**F.U.**
**ELAZIG ORGANIZED INDUSTRIAL ZONE VOCATIONAL SCHOOL**
**DEPARTMENT OF MACHINERY AND METAL TECHNOLOGIES**
**WELDING TECHNOLOGY PROGRAM**
**2018-2019 Curriculum**

## 1ST CLASS 1ST SEMESTER (FALL)

| D.CODE | COURSE NAME | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| AIT101 | Ataturk's Principles and Revolution History-I | 2 | 0 | 2 | Z | 2 |
| TRD109 | Turkish Language-I | 2 | 0 | 2 | Z | 2 |
| YDI107 | Foreign Language-I | 2 | 0 | 2 | Z | 2 |
| MAT101 | Mathematics-I | 3 | 0 | 3 | Z | 4 |
| OKA103 | Electric Arc Welding | 2 | 2 | 3 | Z | 4 |
| OKA105 | Basic Shaping Processes in Welding | 2 | 2 | 3 | Z | 4 |
| OKA107 | Technical Drawing | 2 | 2 | 3 | Z | 4 |
| OKA109 | Materials Technology-I | 3 | 0 | 3 | Z | 4 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | **TOTAL** | **22** | **6** | **25** | | **30** |
| ELECTIVE COURSES (Two courses will be chosen from the following) | | | | | | |
| OKA111 | Environmental Protection | 2 | 0 | 2 | S | 2 |
| OKA113 | Information Communication Technologies | 2 | 0 | 2 | S | 2 |
| OKA115 | Communication | 2 | 0 | 2 | S | 2 |

***Explanation:*** *Z = Compulsory course, S = Vocational course*

## 1ST YEAR 2ND SEMESTER (SPRING)

| D.CODE | COURSE NAME | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| AIT102 | Ataturk's Principles and Revolution History-II | 2 | 0 | 2 | Z | 2 |
| TRD110 | Turkish Language-II | 2 | 0 | 2 | Z | 2 |
| YDI108 | Foreign Language-II | 2 | 0 | 2 | Z | 2 |
| MAT102 | Mathematics-II | 3 | 0 | 3 | Z | 4 |
| OKA104 | Occupation Official | 2 | 2 | 3 | Z | 4 |
| OKA106 | MIG-MAG Welding Techniques | 2 | 2 | 3 | Z | 4 |
| OKA108 | Oxy -Gas Welding | 2 | 2 | 3 | Z | 4 |
| OKA110 | Materials Technology-II | 3 | 0 | 3 | Z | 4 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | **TOTAL** | **22** | **6** | **25** | | **30** |
| ELECTIVE COURSES (Two courses will be chosen from the following) | | | | | | |
| OKA112 | Professional Ethics | 2 | 0 | 2 | S | 2 |
| OKA114 | Research Methods and Techniques | 2 | 0 | 2 | S | 2 |
| OKA116 | First aid | 2 | 0 | 2 | S | 2 |

***Explanation:*** *Z = Compulsory course, S = Vocational course*

## 2ND CLASS 3RD SEMESTER (FALL)

| D.CODE | COURSE NAME | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| OKA201 | Computer Aided Design | 2 | 1 | 3 | Z | 3 |
| OKA203 | Stainless steel welding | 2 | 0 | 2 | Z | 2 |
| OKA205 | Welding of Non-Ferrous Metals | 2 | 2 | 3 | Z | 3 |
| OKA207 | Internship Evaluation | 0 | 2 | 1 | Z | 6 |
| OKA209 | General and Technical Communication | 2 | 0 | 2 | Z | 2 |
| OKA211 | Occupational Health and Safety | 2 | 0 | 2 | Z | 2 |
| OKA213 | Professional Practice Training-I | 0 | 16 | 8 | Z | 8 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | **TOTAL** | **14** | **21** | **25** | | **30** |
| ELECTIVE COURSES (Two courses will be chosen from the following) | | | | | | |
| OKA215 | Quality Assurance and standards | 2 | 0 | 2 | S | 2 |
| OKA217 | Quality Control at Source | 2 | 0 | 2 | S | 2 |
| OKA219 | Professional Foreign Language | 2 | 0 | 2 | S | 2 |

