

Electrical Measurement and Work Safety: The objectives of this course are to comprehend the basic principles of measurement and the types of measurement errors, to teach the working principles of measuring instruments, to achieve the ability of measuring electrical, electronic and mechanical quantities, to make the measurement with the oscilloscope, to comprehend the measuring transformers, making measurements related to power and energy, to teach what the occupational risk factors are, to achieve awareness of the need for job security and to achieve the ability of providing of the work safety. Course contents are reading resistors, capacitors and inductor, semiconductor components, voltage measuring, current measuring, frequency measuring, resistance measuring, oscilloscope, measuring DC and AC voltage with oscilloscope, measuring period and frequency with oscilloscope, legally work health and safety, occupational accidents and diseases, method in the work safety, organization of work safety, risk analysis, chemical risk factors, physical risk factors, fire and electrical risk factors, work safety in the pressurized vessels, personal protective equipment.

Direct Current Circuit Analysis: The objectives of this course are to acquire the ability of analyzing the electric circuit of the basic branches of the science of electricity and to achieve the ability of applying the basic theorems and the methods of circuit solution. Course Contents are static electricity, taking precautions against the unpredictable effects of electrical current, direct current circuit analysis, loop currents method, node voltages method, resource links, Thevenin's theorem, Norton's theorem, superposition theorem, maximum power theorem, direct current storage elements, direct current power and energy.

Digital Electronics: The objectives of this course are to teach number systems, to comprehend truth tables and electrical properties of logic Gates, to acquire the ability of designing digital circuits using Boolean algebra and Karnaugh maps, to acquire the ability of applying combinational logic circuits, arithmetic operation circuits, counters, registers, multivibrators and flip-flops, to be able to comprehend analog-to-digital and digital-to-analog converters. Course Contents are number systems, truth tables and electrical properties of logic gates, abbreviation and digital circuit design using Boolean algebra and Karnaugh maps, encoders, decoders, multiplexers, adders, comparators, digital circuit design using flip-flops, asynchronous and synchronous counters, types and properties of registers, analog-to-digital and digital-to-analog converters.

Analog Electronics: The objectives of this course are to learn semiconductor materials and their properties, to comprehend their structure, types, properties and operating principles of semiconductor circuit devices and to acquire the ability of analyzing the circuits which have semiconductor circuit devices. Course Contents are semiconductor materials and their properties, definition, structure and types of diodes, AC and DC analysis of diodes, rectifier, chopper and clamper circuits, definition, structure and types of transistors, DC analysis of BJT transistors, use of BJT transistors as an amplifier, use of JFET and MOSFET as an amplifier and a switch.

Alternative Current Circuit Analysis: The objectives of this course are to enable the students to acquire the knowledge and skills about circuit solution of alternative current and to calculate them. Course contents are alternative current load types, the basic concepts of ac electrical circuits, the solution methods of the circuits in continuous mode, resonant circuits, filtering, power factor correction and power.

Techniques of Electrical Installations: The aim of this course is to enable the students to acquire and apply the knowledge and skills related to low current, circuits of lighting and heavy current installation. This course includes conductors and insulators, cable laying equipment, low-current materials, and types of electrical circuits, application circuits of low current installation, lighting and power socket circuit elements, making high current installations, assembling header cable and making underground line cables.

Transmission and Distribution of Electricity: The aim of this course is to teach the students the equipment used in electricity transmission and distribution and to enable the students to acquire and apply their knowledge on installation of the structure, operation and maintenance procedures. This course includes power plants obtained in the transmission and distribution of electrical energy used in the conductors and poles, installation of protection relays.

Direct Current Machines and Transformers: The aim of this course is to teach the students DC Machines, transformers, principles, making calculations, assessing the results of different working patterns. This course includes the definition of DC Machines and transformers, sample solutions, interpretation of the connection and the way it works.

Synchronous and Asynchronous Machines: The aim of this course to teach the students asynchronous and synchronous machines, and principles, calculations have been made and the assessment of results of different working patterns. This course includes asynchronous and synchronous machines definitions, and sample solutions, and interpretation of the connection and the way it works.

Electromechanical Control Systems: The aim of this course is to teach students to use the control circuit elements and control elements on the installation, one-phase and three-phase induction motors running, to change the direction of rotation, the braking will be able to. This course includes control elements, protection relays, discrete and continuous operation three-phase asynchronous motors, three-phase asynchronous motors in two places (remote) operation, three-phase asynchronous motors changing direction speed, three-phase asynchronous motors resistance starters, winding rotor induction motors starters.

Special Electrical Machines: The aim of this course is to teach students all kinds of tips which have custom-designed engines, commissioning and operation of connected transactions aimed to gain qualifications. This course includes the structure and operation of stepper motors, servo motors and the operation of the structure, the structure and operation of single-phase auxiliary winding motors, universal motors and operation of the structure, the structure and operation of linear motors, engines, construction and operation of the shadow pole.

Techniques of Special Installations: The aim of this course is to teach students all ends of the presence of specially designed engines, start-up aimed to gain qualifications for connecting and operating procedures. This course includes installations to make compensation. lightning installations, grounding installations, safety systems installation.

Techniques of High Voltages: The aim of this course is to teach students to provide a deeper insight into the technical characteristics of the specific devices that are used in the high voltage field. Emphasis is put on the technological and engineering modifications that occur when voltage reaches very high values. This course includes AC and DC electric transmission systems, standards related to high voltages, high voltage equipment, substations and distribution systems in basic level, generation of high voltages, and measurement of high voltages.

Planning, Exploratory and Contract: The aim of this course is to teach students pre-project studies, planning, making reconnaissance, it is aimed to gain competencies in preparing the contract and specifications. This course includes building regulations, discovery, and special installations of line specifications, topographic information, underground cable plant line, regulations, security systems, facilities and equipment information.