mechanics	4.0
5	MEE411	Introduction to Biochemistry and Biophysics	3.0
6	MMP510	Experimental Mechanics and Technical Diagnostics	4.0
7	MTH504	Numerical Analysis for Research of Dynamics of Machines (for Master Students)	4.0
8	MMP533	Nonlinear Mechanics of Materials	3.0
9	MMP535	Fracture Theory	3.0
10	MTH502	Dynamics and Control of Machines (for Master Degree students)	4.0
11	MTH413	Fatigue and Damages of Materials of Mechanical Engineering Constructions	3.0
12	MTH412	Mechanical Engineering Constructions	3.0
0	MEE507	Mechanics of Biological Systems	3.0
1	MEE413	Physics of Medical Imaging	4.0
2	MEE509	Medical Instrumentation	3.0
3	MEE407	Medical Equipment Design	5.0
4	MEE511	Radiation Safety in Medicine	3.0
0	MTM407	Statistical Mechanics	4.0
1	MSE278	Thermal Engines	2.0
2	MSE323	Thermotechnical Measurements and Fumdamentals of Automation	2.0
3	MSE428	Specialized Course in Ecology	2.0
4	MMP539	Vibrotechnology and Vibromachines	4.0
5	MTM406	In Biological Systems Rooted Robots	3.0
6	MTM701	Biotextiles in Engineering Area	3.0
7	MTM702	Introduction to Mechanics of Textile Materials	2.0
B2		**Humanities and Social Sciences Study Courses**	**4.0**
1	HSP483	Industrial Relations	2.0
2	HSP488	Business Sociology	2.0
3	HSP430	Social Psychology	2.0
4	HFL432	Ethics	2.0
5	HSP484	Psychology	2.0
6	HSP446	Pedagogy	2.0
7	HSP485	Communication Psychology	2.0
8	IUE217	Business Economics	2.0
9	IUE409	New Product Marketing	2.0
10	IUE307	Planning of Entrepreneurship	2.0
11	IUV508	Legal Regulation of Entrepreneurship	2.0
C		**Free Elective Study Courses**	**4.0**
E		**Final Examination**	**20.0**
1	MTM002	Master Thesis	20.0
2	MEE002	Master Thesis	20.0
3	MSE002	Master Thesis	20.0