

İSTANBUL UNIVERSITY  
 VOCATIONAL SCHOOL OF TECHNICAL SCIENCES  
 CONTROL AND AUTOMATION TECHNOLOGY

**1st SEMESTER**

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			3			Practical (Hour(s)/Week)
DIRECT CURRENT CIRCUITS ANALYSIS	KON-105	I	Laboratory (Hour(s)/Week)	0	3,5	5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Resistive D.C. circuits</li> <li>• Electricity supplies</li> <li>• Analysis of D.C. circuits</li> <li>• Condenser D.C. circuits</li> <li>• Magnetism</li> <li>• Transient state</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			3			Practical (Hour(s)/Week)
ELECTRONIC MEASUREMENTS AND WORK SAFETY	KON-106	I	Laboratory (Hour(s)/Week)	0	3,5	5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Work safety.</li> <li>• Basic concepts of measurement ad devices.</li> <li>• Direct and alternative current measurements.</li> <li>• Power and work measurements.</li> <li>• Measuring circuit elemnts and parameters.</li> <li>• Measuring with osilloscope.</li> <li>• Mechanic measurements.</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			1			Practical (Hour(s)/Week)
FINE ARTS I	OD GS 001	I	Laboratory (Hour(s)/Week)	0	1	1
<b>Course Contents (Short Description of the course)</b>						

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
MATERIAL SCIENCE	KON-108	I	2	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• States that air is a mixture mainly of oxygen and nitrogen.</li> <li>• Describes how a substance such as copper gains mass when heated in air and that oxygen is taken from the air by the copper.</li> <li>• Describes chemical reactions as interactions between substances, which involve a rearrangement of atoms.</li> <li>• States that substances burning in air combine with oxygen, recognizing it as an example of a chemical reaction.</li> <li>• Describes an oxide as a compound of an element and oxygen.</li> <li>• Describes how oxygen and water are involved in rusting, recognizing it as a chemical reaction.</li> <li>• Gives examples of the damage done by rusting, and a method used to prevent rusting.</li> <li>• Determines, experimentally the relationship between force and extension for different given materials, e.g. rubber, thin wire</li> <li>• States Hook's Law.</li> <li>• Solves simple problems involving Hook's Law.</li> </ul>				

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
PRINCIPLES AND REVOLUTION HISTORY OF ATATURK I	OD AIIT 10	I	2	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Concept of revolution</li> <li>• Background of Turkish Revolution</li> <li>• Late term of Ottoman Emperor</li> <li>• Preparation period of War of Independence</li> <li>• Establishment of New National Army</li> <li>• Period of reconstruction</li> <li>• Foreign Policy of Turkish Republic</li> <li>• Atatürk's principles</li> <li>• National and International Importance of Turkish Revolutions</li> </ul>				

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			1			
			Practical (Hour(s)/Week)	1		
GENERAL AND TECHNICAL COMMUNICATION	KON-107	I	Laboratory (Hour(s)/Week)	0	1,5	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>To develop her/his study skills in relation to the use of the vocation school and public libraries including the use of catalogue and reference systems.</li> <li>To retrieve information with particular emphasis on technical and professional publications.</li> <li>To familiarize herself/himself with the mechanics of note taking in the lecture situation and from written material.</li> <li>To comprehend information given in non-verbal forms, charts, tables, graphs and diagrams.</li> <li>Understand how to use library resources efficiently and how to seek information.</li> <li>Learn how to extract general and specific technical information.</li> <li>Learn how to take notes and abstract from non-verbal material.</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			2			
			Practical (Hour(s)/Week)	0		
FOREIGN LANGUAGE I	OD YD 301	I	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>Reading</li> <li>Writing</li> <li>Vocabulary</li> <li>Grammatical structure</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			1			
			Practical (Hour(s)/Week)	1		
COMPUTER	KON-111	I	Laboratory (Hour(s)/Week)	0	1,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>Hardware and Software of the computer</li> <li>Operating Systems</li> <li>Organization of the computer system</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
SCIENTIFIC PRINCIPLES OF TECHNOLOGY	KON-110	I	2	2,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Material Properties.</li> <li>• Static's: Solves problems involving coplanar forces in static equilibrium situations.</li> <li>• Dynamics: Solves problems involving distance, time, velocity and acceleration.</li> <li>• Energy: Solves problems associated with energy.</li> <li>• Electricity: Solves problems related to current, potential difference and resistance for simple series and parallel resistive circuits.</li> </ul>				

