**T.C**

**MUNZUR ÜNİVERSİTESİ**

**PERTEK SAKİNE GENÇ MESLEK YÜKSEKOKULU**

**Department of Electrical and Energy / Electrical Program**

**FIRST SEMESTER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Course Code** | **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| 1 | TRD101 | Turkish Language I | C | 2 | 0 | 2 | 2 |
| 2 | AİT101 | Principles Of Atatürk And History Of Reforms I | C | 2 | 0 | 2 | 2 |
| 3 | YDİ101 | English I | C | 2 | 0 | 2 | 2 |
| 4 | MAT101 | General Mathematics | C | 2 | 0 | 2 | 4 |
| 5 | MPE101 | DC Circuit Analysis | C | 2 | 2 | 3 | 6 |
| 6 | MPE103 | Measurıng Technıque | C | 2 | 2 | 3 | 6 |
| 7 | MPE105 | Information And Communıcatıon Technology | C | 1 | 2 | 2 | 2 |
| 8 | MPE107 | Introduction to Electrical Installation | O | 3 | 0 | 3 | 6 |
| Total |  | 16 | 6 | 19 | 30 |

**SECOND SEMESTER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Course Code** | **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| 1 | TRD102 | Turkish Language II | C | 2 | 0 | 2 | 2 |
| 2 | AİT102 | Principles Of Atatürk And History Of Reforms II | C | 2 | 0 | 2 | 2 |
| 3 | YDİ102 | English II | C | 2 | 0 | 2 | 2 |
| 4 | MAT102 | Vocational Mathematics | C | 2 | 0 | 2 | 3 |
| 5 | MPE102 | AC Circuit Analysis  | C | 2 | 2 | 3 | 5 |
| 6 | MPE104 | Transformer And DC Machines | C | 2 | 2 | 3 | 5 |
| 7 | MPE106 | Basic Electronics | C | 2 | 2 | 3 | 5 |
| 8 | MPE108 | Computer-Aided Circuit Design | C | 1 | 2 | 2 | 4 |
| 9 | MPE110 | Occupational Safety | O | 2 | 0 | 2 | 2 |
| Total |  | 17 | 8 | 21 | 30 |

**THIRD SEMESTER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Course Code** | **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| 1 | MPE201 | Electromechanical Control Systems | C | 2 | 2 | 3 | 4 |
| 2 | MPE203 | Winding Technique | C | 3 | 0 | 3 | 4 |
| 3 | MPE205 | Digital Electronic | C | 2 | 2 | 3 | 4 |
| 4 | MPE207 | Sensors And Transducers | C | 3 | 0 | 3 | 4 |
| 5 | MPE209 | Vocational Foreign Language | O | 2 | 0 | 2 | 3 |
| 6 | MPE211 | Hydraulic And Pneumatic | C | 3 | 0 | 3 | 4 |
| 7 | MPE213 | Electric Energy Power Plants | C | 3 | 0 | 3 | 4 |
| 8 |  | Internship | C | 0 | 0 | 0 | 3 |
| Total |  | 18 | 4 | 20 | 30 |

**FORTH SEMESTER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Course Code** | **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| 1 | MPE202 | Electricity Energy Transmission And Distribution | C | 3 | 0 | 3 | 4 |
| 2 | MPE204 | Programmable Controllers | C | 2 | 2 | 3 | 4 |
| 3 | MPE206 | Power Electronics | C | 3 | 0 | 3 | 4 |
| 4 | MPE208 | Special Designed Motors | C | 2 | 0 | 2 | 3 |
| 5 | MPE210 | First Aid | O | 2 | 0 | 2 | 3 |
| 6 | MPE212 | Asynchronous Synchronous Machines | C | 2 | 2 | 3 | 5 |
| 7 | MPE214 | Failure Analysis | C | 2 | 0 | 2 | 3 |
| 8 | MPE216 | System Analysis And Design | C | 2 | 0 | 2 | 4 |
| Total |  | 18 | 4 | 20 | 30 |