***Explanation:*** *Z = Compulsory course, S = Vocational course*

## 2ND CLASS 4TH SEMESTER (SPRING)

| D.CODE | COURSE NAME | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| OKA202 | Computer Aided Manufacturing | 2 | 1 | 3 | Z | 4 |
| OKA204 | TIG and Submerged Arc Welding Techniques | 2 | 2 | 3 | Z | 4 |
| OKA206 | Thermal Cutting Methods | 2 | 0 | 2 | Z | 2 |
| OKA208 | Welded Construction and Design | 1 | 2 | 2 | Z | 3 |
| OKA210 | Repair Maintenance Resources | 2 | 0 | 2 | Z | 3 |
| OKA212 | Project Implementation | 0 | 2 | 1 | Z | 2 |
| OKA214 | Professional Practice Training-II | 0 | 16 | 8 | Z | 8 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | Elective | 2 | 0 | 2 | S | 2 |
| | **TOTAL** | **13** | **23** | **25** | | **30** |
| ELECTIVE COURSES (Two courses will be chosen from the following) | | | | | | |
| OKA216 | Entrepreneurship | 2 | 0 | 2 | S | 2 |
| OKA218 | Special Welding Techniques | 2 | 0 | 2 | S | 2 |
| OKA220 | Business Management | 2 | 0 | 2 | S | 2 |

***Explanation:*** *Z = Compulsory course, S = Vocational course*

## CONTENT OF WELDING TECHNOLOGY COURSES

### 1ST CLASS 1ST SEMESTER (FALL)

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **AIT101** | **Ataturk's Principles and Revolution History-I** | **2** | **0** | **2** | **Z** | **2** |

The purpose of studying the Atatürk principles and the History of Revolution course and the concept of revolution, a collective look at the reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution; the disintegration of the Ottoman Empire, the Armistice of Mondros, the situation of the country against the occupations and Mustafa Kemal Pasha's arrival in Samsun, the first step for the national struggle, organization through congresses, the National Forces and the National Pact, the opening of the Turkish Grand National Assembly, the Turkish Grand National Assembly taking over the administration of the War of Independence , the national struggle until the Sakarya Victory, the Sakarya War and the Great Offensive, from Mudanya to Lausanne, the national struggle in the fields of education and culture, the national struggle in the social and economic fields.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **TRD109** | **Turkish Language-I** | **2** | **0** | **2** | **Z** | **2** |

that language is a product of the human mind , to comprehend the structural features and richness of the Turkish language, to comprehend the ways to be successful in written expression, to develop the skills of research, reading and information.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **YDI107** | **Foreign Language-I** | **2** | **0** | **2** | **Z** | **2** |

Determiners, prepositions, place, time, movement; singular and plural nouns, countable and uncountable nouns, tenses, present tense, present tense, past tense structures, modals, will , should , should not, must , must not, can, comparative structures, pronouns, personal pronouns, possessive pronouns, adjectives, positive sentences, negative sentences and interrogative sentences, conjunctions, and, but

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **MAT101** | **Mathematics-I** | **3** | **0** | **3** | **Z** | **4** |

Numbers, algebra, equations, inequalities, functions, graphs with special functions, trigonometry, complex numbers, logarithms, graphs, trigonometry, complex numbers, logarithms, numbers (natural numbers, integers, rational numbers and decimals), exponents,

radical numbers, algebraic expressions, identities, factoring and rational expressions, functions, practice and midterm exam, first degree equations, second degree equations and inequalities, second degree functions and graphs, trigonometry, trigonometric expressions in triangles, logarithms, solutions of exponential equations

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 103** | **Electric Arc Welding** | **2** | **2** | **3** | **Z** | **4** |

Making straight seams with electric arc welding, preparing welding machines and equipment for welding and creating an arc, making straight seams in horizontal position, making side by side seams in horizontal position, making butt and butt joint welding with electric arc welding, welding parts with different thicknesses, making overlap welding, making corner welds in horizontal position with electric arc welding, making V, X, K and J welding horizontally, making ceiling position welds with electric arc welding, making butt welding of profile pipes, making flange welding of pipes and profiles, welding cracked and broken cast irons, welding alloy steels, making butt joint welding of tool steels, making inner and outer corner welding of tool steels.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 105** | **Basic Shaping in Welding** | **2** | **2** | **3** | **Z** | **4** |

