**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| TURKISH LANGUAGE I | 221011006 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 2 | 0 | 2 | 2 |

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | X |  |

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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To show the richness of Turkish by informing students about the development and current situation of Turkish, to gain a national language awareness, to ensure that they can speak and write Turkish correctly. To compare Turkish language with major languages in the world. To compare the language policies of major languages with the language policy of Turkish language. To give speech training. |
| **Short Course Content** | Definition and properties of language; languages of the world and the place of Turkish among the world languages; historical development of Turkish language and the development of Western Turkish; Atatürk's studies and views on Turkish language; phonetics; spelling rules and punctuation; language policies. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student explains the language families of the world and the place of Turkish among the world languages. | 10 | 1 | A |
| **2** | Defines the rules of Turkish. | 10 | 1, 5 | A |
| **3** | Recognizes sound events. | 10 | 1, 5, 11 | A |
| **4** | Applies spelling rules. | 10 | 5, 6 | A |
| **5** | Compose written and oral compositions. | 10 | 6 | A |
| **6** | Uses Turkish correctly. | 10 | 6, 11 | A |

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| **Main Textbook** | *Türk Dili I-II*, ed. Ferruh Ağca, Eskişehir Osmangazi Üniversitesi Yayınları, 2022**.** |
| **Supporting References** | *Üniversiteler İçin Türk Dili*, Bayrak Yayınları, İstanbul, 1997. |
| **Necessary Course Material** |  |

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| **Course Schedule** | |
| **1** | Definition of Language |
| **2** | Language-Nationality-Culture Relationship |
| **3** | World Languages and Turkish Language |
| **4** | Age of Turkish Language |
| **5** | Historical Development of Turkish Language |
| **6** | Alphabets Used in Turkish Writing |
| **7** | Writing Revolution |
| **8** | Mid-Term Exam |
| **9** | Phonetics of Turkish Language |
| **10** | Phonetics of Turkish Language |
| **11** | Morphology of Turkish Language |
| **12** | Morphology of Turkish Language |
| **13** | Word Groups |
| **14** | Word Groups |
| **15** | Word Groups |
| **16,17** | Final Exam |

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| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 4 | 4 | 16 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 2 | 2 |
| Studying for Mid-Term Exam | 1 | 4 | 4 |
| Final Exam | 1 | 2 | 2 |
| Studying for Final Exam | 1 | 4 | 4 |
|  | **Total workload** | | **56** |
|  | **Total workload / 30** | | **1,86** |
|  | **Course ECTS Credit** | | **2** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
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| **Final Exam** | 60 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| THE HISTORY OF THE PRINCIPLES AND THE REVOLUTIONS OF ATATURK I | 221011001 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 2 | 0 | 2 | 2 |

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | X |

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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| **Prerequisite(s) if any** | None |
| **Objectives of the Course** | Students can understand the Liberation War under the leadership of Atatürk and the foundation of the young Turkish Republic. In addition to that the students will learn the processes of the liberation war and the conditions before the foundation of the Republic. |
| **Short Course Content** | The description of the revolution; the history of the Ottoman Empire up to the beginning of the Great War; Great War; The Treaty of Mudros; The Life of Mustafa Kemal Pasha; Civil Organizations for the liberation; Mustafa Kemal’s arrival to Samsun; Congresses; National Oath and the Opening of Turkish Grand National Assembly; Liberation War till the Battle of Sakarya; Büyük Taarruz. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | STUDENTS,  understand the main concepts of the course like reform, revolution | 10 | 1 | K |
| **2** | learn the short history of the Ottoman Empire up to the Great War | 10 | 1 | K |
| **3** | understand the join of the Ottoman Empire to the Great War and the fronts in which the Ottoman Empire fought | 10 | 1 | K |
| **4** | learn the Treaty of Mudros and the invasion of the Ottoman lands | 10 | 1 | K |
| **5** | understand the life of Mustafa Kemal Pasha (Atatürk) | 10 | 1 | K |
| **6** | learn Mustafa Kemal’s arrival to Samsun and the beginning of the Liberation War | 10 | 1 | K |
| **7** | understand the opening of Turkish Grand National Assembly and the foundation of national army | 10 | 1 | K |
| **8** | learn the victories of İnonü, Sakarya and Büyük Taarruz | 10 | 1 | K |