**T.C**

**MUNZUR ÜNİVERSİTESİ**

**PERTEK SAKİNE GENÇ MESLEK YÜKSEKOKULU**

**Department of Electrical and Energy / Electrical Program**

**FIRST SEMESTER**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Turkish Language I** | **Z** | **2** | **0** | **2** | **2** |
| To understand that language is the product of the human mind, understand the structural properties and richness of Turkish language, understand the ways of being successful in written expression, To improve research, reading and information capabilities. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Principles Of Atatürk And History Of Reforms I** | **Z** | **2** | **0** | **2** | **2** |
| Purpose and concept of reading Ataturk's principles and reforms Revolution History course , Overview of the causes of the degradation of the Ottoman Empire and the Turkish Revolution ; The disintegration of the Ottoman Empire , Armistice Treaty , the situation of the country in against invasions and Mustafa Kemal Pasha in Samsun output, the first step in the national struggle , congresses of organization by way of National Forces and National Pact , Turkey opening of the Grand National Assembly , Turkey to address the national war II the management of the national Assembly , Sakarya Victory to the national struggle , Sakarya war and the Great Attack, Mudanya to Lausanne , education and culture, the national struggle , social and national struggle in the economic field |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **English I** | **Z** | **2** | **0** | **2** | **2** |
| Markers; Prepositions : place, time and motion ; singular and plural nouns , countable and uncountable nouns , tenses , present tense , past tense structures, modes , will, should, should not , must, must not , can not , comparative constructions, pronouns , possessive pronouns , adjectives positive sentence, negative sentence and interrogative sentences , conjunctions. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Information And Communıcatıon Technology** | **Z** | **1** | **2** | **2** | **2** |
| Computer Definition and Historical Development, Basic Concepts Related to Computers, Computer Data and Information Sizes, Types of Computers and Their Applications, Computer Hardware (Data Input Devices, Data Processing Units, Data Output Devices, External Memory Devices), Computer Operating Systems (Windows, Pardus, Linux), Internet Usage and Web Pages. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **General Mathematics** | **Z** | **2** | **0** | **2** | **4** |
| Numbers, rate and ratio, First Degree Equations, Problems, Absolute Value, Simple inequalities.  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **DC Circuit Analysis** | **Z** | **2** | **2** | **3** | **6** |
| Fundamental concepts, magnitudes, electrical sources, connection of electric sources, static electricity, resistive circuit solutions, ambient current method, node voltage method, Theve's theorem, Norton theorem, superposition theory. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Measurıng Technıque** | **Z** | **2** | **2** | **3** | **6** |
| Measurement, Units; unit systems and unit conversions, Measurements of length and weight, Measurement of area and volume, Measurement of temperature, Measurement of inclination, Measurement of section and diameter, Measurement of speed and speed, Measurement of light level, Measurement of sound level, Measurement of pressure and stress, Measuring error, Resistance, coil and capacitor measurement (RLC measurement), Current and voltage measurement, Frequency measurement, Peak value with oscilloscope, Period, Phase difference measurement, Measuring transformers, Measurement units used in measurement of magnitudes. ıntegrates (msı) ımplementation. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Introduction to Electrical Installation** | **S** | **3** | **0** | **3** | **6** |
| Conductors and insulators, Cable laying materials, Weak current materials Electric circuit and its varieties, Weak current circuit application circuits, Lighting and set-up components, High-current installations, Installation of cable ties, Underground line cabling and laying. |