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
MATHEMATICS -1	KON-109	I	2	2,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Real Numbers and their applications</li> <li>• Complex Numbers and their applications</li> <li>• Review of Basic Trigonometry</li> <li>• Trigonometric Identities and Equations</li> <li>• Equations</li> <li>• Inequalities</li> <li>• Determinants and Matrices</li> <li>• Linear Equations</li> </ul>				

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
TURKISH LANGUAGE I	OD TD 201	I	2	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Position of Turkish language in the world</li> <li>• Developmental Process of Turkish Language and its historical stages</li> <li>• Phonetics</li> <li>• Grammar</li> <li>• Orthography</li> <li>• Punctuation</li> </ul>				

## 2nd SEMESTER

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
ALTERNATING CURRENT CIRCUIT ANALYSIS	KON-211	II	Laboratory (Hour(s)/Week)	0	3,5	5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Applies AC circuit theory to the solution of series and parallel network.</li> <li>• Identifies the basic principles of three-phase systems.</li> <li>• Demonstrate and understanding of transient behavior of simple C-R and L-R circuits.</li> <li>• Explains Resonance and passive filter circuits, 3 phased A.C. circuits.</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
DIGITAL ELECTRONICS	KON-210	II	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Digital concepts, number systems</li> <li>• Logic gates</li> <li>• Combinational circuits</li> <li>• Flip-flops</li> <li>• Counters</li> <li>• Shift registers</li> <li>• Memories</li> <li>• Programmable logic arrays</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
COMPUTER AIDED DESIGN 1	KON-207	II	Laboratory (Hour(s)/Week)	0	1,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Introduction of the program packages</li> <li>• Designing and drawing of the circuit diagrams</li> <li>• Circuit analysis and test applications</li> <li>• Printing / plotting</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			2			
			Practical (Hour(s)/Week)			
			0			
QUALITY ASSURANCE AND STANDARDS	KON-208	II	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>Standards and basic information</li> <li>Basic concepts related of quality</li> <li>Quality assurance and Quality management</li> <li>ISO standards</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			2			
			Practical (Hour(s)/Week)			
			1			
MATHEMATICS 2	KON-209	II	Laboratory (Hour(s)/Week)	0	2,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>Functions</li> <li>Indices, Logs and the Exponential Functions</li> <li>Limits</li> <li>Derivative and its applications</li> <li>Graphs</li> <li>Integration and its applications</li> <li>The Definite Integral</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS	
			3			
			Practical (Hour(s)/Week)			
			1			
ANALOG ELECTRONICS	KON-212	II	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>Conductive and Resistive Properties of Materials.</li> <li>Diodes and Common Diodes Circuits. Bipolar Transistors (Diode P-N Junction Theory, Types of Diodes, Rectifier Circuits, Clipper, Clamper and Multiplier Circuits, Voltage Protection Circuits</li> <li>BJT and FET Transistors (Construction of a BJT, Analyzing Transistor Operation, Transistor Operation Regions, Transistor Biasing, FET Transistors, How to Bias FET's)</li> <li>Transistor Amplifiers (The Common Emitter Amplifier, The Common Collector Amplifier, Common Base Amplifier, The Common Source Amplifier, Common-Drain Amplifier)</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	2	Credit	ECTS
			Practical (Hour(s)/Week)			
PRINCIPLES AND REVOLUTION HISTORY OF ATATURK II	OD AIIT 10	II	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Concept of revolution</li> <li>• Background of Turkish Revolution</li> <li>• Late term of Ottoman Emperor</li> <li>• Preparation period of War of Independence</li> <li>• Establishment of New National Army</li> <li>• Period of reconstruction</li> <li>• Foreign Policy of Turkish Republic</li> <li>• Atatürk's principles</li> <li>• National and International Importance of Turkish Revolutions</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	2	Credit	ECTS
			Practical (Hour(s)/Week)			
TURKISH LANGUAGE II	OD TD 202	II	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Position of Turkish language in the world</li> <li>• Developmental Process of Turkish Language and its historical stages</li> <li>• Phonetics</li> <li>• Grammar</li> <li>• Orthography</li> <li>• Punctuation</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	2	Credit	ECTS
			Practical (Hour(s)/Week)			
FOREIGN LANGUAGE II	OD YD 302	II	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Reading</li> <li>• Writing</li> <li>• Vocabulary</li> <li>• Grammatical structure</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
DISASTER CULTURE	ODAK105	II	Laboratory (Hour(s)/Week)	2 0 0	2 2
<b>Course Contents (Short Description of the course)</b>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
FINE ARTS II	OD GS 002	II	Laboratory (Hour(s)/Week)	1 0 0	1 1
<b>Course Contents (Short Description of the course)</b>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
CITY AND CULTURE-ISTANBUL	OD ŞKİ 01	II	Laboratory (Hour(s)/Week)	2 0 0	2 2
<b>Course Contents (Short Description of the course)</b>					