Measurement and control, linear measurement, angular measurement, basic leveling operations, marking, obtaining the desired surfaces with a file, drilling and countersinking with a drill , threading with a guide and die , cutting by hand, cutting without chips by hand, cutting with chips by hand, cutting on a machine, cutting without chips on a machine , cutting with chips on a machine, bending by hand, bending solid profiles by hand, bending pipe profiles by hand, bending profiles on a machine, bending solid profiles, bending empty pipes and profiles, welding with oxy -gas welding, opening and closing oxygen and acetylene cylinders, adjusting the manometer (regulator). Creating a flame and adjusting the flame, sewing from right to left without wires, sewing from left to right without wires, sewing from right to left with wires, sewing from left to right with wires.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 107** | **Technical Drawing** | **2** | **2** | **3** | **Z** | **4** |

Drawing and reading technical drawings, recognizing drawing sets, recognizing and drawing line types, drawing views and perspectives, drawing geometrically, drawing views, drawing perspectives, dimensioning and taking sections, dimensioning, taking sections, drawing surface treatment and assembly symbols, drawing surface treatment symbols, approximating tolerances, drawing symbols in joining drawings, making intersection and

expansion drawings, drawing intersection drawings, drawing expansion drawings, drawing project drawings, drawing complete drawings, drawing detail drawings,

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 109** | **Materials Technology-I** | **3** | **0** | **3** | **Z** | **4** |

Definition and classification of materials, atomic structure and bonding forces, crystal and amorphous structures, crystal irregularities, diffusion, alloy systems, phase structures, solidification-melting behavior, electrical, physical and chemical properties of materials.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 111** | **Environmental Protection** | **2** | **0** | **2** | **S** | **2** |

Environmental regulation information, risk analysis, waste storage, personal protection measures, international health and safety warnings, occupational health and safety regulations.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 113** | **Information Communication Technologies** | **2** | **0** | **2** | **S** | **2** |

Internet and internet browser, e-mail management, news groups/forums, web-based learning, preparing a personal website, e-commerce, CV in word processing program, internet and career, preparing for a job interview, spreadsheet, formulas and functions, graphics, preparing presentations, preparing promotional materials.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **MKA 115** | **Communication** | **2** | **0** | **2** | **S** | **2** |

Verbal communication, written communication, non-verbal communication, formal communication , informal communication , external communication

**1ST CLASS 2ND SEMESTER (SPRING)**

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **AIT102** | **Ataturk's Principles and Revolution History-II** | **2** | **0** | **2** | **Z** | **2** |

The war of independence, the Sakarya war, the Great Offensive, Republicanism and the Caliphate from Mudanya to Lausanne, the period of calm and democracy, nationalism, the principle of secularism, Turkey's agenda.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **TRD110** | **Turkish Language-II** | **2** | **0** | **2** | **Z** | **2** |

To be able to recognize the types of written expression in daily life, to understand the

importance of punctuation in written expression, to understand the importance of correct expression in personal and social communication, to be able to apply research, reading and information skills.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **YDI108** | **Foreign Language-II** | **2** | **0** | **2** | **Z** | **2** |

Tenses, present, present tense, past tense, future tense structures, modals, might , could , can, must , may , adverbs, place, direction, purpose, adverbs of manner, adjectives, order of adjectives, comparison, superlative structures, passive structure, passive structure in present, present, present, past, future tenses, conditional clauses, adjective phrases, transfer sentences, verb structures, to , ing , noun clauses, adverbial clauses, comparative structures.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA102** | **Mathematics-II** | **3** | **0** | **3** | **Z** | **4** |

Using calculators in problem solving, units and conversions, logarithms, linear equation systems and matrices, derivatives and integrals, differential equation applications in energy systems.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 104** | **Occupation Official** | **2** | **2** | **3** | **Z** | **4** |

Welding Symbols, Three Views of Welded Parts, Manufacturing drawings of welded parts, Complete drawings and detail drawings, Drawing and explanation of projects.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 106** | **MIG-MAG Welding Techniques** | **2** | **2** | **3** | **Z** | **4** |

Welding with Mig-Mag in horizontal position: Making butt joint welding, Making corner welding, Welding in side position with Mig-Mag , Making side (wall) butt welding, Making side -V- welding, Welding from bottom to top with Mig-Mag : Making vertical butt joint welding from bottom to top, -V- welding, making overlap welding, making inside corner welding, Welding with Mig-Mag in top-down and ceiling position: Making straight seams from top to bottom, making vertical butt joint welding, Making ceiling butt joint welding, Welding butt pipe and profile welding with Mig-Mag , Welding pipe butt joint welding with Mig-Mag , Welding profiles with Mig-Mag .