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| **Main Textbook** | Turan Şerafettin, *Türk Devrim Tarihi, C.I-II*, İstanbul, 1991–1995 |
| **Supporting References** | Ateş, Toktamış, *Türk Devrim Tarihi*, İstanbul: Der Yayınları, 2001.  Aybars, Ergün, *Türkiye Cumhuriyeti Tarihi*, İzmir: Ercan Kitabevi, 2000.  Eroğlu, Hamza, *Türk İnkılap Tarihi*, Ankara: Savaş Yayınları, 1990.  Kongar, Emre, *Devrim Tarihi ve Toplumbilim Açısından Atatürk*, İstanbul: Remzi Kitabevi, 1999.  Selek, Sebahattin, *Anadolu İhtilali,* İstanbul: Kastaç Yayınları, 1987.  Timur, Taner, *Türk Devrimi ve Sonrası*, Ankara: İmge Kitabevi, 1997. |
| **Necessary Course Material** |  |

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| **Course Schedule** | |
| **1** | The teaching of the concepts of Revolution, Evolution, Uprising etc. |
| **2** | The attempts for the modernisation of the Ottoman Empire and the political thoughts |
| **3** | The Wars of Trablusgarp and the Balkans |
| **4** | The Beginning of the Great War and the join of the Ottoman Empire |
| **5** | The fronts in which the Ottoman Empire fought |
| **6** | The end of the war and the partition of the Ottoman |
| **7** | The Treaty of Mudros and the invasion of the Ottoman lands |
| **8** | Mid-Term Exam |
| **9** | The trip of Mustafa Kemal to Samsun and the beginning National Struggle |
| **10** | National Oath and the opening of Turkish Grand National Assembly |
| **11** | National Assembly and the direction of liberation war |
| **12** | National Forces and the foundation of the national army |
| **13** | First and Second Victories of İnönü; The battles of Kütahya-Eskişehir |
| **14** | The Battle of Sakarya |
| **15** | Great Attack of 30th August |
| **16,17** | Final Exam |

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| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **60** |
|  | **Total workload / 30** | | **2** |
|  | **Course ECTS Credit** | | **2** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**E****SOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| ENGLİSH I | 221011007 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 2 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | X |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| English | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Students at this level can understand sentences and frequently-used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment).  Students can understand clear, slow, standard speech related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local geography and employment) and can catch the main point in short, clear, simple messages and announcements.  Students are able to read and understand short, simple texts containing high frequency vocabulary and shared international expressions.  Students can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities.  They can write short, simple notes and messages relating to matters in areas of immediate need, linking a series of simple phrases and sentences with simple connectors like ‘and’ , ‘but’ and ‘because’. |
| **Short Course Content** | The aim of the course is to teach students basic grammar rules in elementary level, give them speaking, writing, reading and listening knowledge of English. It consists of content and activities aimed at having students acquire Beginner Level English language skills according to evaluation and reference system of The Common European Framework. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student becomes familiar with basic grammar rules in English. | 10 | 1, 5, 11 | A |
| **2** | Analyzes English dialogues. | 10 | 1, 4, 5, 11 | A |
| **3** | Understands and explains an English text at the level. | 10 | 1, 4, 5, 11 | A |
| **4** | Communicates in written and spoken English. | 10 | 1, 4, 5, 11 | A |

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| **Main Textbook** | Warwick L., Williams D. (2020). *Roadmap A2 Students’ Book & Workbook*. Pearson Education Limited. |
| **Supporting References** | Murphy, R., (2004). *English Grammar in Use*, Cambridge University Press, |
| **Necessary Course Material** | Computer, Webcam, Speakers; or Smart phone |

