FACULTY OF TRANSPORT AND MECHANICAL ENGINEERING

Please note! This is a preliminary list of courses for the study year 2020/2021. Changes may occur!

AUTUMN 2020

BACHELOR COURSES

MMP343 Mechanics of Composite and Elastic Materials
2.00 CP (3.0 ECTS)

MSE201 Heat Study
2.00 CP (3.0 ECTS)

MSE305 Hydro- and Gas Dynamics
3.00 CP (4.5 ECTS)
The subject contains consideration of properties of liquids and gases, hydrostatic forces, pressure definition. The Fluid Dynamics course is based on motion equations of liquids and gases. Real flows described in terms of border layer equations and turbulence length. Non dimensional methods used for process modelling. Heat losses and flow types are analysed. Methods of pipe, valve, pump and fan selection. Flow parameters described in nozzles, channels, around the body.

MTH206 Engineering Measurements and Experiments
2.00 CP (3.0 ECTS)

MTH301 Machine Dynamics and Strength
3.00 CP (4.5 ECTS)
MTH306 Construction of Machines and Mechanisms  
3.00 CP (4.5 ECTS)  

MTM326 Mechanical Vibration and Acoustics  
3.00 CP (4.5 ECTS)  

MTM341 Numerical Analysis in Engineering Mechanics  
2.00 CP (3.0 ECTS)  

MASTER COURSES

MMP532 Mechanics of Composite Materials (graduate)  
3.00 CP (4.5 ECTS)  

MSE541 Theory of Boundary Layer (graduate)  
4.00 CP (6.0 ECTS)  

MRA253 Basics of Technical Design (graduate)  
2.00 CP (3.0 ECTS)  

MMP510 Experimental Mechanics and Technical Diagnostics (graduate)  
4.00 CP (6.0 ECTS)  

MTM409 Technical System Vibration and Stability (graduate)
4.00 CP (6.0 ECTS)

MSE432 Thermodynamics and Gas Dynamics *(graduate)*
3.00 CP (4.5 ECTS)
The subject covers different thermodynamic systems and their characteristics. Energy transition types. Simple and complicated thermodynamic systems.

MTM411 Shock Theory *(graduate)*
4.00 CP (6.0 ECTS)

MSE535 Non-Standard Sources of Energy *(graduate)*
3.00 CP (4.5 ECTS)
The subject gives basic knowledge in matters of non-standard and alternative energy sources, sustainable development theory, legislative acts and strategies on different levels that support and promote use of such energy sources and the modernization of utilization technologies. Huge attention is given to energy sources that have been used already for several centuries – solar, wind, running water (oceans, seas, rivers, tidal and ebb energy), biomass. The potential and the level of the utilization technology of every source is carefully evaluated according to technical, economic, environmental aspects. Emphasis is put on efficiency of energy conversion and total profitability. From the same aspects household and industrial waste, sludge from water treatment plants is considered. Interest is also built towards nuclear energy and hydrogen technologies. All sources are evaluated on the level of EU and the Republic of Latvia development plans.

MTH507 Lifting and Transporting Machines *(graduate)*
4.00 CP (6.0 ECTS)
Ways of transferring/shifting hard objects, liquids, loose and other materials, the physical and mechanical issues of their transfer. Designing and exploitation of the machines used in the agriculture, processing industries (mainly food, woodprocessing, construction materials) and service industries (mainly cargo transit, transport, seaport).

MMP532 Mechanics of Composite Materials *(graduate)*
3.00 CP (4.5 ECTS)