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 108** | **Oxy -Gas Welding** | **2** | **2** | **3** | **Z** | **4** |

oxy -gas, to make clamp joints (wireless joining), to weld butt joints horizontally from right to left (flame in front), to weld butt joints horizontally from left to right (flame behind). To weld horizontal corner welds with oxy -gas, to weld external corner welds horizontally without wire, to weld external corner welds horizontally with wire, to weld internal corner welds horizontally with wire, to weld flanges . To weld small diameter pipes and profiles with oxy -gas, to butt weld small diameter pipes, to weld -T- welds of small diameter pipes. To hard solder with oxy -gas: To hard solder materials with the same properties, to hard solder materials with different properties.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 110** | **Materials Technology-II** | **3** | **0** | **3** | **Z** | **4** |

Mechanical properties of metals, forming processes of alloys, stress and strain in metals, hardness test, impact, fatigue and creep tests. Fe-C diagram, steel and cast iron production, effect of alloying elements, steel classes and properties, cast iron classes and areas of use.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 112** | **Professional Ethics** | **2** | **0** | **2** | **S** | **2** |

Ethical principles and standards that determine world norms regarding welding technology are reviewed, ethical standards regarding professional practice, education and research activities are taught, and examples of ethical violations are discussed.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 114** | **Research Methods and Techniques** | **2** | **0** | **2** | **S** | **2** |

Selection of research topics, conducting source research, evaluating research results, converting research results into a report, preparing for presentation and presentation.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 116** | **First aid** | **2** | **0** | **2** | **S** | **2** |

Basic applications of first aid, First and second assessment, Basic life support for adults, Basic life support for children and infants, First aid for respiratory tract obstruction, External and internal bleeding, Wounds and wound types, First aid for regional injuries, head and spine fractures, First aid for upper extremity fractures, dislocations and sprains, First aid for hip and lower extremity fractures, dislocations and sprains, First aid for diseases requiring emergency care, First aid for poisoning, heat stroke, burns and frostbites, foreign body penetration, Emergency carrying techniques, Fast carrying techniques for short distances, Carrying patients or injured people by forming a stretcher

**2ND GRADE 3RD SEMESTER (FALL)**

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 201** | **Computer Aided Design** | **2** | **1** | **3** | **Z** | **3** |

Basic CAD concepts, screen, menu, save , end , quit , limits , units , grid , snap , ortho commands, introduction to Autocad , line drawing, circle drawing, arc drawing, basic autocad commands, zoom , pan , redraw , regen fillet , chamferbreak , trim , move , copy , array , offset , mirrormirrtext , rotateellipse , polygon , rectangle , trace , fill , solid , donut , polyline , divide , measure , change color , linetype , ltscale , scale , explode extend , stretch , block , wblock , insert, minsert , layer , hatch , help , list , area , dblist , dist , id , status , Dimensioning, dimension line, extension lines, dimension arrows, text placement, text format, perspective drawing, printer and printing, 3D drawing, features, colors, linear dimensioning, horizontal dimensioning, vertical dimensioning, aligned dimensioning, rotated dimensioning, base line, continuous dimensioning, angular dimensioning, radial dimensioning, diameter dimensioning, radius dimensioning, ordinate dimensioning, 3D drawing.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 203** | **Welding of Stainless Steels** | **2** | **0** | **2** | **Z** | **2** |