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| **Course Schedule** | |
| **1** | 1A: verb be – positive and negative - countries and nationalities  contractions with be introduce yourself - write an online message - using capital letters and full stops |
| **2** | 1B: questions with *be* question words intonation in questions ask and answer questions - understand a simple conversation understanding question words |
| **3** | 1C: *this, that, these* and those everyday objects - *this*, *these* talk about things for sale - understand adverts identifying specific information  1D: tell the time |
| **4** | 2A: possessive adjectives and possessive ’*s* family members possessive *’s* describe your family - understand a conversation about family - and, too and but  2B: *whose* and possessive pronouns - everyday objects 2 - possessive pronouns say who things belong to - understand online posts - understanding the important words |
| **5** | *2C: have got -* adjectives describing objects *have*/*has* describe objects English in action buy things in a shop buy things in a shop - write a review of a product using and, but and so  2D: buy things in a shop |
| **6** | 3A present simple with *I, you, we* and *they*; adverbs of frequency and time expressions - free-time activities  - talk about free-time Activities - write an online profile - using commas and apostrophes |
| **7** | 3B present simple with *he, she* and *it -* everyday activities - present simple with *he, she* and *it-* describe daily routines - understand a factual text - using headings to find information |
| **8** | Mid-Term Exam |
| **9** | 3C present simple questions free-time activities 2 *do*/*does* ask about free-time activities – understand short talks - understanding key words  3D buy tickets |
| **10** | 4A there is/are - places in a city - linking - talk about your city - write a description - using word order correctly  4B articles - things in a home - the - describe your home - understand social media posts - guessing new words |
| **11** | 4C need + noun, need + infinitive with to - equipment - weak forms - discuss what to take on a trip - understand a short radio programme - understanding weak forms  4D ask for information |
| **12** | 5A position of adjectives - appearance - tonic stress on adjectives - describe people’s appearance - write a description of a person - using paragraphs |
| **13** | 5B was/were - adjectives to describe experiences - weak forms of was/were - describe an experience - understand a story - linking between words |
| **14** | 5C can/can’t for ability - skills - can/can’t - describe your skills - understand information in a brochure - understanding it, they and them  5D make and respond to requests |
| **15** |  |
| **16,17** | Final Exam |

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| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework | 1 | 2 | 2 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 2 | 2 |
| Studying for Mid-Term Exam | 1 | 4 | 4 |
| Final Exam | 1 | 2 | 2 |
| Studying for Final Exam | 1 | 6 | 6 |
|  | **Total workload** | | **72** |
|  | **Total workload / 30** | | **2,4** |
|  | **Course ECTS Credit** | | **2** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
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|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| CALCULUS I | 221411167 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| X |  |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | Perform arithmetic and algebraic operations. To be able to calculate the exponent, the root of a real number. Solving equations and inequalities. Draw line and parabola. To be able to use trigonometric ratios. Comprehension of complex numbers. To be able to comprehend the properties of exponential and logarithmic functions. |
| **Short Course Content** | Numbers, Algebra, Equations and Inequalities, Functions, Trigonometry, Complex Numbers, Logarithms |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | To use numbers, algebra, equations and inequalities, functions, trigonometry, complex numbers, logarithms in their profession. | 10 | 1,5,10 | A |
| **2** | To practice on these issues in the profession. | 10 | 1, 5, 8, 10,11 | A |

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| **Main Textbook** | 1. Anadolu Üniversitesi Yayınları Genel Matematik. Eskişehir  2. Görgülü., A. (2000) Genel Matematik. Eskişehir  3. Şenel, M. , Orhun N. , Tüzemen Ş. ( 2003) Genel Matematik. Eskişehir  4. Yıldız E. (2004) Genel Matematik. Trabzon  5. Argün Z. (2001) Temel Matematik. Ankara : Seçkin Yayınevi |
| **Supporting References** |  |
| **Necessary Course Material** | Miter, protractor, compass and calculator. |

