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RĪGAS TEHNISKĀ UNIVERSITĀTE

Reģ.Nr.90000068977, Ķīpsalas iela 6A, Rīga, LV-1048, Latvija
Tālr.:67089999; Fakss:67089710, e-pasts:rtu@rtu.lv, www.rtu.lvwww.rtu.lv

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 (Second Cycle) Studies
Higher education study field	Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering
Head of the study field	Marina Čerpinska
Department responsible	Faculty Of Civil And Mehanical Engineering
Head of the study programme	Vitālijs Beresņevičs
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)	120.0
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**	**56.0**
1	BM0785	Technical System Vibration and Stability	6.0
2	BM0110	Thermodynamics and Gas Dynamics	4.0
3	BM0004	Mechanics of Composite Materials	6.0
4	BM0005	Rotary Machines	6.0
5	BM0001	Theory of Boundary Layer	4.0
6	BM0786	Optimization Methods	6.0
7	BM0773	Computer-Aided Analysis of Mechanical Systems of Machines	6.0
8	BM0784	Lifting and Transporting Machines	6.0
9	BM0121	Analysis and Optimization of Machines, Structures and Technological Processes	4.0
10	BM0079	Non-Standard Sources of Energy	4.0
11	BM0780	Basics of Technical Design	3.0
12	IV0001	Basics of Labour Protection	1.0
B		**Compulsory Elective Study Courses**	**28.0**
B1		**Field-Specific Study Courses**	**22.0**
1	BM0778	Theory of Elasticity,Viscoelasticity and Plasticity	4.0
0	BM0774	Shock Theory	6.0
1	BM0771	Biomaterials	3.0
2	BM0776	Finite and Boundary Element Methods	6.0
3	BM0770	Vehicle Mechanics	6.0
4	BM0208	Introduction to Biochemistry and Biophysics	5.0
5	BM0781	Experimental Mechanics and Technical Diagnostics	6.0
6	BM0783	Numerical Analysis for Research of Dynamics of Machines (for Master Students)	6.0
7	BM0125	Nonlinear Mechanics of Materials	4.0
8	BM0117	Fracture Theory	4.0
9	BM0775	Dynamics and Control of Machines (for Master Degree students)	6.0
10	BM0137	Fatigue and Damages of Materials of Mechanical Engineering Constructions	4.0
11	BM0114	Mechanical Engineering Constructions	4.0
0	BM0128	Mechanics of Biological Systems	4.0
1	BM0431	Physics of Medical Imaging	5.0
2	BM0048	Medical Instrumentation	4.0
3	BM0240	Medical Equipment Design	8.0
4	BM0119	Radiation Safety in Medicine	4.0
0	BM0779	Statistical Mechanics	6.0
1	BM0622	Thermal Engines	3.0
2	BM0288	Thermotechnical Measurements and Fumdamentals of Automation	3.0
3	BM0738	Specialized Course in Ecology	3.0
4	BM0772	Vibrotechnology and Vibromachines	6.0
5	BM0173	In Biological Systems Rooted Robots	5.0
6	BM0109	Biotextiles in Engineering Area	4.0
7	BM0782	Introduction to Mechanics of Textile Materials	3.0
B2		**Humanities and Social Sciences Study Courses**	**6.0**
1	DE0544	Industrial Relations	3.0
2	DE0425	Business Sociology	3.0
3	DE0386	Social Psychology	3.0
4	DE0694	Ethics	3.0
5	DE0653	Psychology	3.0
6	DE0643	Pedagogy	3.0
7	DE0516	Communication Psychology	3.0
8	IV0380	Business Economics	3.0
9	IV0681	New Product Marketing	3.0
10	IV0679	Planning of Entrepreneurship	3.0
11	IV0680	Legal Regulation of Entrepreneurship	3.0
C		**Free Elective Study Courses**	**6.0**
E		**Final Examination**	**30.0**
1	BM0777	Master Thesis	30.0
2	BM0684	Master Thesis	30.0
3	BM0730	Master Thesis	30.0