Definition of stainless steel, The place and importance of stainless steel welding in the industry, Types of stainless steel, Common welding errors in stainless steels, Pre- and post-welding processes in stainless steels, Covered electrode welding of ferritic stainless steels , Covered electrode welding of martensitic stainless steels, MIG arc welding of austenitic stainless steels , MIG arc welding of ferritic stainless steels, MIG arc welding of martensitic stainless steels, MIG arc welding of duplex stainless steels, TIG arc welding of austenitic stainless steels, TIG arc welding of ferritic stainless steels, TIG arc welding of martensitic stainless steels.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 205** | **Welding of Non-Ferrous Metals** | **2** | **2** | **3** | **Z** | **3** |

Heat Treatments Applied Before and After Welding, Corrosion in Welded Joints, Hydrogen Embrittlement and Brittle Fracture in Welding

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 207** | **Internship Evaluation** | **0** | **2** | **1** | **Z** | **6** |

Evaluation of the internship, evaluation and presentation of the internship notebooks.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 209** | **General and Technical Communication** | **2** | **0** | **2** | **Z** | **2** |

Definition and types of communication, basic communication concepts, importance of communication in terms of society and individual, types of communication and comparisons, verbal communication, principles of verbal communication, techniques and applications of verbal communication, effects of verbal communication in daily life, written communication, types of writing, types of in-house writing, general purpose business letters, special purpose writings such as forms and surveys, communication in professional life, being able to apply communication techniques to professional groups, graphic communication, purposes of using graphics and diagrams, communication using technological tools, interpreting the functions of the tools and equipment used, conveniences provided by technological tools.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 211** | **Occupational Health and Safety** | **2** | **0** | **2** | **Z** | **2** |

General information, the concept of work safety, definition of work accidents, their causes and prevention methods, definition of occupational diseases, their causes and prevention methods, the importance of work safety studies in terms of labor productivity, the economic importance of work safety studies, methods in work safety, occurrence and classification of work accidents, hazards and types of hazards, methods and solutions in accident investigations.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 213** | **Professional Practice Training-I** | **0** | **16** | **8** | **Z** | **8** |

It includes fourteen weeks of workplace training, one working day in a workplace related to professional practice training. Introduction to industrial areas, Demonstration of production stages, Observation of working conditions of suitable companies, Sharing of work experiences, Introduction of companies in the industry.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 215** | **Quality Assurance and Standards** | **2** | **0** | **2** | **S** | **2** |

Standardization, definition, purposes and principles, TSE and its duties, regional and international standardization organizations, quality and quality concepts, definition of quality and related concepts, quality approach, quality costs and risks, quality control concept, quality assurance, quality management principles, TS-EN-ISO 9000, TS-EN-ISO 9001, TS-EN-ISO 9004, ISO 9011 standards and explanations, occupational standards, understanding of occupational standards.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 217** | **Quality Control at Source** | **2** | **0** | **2** | **S** | **2** |

To perform quantity control, To perform visual control, To perform dimensional control, To perform angle control, To perform physical control, To perform volume control, To perform weight

control, To perform function control, To perform product function control, To perform paint and coating control, To perform destructive and non-destructive control of the joint, To perform tensile and compression tests, To perform bending, shearing and torsion tests.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA219** | **Professional Foreign Language** | **2** | **0** | **2** | **S** | **2** |

To be able to explain technical terms related to welding and welding consumables in English, to understand and interpret English catalogs of products in the field of welding and metalworking, to be able to translate and understand English user manuals of welding related machines and raw materials.

**2ND CLASS 4TH SEMESTER (SPRING)**

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 202** | **Computer Aided Manufacturing** | **2** | **1** | **3** | **Z** | **4** |

Cutting various metals with CNC Laser, Drawing the job picture and transferring it to the machine, Cutting with Laser, Bending on CNC press brake , Programming on CNC press brake , Processing on CNC press brake , Cutting with CNC punch , Programming from CNC press brake panel, Drawing the job picture and making tooling , Processing with CNC punch , Drilling with CNC drill, Programming on CNC drill bench , Processing on CNC drill bench, Thermal cutting, Cutting with oxyfuel , Cutting with plasma.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 204** | **TIG and Submerged Arc Welding Techniques** | **2** | **2** | **3** | **Z** | **4** |