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| **Course Schedule** | |
| **1** | Number Sets, Operations, Process Priority |
| **2** | Exponents, Radical Numbers, Absolute Value |
| **3** | Identities, 1 Equations |
| **4** | 2nd Degree Equations and Inequalities |
| **5** | Function, Numerical Functions |
| **6** | Linear Functions and their graphs |
| **7** | Polynomial Functions and their graphs |
| **8** | Mid-term exam |
| **9** | Rational and Algebraic Functions |
| **10** | Rational and Algebraic Functions |
| **11** | Trigonometry Functions |
| **12** | Complex Numbers |
| **13** | Numbers Complex Applications |
| **14** | Funtions Exponential and Logarithms |
| **15** | Funtions Exponential and Logarithms |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 2 | 5 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 2 | 6 | 12 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,67** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| TECHNICAL DRAWING | 221411169 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | X | X |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course to understand the basic rules of technical drawing, graph and read the technical drawings. |
| **Short Course Content** | Description and importance of the technical drawing, standards, drawing tools and materials, line types, standard font, geometric drawings, projections, perspective view, section views, dimensioning, shape and position tolerances, tolerance exercises, perspective drawings. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Recognizing the drawing tools and equipment, understanding and applying line types and their rules, norms | 2,4,10 | 1,6,11,14 | A,D |
| **2** | Learning the concept of projection and basic projection planes. | 2,4,10 | 1,6,11,14 | A,D |
| **3** | Drawing the appearance of different types of parts. | 2,4,6,8,10 | 1,6,11,14 | A,D |
| **4** | Applying the shape and position tolerances to the drawn parts. | 2,4,6,8,10 | 1,6,11,14 | A,D |

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| **Main Textbook** | 1.ŞEN, İ. Zeki., ÖZÇİLİNGİR, Nail, Teknik Resim DEHA Yayıncılık, 2003. |
| **Supporting References** | 1.ŞEN, İ. Zeki., ÖZÇİLİNGİR, Nail, Teknik Resim A4 Uygulama Yaprakları, DEHA Yayıncılık, 2003. |
| **Necessary Course Material** | Technical drawing tools and equipment |

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| **Course Schedule** | |
| **1** | Description and importance of the technical drawing, standards, drawing tools, standard font |
| **2** | Geometric drawings (basic geometric drawings, geometric drawings of lines, drawings geometrical angles) |
| **3** | Geometric drawings (polygon drawing, geometric drawings on springs and circles, tangent drawings) |
| **4** | Projections |
| **5** | Object views (auxiliary, rotated, special appearances) |
| **6** | Perspective view extraction |
| **7** | Perspective view extraction |
| **8** | Mid-Term Exam |
| **9** | Incomplete views and completion of the incomplete views |
| **10** | Cutaway views |
| **11** | Dimensioning |
| **12** | Tolerances |
| **13** | Tolerances |
| **14** | Applications |
| **15** | Applications |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 52 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **102** |
|  | **Total workload / 30** | | **3,4** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MANUFACTURING METHODS I | 221411171 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The main aim of the course is to explain chipless metal forming techniques and heat treatment applications. |
| **Short Course Content** | Classification of manufacturing methods and explanation of chipless forming techniques. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | An ability to discern elastic and plastic deformation, | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |
| **2** | An ability to make strength calculations for tension test. | 1,2,3,4,5,6,8,10 | 1,5,6,10,11 | A,D,K |
| **3** | Understanding of rolling and forming applications. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |
| **4** | Understanding of casting technology. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |
| **5** | Acquire experience about heat treatment processes. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |

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| **Main Textbook** | Mikell P. Groover, Principles of Modern Manufacturing, 2016 |
| **Supporting References** | ADDISON W.,Manufacturing Processes for Engineering Materials, 1999 |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Classification of manufacturing methods and plastic forming (chipless) techniques |
| **2** | Decision making in the manufacturing methods |
| **3** | Plastic deformation and metal forming |
| **4** | Plastic deformation and metal forming |
| **5** | Plastic deformation and metal forming |
| **6** | Extrusion and applications |
| **7** | Extrusion and applications |
| **8** | Mid-Term Exam |
| **9** | Casting technology |
| **10** | Casting technology |
| **11** | Heat treatment |
| **12** | Surface treatment |
| **13** | Surface treatment |
| **14** | Corrosion and coati ng technique |
| **15** | Advanced technology applications |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 52 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **84** |
|  | **Total workload / 30** | | **2,8** |
|  | **Course ECTS Credit** | | **3** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
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|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| PHYSICS | 221411165 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 2 | 0 | 2 | 2 |