### 3th SEMESTER

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
CONVERTER DESIGN	KON-301	III	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Basic Concepts</li> <li>• Sensor types and applications</li> <li>• OPAMP Applications</li> <li>• A/D and D/A Converters</li> <li>• Oscillators</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
PROCESS MEASUREMENTS 1	KON-303	III	Laboratory (Hour(s)/Week)	0	3,5	5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Instrumentation concept</li> <li>• Position instruments</li> <li>• Pressure measurements</li> <li>• Weight and force measurements</li> <li>• Speed and acceleration measurements</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
PROCESS CONTROL	KON-304	III	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Concepts of Automatic Control</li> <li>• Symbols of Automatic Control</li> <li>• Automatic Control Methodes</li> <li>• Control Types</li> <li>• Stability in Control Systems</li> <li>• Last Driver Elements</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
ELECTRICAL MOTORS AND DRIVERS	KON-302	III	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Construction, principles of operation and characteristics of Motors</li> <li>• Control of the motors</li> <li>• Driving methods and circuits for motors</li> <li>• Step motors and drivers</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
MICROPROCESSORS AND MICROCONTROLLERS	KON-305	III	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• General structure of microcontrollers.</li> <li>• Comparison of microprocessors with microcontrollers</li> <li>• Programming</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	2	Credit	ECTS
			Practical (Hour(s)/Week)			
CHEMICAL PROCESS MEASUREMENTS	KON-306	III	Laboratory (Hour(s)/Week)	0	2	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• To develop the understanding of the concepts and measurement of: Electrical conductivity, Density</li> <li>• To develop the understanding of the methods to analyse: Oxygen content, Gases by chemical absorption</li> <li>• To develop the understanding of the concepts and measurement of: Heat of reaction, hygrometry, thermal conductivity, viscosity, pH</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
COMPUTER AIDED DESIGN -2	KON-307	III	Laboratory (Hour(s)/Week)	0	1,5	3
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Initial and usage arrangements</li> <li>• Basic drawing components</li> <li>• Correction and interrogation applications</li> <li>• Imaging and controlling applications</li> <li>• Blocking applications and its layers.</li> <li>• Measuring and scanning applications.</li> <li>• Printout applications</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
ENERGY MANAGEMENT	KON-308	III	Laboratory (Hour(s)/Week)	0	1,5	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• General Energy Situation in Turkey</li> <li>• Structures of Turkish Industry according to Energy Consumption</li> <li>• Energy Management</li> <li>• Measurement Devices and Measurement Techniques</li> <li>• Electrical Systems</li> <li>• Energy Gain Improvement in Boilers</li> <li>• Energy Saving in Lighting</li> <li>• Economic Analysis Techniques</li> <li>• Alternative Energy Sources</li> <li>• Complex Heat-Power Systems</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
SYSTEM ANALYSIS AND DESIGN 1	KON-309	III	Laboratory (Hour(s)/Week)	0	1,5	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Acquisition and search of information.</li> <li>• System formation methodes.</li> <li>• System application principles</li> <li>• Project presentation</li> </ul>					