Tig , Butt joint welding, Fillet welding. Position welding with Tig , Vertical butt joint welding from bottom to top, Lap welding from bottom to top, Inside fillet welding from bottom to top. Welding butt pipe and profiles with Tig , Pipe butt joint welding with Tig , Profile welding with Tig . Welding stainless steels with Tig , Butt joint welding of stainless steels with Tig , Fillet welding of stainless steels with Tig . Welding aluminum and its alloys with Tig , Butt joint welding of aluminum and its alloys with Tig , Fillet welding of aluminum and its alloys with Tig . Welding copper and its alloys with Tig , Butt joint welding of copper and its alloys with Tig , Fillet welding of copper and its alloys with Tig . Joining with submerged arc welding, Butt joint welding,

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 206** | **Thermal Cutting Methods** | **2** | **0** | **2** | **Z** | **2** |

Introduction to thermal cutting methods, grouping of thermal cutting methods, burning cutting with flammable gas oxygen flame, flame cutting capabilities of materials, introduction of flammable gases, cutting blowers, cutting burners, flame cutting process, deformations occurring in cutting process, preparation of weld edges with cutting process, quality and measurement tolerances of cutting surfaces, flame cutting errors and flame cutting machines, oxygen cutting under dust, oxygen burning hole opening, oxygen burning planing, oxygen gouging, oxy -arc plasma cutting, plasma cutting methods, plasma forming environments, plasma gases, plasma cutting torches , surface quality in plasma cutting, laser cutting, principles of laser cutting, laser cutting devices, cutting quality in laser cutting, comparison of cutting parameters and surface quality in oxygen, plasma and laser cutting processes, examples from applications.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 208** | **Welded Construction and Design** | **1** | **2** | **2** | **S** | **3** |

Introduction, Definition of construction, General principles of welded design Principles of design suitable for material Principles of design suitable for stresses, distortions and strains to which welded parts are exposed, Principles of design suitable for manufacturing, Principles of welded design suitable for welding method, welding plan and points to be considered while making the plan, Principles of welded design suitable for minimum corrosion risk, Principles of welded design suitable for non-destructive testing, Showing of welding symbols on production drawings, Strength calculations and problem solutions in welded parts, Strength calculations and problem solutions in welded parts, Space structure systems, Manufacturing of constructions such as steel roof, steel structure by welding, Optimum cost of welded manufacturing, Welded construction design examples

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 210** | **Repair Maintenance Resources** | **2** | **0** | **2** | **Z** | **3** |

Repair, maintenance and fill welding with different welding techniques: Filling with oxy -gas welding, Filling with electric arc welding, Filling with gas metal arc welding techniques.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 212** | **Project Implementation** | **0** | **2** | **1** | **Z** | **2** |

Shaping mold, Serial assembly mold, Welded manufacturing projects, Welded manufacturing design applications, Welding applications suitable for projects, Work plan in welded manufacturing, Implementation of welding applications suitable for projects, Welded

joints, Screw and bolted joints, Riveted joints

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 214** | **Professional Practice Training-II** | **0** | **16** | **8** | **Z** | **8** |

It includes fourteen weeks of workplace training, one working day in a workplace related to professional practice training. Introduction to industrial areas, Demonstration of production stages, Observation of working conditions of suitable companies, Sharing of work experiences, Introduction of companies in the industry.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 216** | **Entrepreneurship** | **2** | **0** | **2** | **S** | **2** |

The concept of entrepreneurship, basic concepts of business and management, classification of businesses, types of small businesses, problems of small businesses and solutions, establishment periods of small businesses, management, production, marketing and financing in small businesses.

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 218** | **Special welding techniques** | **2** | **0** | **2** | **S** | **2** |

Submerged arc welding method and application areas, Laser welding method and application areas, Electron beam welding and application areas, Plasma welding and application areas, Friction welding and application areas, Stud welding and application areas, Rotating magnetic arc pressure welding and application areas, Ultrasonic welding method and application areas, Diffusion welding method and application areas, Electro slag welding method and application areas, Cold pressure welding and application areas, Explosion welding method and application areas, Narrow gap welding method and application areas

| | | T | U | K | T/S | ECTS |
|---|---|---|---|---|---|---|
| **OKA 220** | **Business Management** | **2** | **0** | **2** | **S** | **2** |

The aim of the course is to teach the basic concepts and objectives of business and business management, to determine their relationships with the environment, to classify businesses, to list the stages of establishing a business, to teach business functions, and to provide information on leadership and management.