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| x |  |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to learn the fundamentals of the physics and perform experiments, gain the ability of calculation |
| **Short Course Content** | Unit systems, vectors, balance and momentum, laws of motion, work, power, energy, heat and temperature, channel and pipe flow, the pressure loss |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Understanding the basic physical quantities and units conversions | 1,2,4,6,8 | 1,10 | A |
| **2** | Understanding the work, power and energy, and these correlations and expressing them via formulas. | 2,4,6,8 | 1,10,11 | A |
| **3** | Describing the differences between static and dynamic systems. | 2,4,8 | 1,11 | A |
| **4** | Making calculations on the thermal and fluid systems. | 1,4 | 1,10,11 | A |

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| **Main Textbook** | “Üniversiteler için Fizik” Bekir KARAOĞLU |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector, |

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| **Course Schedule** | |
| **1** | Unit Systems |
| **2** | Vectors, Force and Torque |
| **3** | Terms of Balance and Equilibrium |
| **4** | Finding the Centre of Gravity |
| **5** | Laws of Motion |
| **6** | Work, Power, Energy |
| **7** | Heat and Temperature |
| **8** | Mid-Term Exam |
| **9** | Heat and Temperature |
| **10** | Types of Heat Transfer and Heat Transfer: Conduction, Convection and Radiation |
| **11** | Types of Heat Transfer: Conduction, Convection and Radiation |
| **12** | Basic Fluid Properties, Flow Types and Calculation |
| **13** | Duct and Pipe Flow |
| **14** | Pressure Loss |
| **15** | Pressure Loss |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 6 | 6 |
|  | **Total workload** | | **56** |
|  | **Total workload / 30** | | **1,87** |
|  | **Course ECTS Credit** | | **2** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 3 |
| **2** | The design of machine elements | 2 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 1 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MATERIALS TECHNOLOGY | 221411122 |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 2 | 2 | 3 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The main aim of the course is to be able to discern industrial materials, understand basic properties of materials and decision making in material selection for specific applications. |
| **Short Course Content** | Classification of materials, mechanical properties of materials, properties of metals and alloys, material selection application. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | An ability to classify materials | 1,4 | 1,11 | A |
| **2** | An ability to discern basic properties of materials. | 1,2,4,8,10 | 1,11 | A |
| **3** | Understanding of heat treatment and effects of heat treatment on properties of metals. | 1,2,4,8,10 | 1,11 | A |
| **4** | Understanding of engineering alloys. | 1,2,4,6,8,10 | 1,11 | A |
| **5** | An ability to select material for specific applications. | 1,2,4,8,6,10 | 1,11 | A |

|  |  |
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| **Main Textbook** | Mikell P. Groover, Principles of Modern Manufacturing, 2016 |
| **Supporting References** | GÜRLEYİK M. Y.,Malzeme Bilgisi ve Muayenesi, KTÜ, 1988 |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Definitions and classification of industrial materials |
| **2** | Mechanical properties of materials |
| **3** | Mechanical properties of materials |
| **4** | Iron-carbon steels |
| **5** | Iron-carbon steels |
| **6** | Heat treatment |
| **7** | Heat treatment |
| **8** | Mid-Term Exam |
| **9** | Corrosion and prevention |
| **10** | Stainless steel and other alloys |
| **11** | Non-ferrous alloys and applications |
| **12** | Aluminum alloys |
| **13** | Ceramics materials |
| **14** | Polimers and composite materials |
| **15** | Polimers and composite materials |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **116** |
|  | **Total workload / 30** | | **3,87** |
|  | **Course ECTS Credit** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 2 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 2 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL** 

