

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 achieve 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 achieve the ability of designing digital circuits using Boolean algebra and Karnaugh maps, to achieve the ability of applying combinational logic circuits, arithmetic operation circuits, counters, registers, multivibrators and flip-flops, 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 teach semiconductor materials and their properties, to comprehend structure, types, properties and operating principles of semiconductor circuit devices and to achieve 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 make the students to gain the knowledge and skills about circuit solution of alternative current and to calculate. 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.

Analog Communication: The objectives of this course are to comprehend main components, structure, properties and noise sources of communication systems, to achieve the ability of applying power ratio and signal-level units used in communication systems, to achieve the ability of analyzing amplitude, frequency, phase modulation and demodulation techniques. Course contents are basic concepts related to communication systems, main components, structure, properties and noise sources of communication systems, power ratio and signal-level units in communication systems, necessity, advantages and disadvantages of amplitude, frequency and phase modulations, amplitude, frequency, phase modulation and demodulation techniques, applications related to amplitude, frequency, phase modulation and demodulation, comparison of amplitude, frequency and phase modulation techniques.

Antennas and Microwave Communication: The objectives of this course are to teach the principle of propagation of radio waves, to comprehend microwave systems and microwave components, to achieve the ability of solving transmission line problems. Course contents are electromagnetic theory, transmission line theory, transmission line types according to operating frequency, microwave systems and their components, microwave transmission line calculations, types, properties and polarization of antennas.

Microprocessors and Microcontrollers: The objectives of this course are to teach the historical development of microprocessor and microcontrollers, to understand the duties and operation of the microcontroller hardware units, to understand the difference between high-level languages and low-level languages to gain microcontroller programming skills with assembly language, to gain basic microcontroller programming skills with high level language. Course contents are differences between microprocessor systems and microcontroller systems, microcontroller systems, programmer cards, translation program to machine language, installation the compiled program to microcontroller, algorithms, flow diagrams, microcontroller memory map, microcontroller commands, microcontroller editor program, the basic blocks of the microcontroller program, basic input/output programs, compile the microcontroller program, operation compiled program step by step, button and led applications with microcontroller, 7 segment display applications with microcontroller, keypad applications with microcontroller, LCD applications with microcontroller.

Digital Communication: The objectives of this course are to comprehend the basic communication math and the sampling theorem, to achieving the ability of applying digital communication techniques, to achieve the ability of analyzing time division multiplexing systems, to teach digital keying techniques. Course contents are basic communication math and sampling theorem, pulse amplitude, pulse width, pulse position, pulse code, delta modulation and demodulation techniques, applications related to pulse width, pulse position, pulse code, delta modulation and demodulation, time division multiplexing systems, amplitude-shift, frequency-shift, phase-shift and quadrature phase-shift keying techniques.

Radio Frequency Techniques: The objectives of this course are to comprehend structure, types, operating principles and properties of oscillator, filter, mixer, modulator and demodulator circuits, to achieve the ability of applying oscillator, filter, mixer, modulation and demodulation circuits. Course contents are structure, types, operating principles and properties of oscillator, filter, mixer, modulator and demodulator circuits, applications related to oscillator, filter, mixer, modulator and demodulator circuits, RF and IF amplifiers, PLL and frequency synthesizers.

Telephone Communication and Switching Systems: The objectives of this course are to teach structure, components and operating principle of telephone device, to comprehend switchboard structure and switchboard signaling, to teach switching techniques used in switchboards, to achieve the ability of evaluating color codes of telephone cable, to achieve the ability of analyzing telephone traffic. Course contents are basic concepts related to telephone communication, structure, components, types and operating principle of telephone device, DP and DTMF call, structure, necessity and types of switchboards, switchboard signaling and applications, color codes of telephone cables, switching techniques used in switchboards, telephone traffic, Erlang law and electrical waves.

Satellite Communication and Cellular Communication: The objectives of this course are to comprehend the necessity of satellite and cellular communication systems in terms of voice, data and video applications used in national and international communication. Course contents are fundamentals, frequency bands and hardware structure of satellite communication systems, installation and montage of parabolic antenna, technical properties and services of TURKSAT satellites, fundamentals, frequency bands and hardware structure of cellular communication systems, Turkey's position in the world in terms of satellite and cellular communication.

Advanced Communication Technologies: The objective of this course is to teach the computer networks, data communication techniques, cyber security, voice and data switching. Course contents are ISDN Systems, EURO-ISDN standards, ISDN services, properties and applications, XDSL Systems, Asymmetric digital subscriber lines, GSM, GPRS, SDH, and Internet Solving.

Computer Aided Circuit Design: The objectives of this course are to teach drawing schematic/printed circuits of electronic circuits on the computer, analysis and how to prepare the circuits. Course contents are program menus, circuit drawing, circuit analysis, manually drawing printed circuit, automatically drawing printed circuit, preparing printed circuit, exposure method, fitting.

Fiber Optic Communication: The objectives of this course are to teach the usage necessity of fiber optic communication systems, comprehending types, structure and properties of fiber optic cables, achieving the ability of analyzing the parameters which affect optic signal conduction in fiber optic cables. Course contents are basic concepts, advantages and disadvantages of fiber optic communication, types, structure and properties of fiber optic cables, light sources and their properties, fiber optic wiring, troubleshooting in fiber optic cables, applications related to fiber optic communication.