#### 4th SEMESTER

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
POWER ELECTRONICS	KON-408	IV	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Power diodes and transistors</li> <li>• Thyristors ( types, electrical characteristics, triggering)</li> <li>• Rectifier Circuits</li> <li>• Chopper Circuits</li> <li>• Inverter Circuits</li> <li>• Frequency Converters</li> <li>• Protection of power devices</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
CONTROL BASED MICROCONTROLLER	KON-406	IV	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Basic Concepts about Input/Output Operations</li> <li>• Programmig Input/Output Devices</li> <li>• Interrupt</li> <li>• Counters/Timers</li> <li>• ADC/DAC Applications</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
PROGRAMMABLE CONTROLLER	KON-404	IV	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Introduction to Programmable Controllers</li> <li>• Programming by Ladder Diagram in Programmable Conrtollers</li> <li>• Programmig by Command List in Programmable Controllers</li> <li>• Trouble shooting in Programmable Controllers</li> <li>• Interfaces in Programmable Controllers</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
HYDRAULIC AND PNEUMATIC SYSTEMS	KON-405	IV	Laboratory (Hour(s)/Week)	0	3,5	4
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Basic concepts used in hydraulics</li> <li>• Hydraulic devices and circuits</li> <li>• Basic concepts used in pneumatics</li> <li>• Pneumatic devices and circuits</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	3	Credit	ECTS
			Practical (Hour(s)/Week)			
PROCESS MEASUREMENTS 2	KON-402	IV	Laboratory (Hour(s)/Week)	0	3,5	5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Level Measuring Methode</li> <li>• Flow Measuring Methodes</li> <li>• Temperature Measuring Methodes</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
SYSTEM ANALYSIS AND DESIGN 2	KON-403	IV	Laboratory (Hour(s)/Week)	0	1,5	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Selection of a project</li> <li>• Search and acquisition of the information</li> <li>• Selection the way to implement the project</li> <li>• Presentation of the project</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	1	Credit	ECTS
			Practical (Hour(s)/Week)			
MANAGEMENT	KON-407	IV	Laboratory (Hour(s)/Week)	0	1,5	2
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Basic concepts</li> <li>• Classification of the enterprises</li> <li>• Operation and functions of the organizations</li> <li>• Management</li> </ul>					

Course Name	Code	Semester	Theoretical (Hour(s)/Week)	Credit	ECTS
			Practical (Hour(s)/Week)		
SUPERVISORY CONTROL AND DATA ACQUISITION	KON-401	IV	Laboratory (Hour(s)/Week)	3 1 0	3,5 5
<b>Course Contents (Short Description of the course)</b>	<ul style="list-style-type: none"> <li>• Basic Concepts</li> <li>• SCADA software usage</li> <li>• Communication between PLC-SCADA</li> </ul>				

For more informatin:

[http://egitimdeyapilanma.istanbul.edu.tr/ders\\_liste.php?id=218&ref=myo&dil=en](http://egitimdeyapilanma.istanbul.edu.tr/ders_liste.php?id=218&ref=myo&dil=en)