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| INFORMATION AND COMMUNICATION TECHNOLOGY | 221411163 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | X |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of the course is to teach the developing technology, current operating systems, office programs, internet and its applications. |
| **Short Course Content** | Computer Hardwares, Basic IT concepts, Softwares and operating systems, web and web-based applications, office programs. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | To get knowledge about basic information technologies theatrically and practically. | 4,6,8 | 1,5,6,11 | A |
| **2** | To get knowledge about hardware and software-based design. | 4,8 | 1,6,11 | A |
| **3** | To get knowledge about project management. | 4 | 1,6,11 | A |
| **4** | Developing project. | 4 | 6,11 | A |
| **5** | To follow the IT and communication technologies. | 4 | 11 | A |
| **6** | To think and plan in algorithmic manner. | 4,6 | 1,5 | A |
| **7** | To be aware of information security. | 4 | 1,5 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Akgöbek, Ö., “Basic Information Technologies”, Beta Publications, 611p., 2004. |
| **Supporting References** | Sugözü, İ.H., “Temel Bilgi Teknolojileri”, Nobel Publications, 2012 |
| **Necessary Course Material** | Projector, computer with internet connection, office program |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Computer Hardware |
| **2** | Softwares and Operating Systems |
| **3** | MS Word |
| **4** | MS Word |
| **5** | MS Excel |
| **6** | MS Excel |
| **7** | MS Visio |
| **8** | Mid-Term Exam |
| **9** | MS Visio |
| **10** | MS Power Point |
| **11** | MS Power Point |
| **12** | Internet |
| **13** | Presentation |
| **14** | Presentation |
| **15** | Presentation |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) | 1 | 6 | 6 |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **94** |
|  | **Total workload / 30** | | **3,13** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 2 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 1 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| THERMODYNAMICS | 221411170 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The basic thermodynamic concepts,work, laws of thermodynamics, cycles, motor cycles, power, efficiency expressions, qualifications will be given on the theory of combustion and fuels |
| **Short Course Content** | Temperature and the Zeroth Law of Thermodynamics.Thermometers and the Celsius temperature scale.Thermal expansion of solids and liquids.Heat and internal energy.Heat capacity and specific heat.Changing the temperature state.Thermodynamic processes, work and heat.The first law of thermodynamics.Change of state of ideal gases.Second law of thermodynamics.Petrol and diesel engines |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Relations between temperature scales knows and can do online | 4,6,10 | 1,11 | A |
| **2** | Have information regarding the laws of thermodynamics and their applications | 4,6,8,10 | 1,11 | A |
| **3** | Make the basic thermodynamic calculations | 1,2,4,6,8,10 | 1,11 | A |
| **4** | make the necessary conversion calculations | 1,2,4,6,8,10 | 1,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Termodinamik-Raymond A.Serway-Robert J.Beichner-North Carolina Üniversity |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Temperature and zeroth law of thermodynamics |
| **2** | Thermometers and the Celsius temperature scale |
| **3** | Heat and internal energy |
| **4** | Heat capacity and specific heat, heat of state change |
| **5** | Some applications of the first law of thermodynamics and |
| **6** | Energy transfer mechanisms |
| **7** | Kinetic theory of gases |
| **8** | Mid-Term Exam |
| **9** | The ideal gas adiabatic processes |
| **10** | Heat engines and the second law of thermodynamics |
| **11** | Petrol and diesel engines |
| **12** | Petrol and diesel engines |
| **13** | Internal combustion engines work, efficiency, power |
| **14** | Fuels, physical and chemical properties, physical analysis of combustion and chemical properties, combustion spark ignition engines. |
| **15** | Fuels, physical and chemical properties, physical analysis of combustion and chemical properties, combustion spark ignition engines. |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **86** |
|  | **Total workload / 30** | | **2,87** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| STATICS | 221411168 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To acquire and apply the basic knowledge necessary for the mechanics of materials and machine elements courses |
| **Short Course Content** | General principles of statics, Force vectors, Force system resultants, Equilibrium of rigid body, Geometric properties and distributed loadings, Structural analysis, Friction, Virtual work. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | To be able to recognize and identify the static's problem | 2,4,6,8,10 | 1,5,10,11 | A,D |
| **2** | Define the problem | 2,4,6,8,10 | 1,5,10 | A,D |
| **3** | Using the necessary formulas to solve the problem | 2,4,6,8,10 | 1,5,10,11 | A,D |
| **4** | Conclusion To be able to evaluate, | 2,4,6,8,10 | 1,5,10 | A,D |
| **5** | To be able to evaluate by evaluating the resultant  Solutions | 2,4,6,8,10 | 1,5,10,11 | A,D |

