RIGA TECHNICAL UNIVERSITY

FACULTY OF POWER AND ELECTRICAL ENGINEERING

Please note! This is a preliminary list of courses for the study year 2018/2019. Changes may occur!

MASTER COURSES
for students in power and electrical engineering study programmes

EEP345 Unconventional Systems of Energy Conversion and Accumulation
3.00 CP (4.5 ECTS)
Wind power stations, turbines, adjusting, connections to the Main, small power hydraulic plants, its adjusting, electric machines of the special construction, photovoltaics, piezo generators, piezo motors, motion and movement sensors, low voltage inverters, adjusting, regulation, batteries, UPS.

EEP408 Automated Electrotechnological Processes
2.00 CP (3.00 ECTS)
The subject is meant for full and part-time study, the type of RTU students of bachelor study program "Computer control of electrical technologies". Subject examines the process automation system for the establishment of principles. Deals with electrical heating installations, induction heating equipment, welding equipment and electrogalvanic plant automation systems modeling.

EEP458 Typical Electrical Drive
5.00 CP (7.50 ECTS)
The realization of typical electric drives for different essential groups of mechanisms: cranes, lifts, conveyers, pumps, compressors, funs, excavators and machine-tools. Calculation of the drives.The dynamic loads, transiert processes. Braking processes. Adjusting of effiency of the mechanisms, modes of automation systems and schemes for control of typical electrical drives

EEP524 Design of Power Electronics Systems *(graduate)*
3.00 CP (4.5 ECTS)
The subject is proposed for full and part-time RTU academic master study program „Computerized Control of Electrical Technologies" students. The power electronics system main converter design and calculation are considered. It is desribed the design and calculation of controllable rectifier, net inverter, DC pulse converter and autonomous inverter power and control schemes.

EEP570 Elements of Automatics
9.00 CP (13.5 ECTS)
Sensors for measurement of electrical and non-electric parameters. Measurements schemes. Synthesis of logical parts of measurement schemes. Functional converters. Characteristics of technical parameters. Indicators of reliability level of the schemes.

EEP572 The Control Systems of Power Electronics Equipment
5.00 CP (7.50 ECTS)
Electronic elements of control systems. Saw-teeth mode voltage, forming of firing pulses. Achieving of the time delay in control systems, phase shifting control, synchronization with network, generators for clock pulses, diversification devices, Pulse Width Modulators, microprocessor based control systems for frequency converters.

EEP574 Commutated Converters Part 1 and Part 2
5.00 CP (7.50 ECTS)
Transistor switches, control drivers, thyristors switches, control schemes, forming of transient process, commutation of DC, DC-pulse regulators, current-source and voltage-source inverters, control systems, action with electrical motors, programmable numerical control.

EEP582 Control Technique with Microprocessor Controllers

3.00 CP (4.5 ECTS)

Process control systems with one and two tanks of capacities. Control loops. Industrial measurement equipment for flow, pressure, level and temperature. Controlled valves, programmable controllers, functions, P, PI, PID control loops, optimal setting techniques.

EEP583 Industrial Frequency Converters and Inverters

2.00 CP (3.00 ECTS)

Historical overview of AC drive systems development. Mechanical and electrical characteristics of DC and AC drive systems with different speed control methods. Variable frequency AC drives, typical applications and characteristics. Inverters and frequency converters with pulse width modulation techniques. Scalar and vector-oriented control methods of frequency converters.