**SECOND SEMESTER**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Turkish Language II** | **Z** | **2** | **0** | **2** | **2** |
| Elements of sentence, sentence analysis and implementation. Reading and examining the works related to literature and the world of ideas, written composition types. Lectures and sentences defects and correcting them. Rules to be followed in the preparation of scientific writings. The development students right and good speaking and writing skills based on the selected sample texts in the history of ideas and development of students right and good speaking and writing skills based on the selected sample texts in the history of ideas and Turkey and world literatures, apply their theoretical about them. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Principles Of Atatürk And History Of Reforms II** | **Z** | **2** | **0** | **2** | **2** |
| The proclamation of the republic. The first Constitution. Turkish Revolutions (social, economic, administrative, cultural and Reforms in other areas). Foreign policy of the Republic of Turkey, the treaties. Armenian issue. Attempts to transition to multiparty era. Atatürk's death. Republic of Turkey against the death of Ataturk. II. World War II and Turkey. in Atatürk's principles and reforms how to continue after his death and developments in which Turkey's foreign policy. Turkey and world powers at the period of single-party governments. eastern question. The Middle East and the Republic of Turkey. Turkey's principles and objectives in the period of rapid progres. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **English II** | **Z** | **2** | **0** | **2** | **2** |
| Tenses; Present Tense, Simple Present Tense, Past Tense, Future Tense Structures, Modals; might, could, can, must, may; Adverbs; place, direction, purpose, manner adverbs, Adjectives, Order of Adjectives, Comparison, Structures Indicating Superiority, Passive Constructions; passive constructions in present, simple present, past, and future tenses, Conditional Clauses, Adjective Clauses, Reported Speech Sentences, Verb Structures, to, -ing, Noun Clauses, Adverb Clauses, Comparative Structures. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Vocational Mathematics** | **Z** | **2** | **0** | **2** | **3** |
| Basic Trigonometry, trigonometric functions, matrices, system of equations , Limit, Continuity, Differentiation, Function Chart , Integral , Integral Area, Volume and Weight Center. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **AC Circuit Analysis**  | **Z** | **2** | **2** | **3** | **5** |
| Ohm's and Kirchhoff's laws on circuit working with A.A. featured capacitive and inductive, applying of complex numbers in the solution of A. A. the circuit, A.A. Thevenin's theorem in the circuit, superposition theorem and its applications, Series LCR circuits, parallel circuits RLC, Resonance, Power, Power Factor Correction, three phase circuits. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Transformer And DC Machines** | **Z** | **2** | **2** | **3** | **5** |
| DA Engines; Direct Current Shunt Motor and its operating characteristics, Direct Current Series Motor and its operating characteristics, Direct Current Compunt Motor and its operating characteristics, Speed setting in DC motors, Direct Current motor drives, DC generators; structure, types of operation, excitation of direct current generators, operation characteristics, speed setting of direct current generators, direct current generators drivers, one phase transformer; structure, types of operation, working characteristics of one phase transformers, three phase transformers; structure, types of operation, working characteristics of three phase transformers. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Basic Electronics** | **Z** | **2** | **2** | **3** | **5** |
| Semiconductors, P and N type semiconductor materials, PN junction, Diode structure and types, Rectifier circuits; half wave, full wave, bridge type full wave rectifier. Filter circuits; condenser, coiled, π type. Regulated circuits; with diode diode, serial, parallel and integrated. Bipolar junction transistors (BJT), Transitioner's switching element and use as an amplifier, Operational amplifier and applications; inverting amplifier, voltage monitor, adder, difference receiver and comparator. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Computer-Aided Circuit Design** | **Z** | **1** | **2** | **2** | **4** |
| the overall structure of packet programs that can design, analyze and simulate any kind of circuit, module and project with multiple parameters. furthermore, using packet programs to design printed circuit. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Occupational Safety** | **S** | **2** | **0** | **2** | **2** |
| Taking the necessary precautions for safe electrical work, soldering techniques and applications |

**THIRD SEMESTER**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Electromechanical Control Systems** | **Z** | **2** | **2** | **3** | **4** |
| Control elements, Control relay, Three-phase asynchronous motors cut and continuous operation, Three-phase asynchronous motor rotation direction change, Time-dependent operation of three-phase asynchronous motors, Star-delta starting of three-phase asynchronous motors, Continuous operation of one-phase asynchronous motor, Change of direction of rotation in one-phase asynchronous motors, Startup of direct current motors, Change of direction of rotation in direct current motors. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Winding Technique** | **Z** | **3** | **0** | **3** | **4** |
| Hand type winding, Bipolar balanced hand winding, Four pole hand type winding, Six and Eight pole balanced hand type winding, Half mold winding, Batch windings, Distributed windings, Full mold winding diagram, One phase asynchronous motor winding. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Digital Electronic** | **Z** | **2** | **2** | **3** | **4** |
| Number systems, Conversion of number systems, Addition and subtraction in binary number system. Logical gate circuits; And And gate, OR gate, NOT gate, AND NAND gate, OR NOR gate, SPECIAL OR EXOR gate, SPECIAL OR EXNOR gate. Boolean expressions, Karnaugh map, Combinational circuits; Encoders, Decoders, Data Selectors, Multiplexers, Collectors, Extractors, Comparators. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Sensors And Transducers** | **Z** | **3** | **0** | **3** | **4** |
| Temperature Sensors, Moisture Sensors, Speed Sensors, Vibration Sensors, Acceleration Sensors, Position Sensors, Approximation Sensors, Pressure Sensors, Flow Sensors, Level Sensors, Impact Sensors. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Vocational Foreign Language** | **S** | **2** | **0** | **2** | **3** |
| General English information which will be the basis of professional foreign language competencies will be updated,Sentence structures used in technical texts, English sentences of connections and connections, Commonly used English vocabulary. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Hydraulic And Pneumatic** | **Z** | **3** | **0** | **3** | **4** |
| Pneumatic circuit elements, pneumatic circuit design, Pneumatic systems, Electro-pneumatic circuit elements, Electro-pneumatic circuit, Electro-pneumatic system, Hydraulic circuit elements, Hydraulic circuit design, Hydraulic system, Electro-hydraulic circuit elements, Electro-hydraulic system |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Electric Energy Power Plants** | **Z** | **3** | **0** | **3** | **4** |
| Selection and installation of protection relays, Purpose and how to build up the voltage, How to make power plant, Power central, Power distribution and frequency adjustment in power plants. and the protection of switching areas, maneuvering and communication system in power central. |

**FORTH SEMESTER**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Electricity Energy Transmission And Distribution** | **Z** | **3** | **0** | **3** | **4** |
| Transmission lines; Features, disassembly and assembly, Distribution lines; Features, disassembly and assembly, Conductive draw on transmission and distribution lines, Disconnection, installation and defects in the equipment used in these centers (Auto traf, power traf, cutter, separator, measurement transformers, parafudr), busbar in the switchyards systems, Measurement and protection systems in switchboards, Distribution power transformers and modular system. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Programmable Controllers** | **Z** | **2** | **2** | **3** | **4** |
| To use the operator panel / touch panel, to operate the pneumatic circuit with the PLC, to operate the hydraulic circuit with the PLC, to perform the motor control with the PLC |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Power Electronics** | **Z** | **3** | **0** | **3** | **4** |
| Thyristor Trigger Circuits, Triac and Diac, Mosfets, IGBTs, One Phase Uncontrolled Rectifier Circuits, One Phase Controlled Rectifier Circuits, Three Phase Uncontrolled Rectifier Circuits, Three Phase Controlled Rectifier Circuits, One Phase AA Choppers, Three Phase AA choppers, choppers in the reducer, choppers in the riser. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Special Designed Motors** | **Z** | **2** | **0** | **2** | **3** |
| Stepping Motors; structure, types of operation, starting methods, Step motor drives, Servo Motors; structure, types of operation, starting methods, servo motor drives, universal motors; structure, types of operation, starting methods, universal motor drives, Linear Motors; structure, types of operation, starting methods, linear motor drives, Shadow Polar Motors; structure, types of operation, driving methods, shaded pole motor drives |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **First Aid** | **S** | **2** | **0** | **2** | **3** |
| First and second evaluation, Basic life support in adults, Basic life support in children and infants, First aid in obstructive airway obstruction, External and internal bleeding, Wound and wound types, First aid in head and spine fractures in regional injuries, Upper extremity First aid in fracture, dislocation and sprain, First aid in hip and lower limb fracture, dislocation and sprain, First aid in diseases requiring urgent care, Poisoning, Hot strikes, Burns and frosts, First aid in foreign body evacuation, Emergency transport techniques, techniques, hand carriage |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Asynchronous Synchronous Machines** | **Z** | **2** | **2** | **3** | **5** |
| One-phase asynchronous motors; structure, types of operation, starting methods, three-phase asynchronous motors; structure, types of operation, starting methods, working characteristics of single and three phase asynchronous motors, types of asynchronous motor drives, synchronous generators; Components and properties of cylindrical poled generators, Components of poled poled generators, Operation of generators, Voltage and frequency regulation in generators, Parallel connection of generators, Load sharing in parallel running generators, Elements forming synchronous motors, Synchronous motor drives, Synchronous motor drives. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **Failure Analysis** | **Z** | **2** | **0** | **2** | **3** |
| Fault diagnosis, Detection of defective elements or partitions, Types of maintenance, Fault and maintenance recording, Resistance, coil, capacitor, transformer, diode, transistor, thyristor, triac etc. Stability control, DA motor malfunctions, Asekron motor malfunctions. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cources** | **C/O** | **Theory** | **Practice** | **Credit** | **ECTS** |
| **System Analysis And Design** | **Z** | **2** | **0** | **2** | **4** |
| To prepare the system / product specification or flow chart, To make the system / product program or to make calculations, To set up the system / product work environment, To provide the information about the system / product, To provide the obtained information, To define the system / product functions and variables, To select the necessary materials, To provide the obtained information, To make the system / product installation, to test the system / product, to present the output of the system / product as a report. |