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| **Main Textbook** | Mühendislik Mekaniği - Statik, Hibbeler, R.C. ve Fan, S.C., Çeviri Mühendisler için Mekanik - Statik, Beer, F.P. ve Johnston, E.R., Çeviri |
| **Supporting References** | Statik ve Mukavemet, Omurtag, M.H. Engineering Mechanics Static and Dynamics, Irwin H. Shames |
| **Necessary Course Material** | Computer, projector |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | General principles of statics |
| **2** | Force vectors |
| **3** | Force system resultants |
| **4** | Equilibrium of rigid body |
| **5** | Equilibrium of rigid body |
| **6** | Geometric properties and distributed loadings |
| **7** | Geometric properties and distributed loadings |
| **8** | Mid-Term Exam |
| **9** | Moments Of Inertia |
| **10** | Moments Of Inertia |
| **11** | Structural analysis |
| **12** | Structural analysis |
| **13** | Friction |
| **14** | Friction |
| **15** | Virtual work |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework | 2 | 7 | 14 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **86** |
|  | **Total workload / 30** | | **2,87** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 50 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| **RESEARCH METHODS AND TECHNIQUES** | 221411162 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| X |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To ensure access to accurate information and appropriate use of information, to look at the data with a more perspective and questioning eye. To be able to present research data. |
| **Short Course Content** | Concepts related to scientific research. The necessity of scientific research. Scientific research and science ethics. Examples of resource use and citation. Research, report preparation, academic skills methods. Project selection, expectations. Project planning. Evaluation of existing research. Experimental design. Science ethics and scientific plagiarism. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Gaining the ability to conduct research | 1,2,4,5,6,8,10,11 | 1,2,14 | A,E |
| **2** | To be able to comprehend the rules of citation | 1,2,4,5,6,8,10,11 | 1,2,14 | A,E |
| **3** | To reach the right information and to gain the ability to analyze and synthesize the information received | 1,2,4,5,6,8,10,11 | 1,2,14 | A,E |
| **4** | Gaining the ability to present research | 1,2,4,5,6,8,10,11 | 1,2,14 | A,E |

|  |  |
| --- | --- |
| **Main Textbook** | Prof.Dr. İsmail H. ALTAŞ lecture notes, KTU |
| **Supporting References** | Examples compiled from various sources |
| **Necessary Course Material** | Projector, Computer, Blackboard, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Introduction |
| **2** | Scientific research and types of knowledge |
| **3** | Scientific research |
| **4** | Objectives in research |
| **5** | Selecting a research topic |
| **6** | Source research |
| **7** | Preparing information forms |
| **8** | Midterm exam |
| **9** | Organization and analysis of data |
| **10** | Project work |
| **11** | Project writing |
| **12** | Support Programs |
| **13** | Writing and organizing bibliography |
| **14** | Report presentation |
| **15** | Report presentation |
| **16,17** | Final exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **88** |
|  | **Total workload / 30** | | **2,93** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 4 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 4 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 4 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

| **Course Name** | **Course Code** |
| --- | --- |
| GENERAL AND TECHNICAL COMMUNICATION | 221411166 |

| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| --- | --- | --- | --- | --- |
| **Theory** | **Practice** |
| 1 | 2 | 0 | 2 | 3 |

| **Course Category (Credit)** | | | | |
| --- | --- | --- | --- | --- |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | X |

| **Course Language** | **Course Level** | **Course Type** |
| --- | --- | --- |
| Turkish | Associate degree | Elective |

| **Prerequisite(s) if any** | NONE |
| --- | --- |
| **Objectives of the Course** | The aim of this course is to teach communication methods and to increase the student's communication skills. |
| **Short Course Content** | Definition of communication, its importance, individual and mass communication methods |

| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| --- | --- | --- | --- | --- |
| **1** | Know the principles of communication | 10 | 1, 2, 5, 11 | A |
| **2** | Can set goals and set goals in communication. | 10 | 1, 2, 5,11 | A |
| **3** | People who may encounter in business life (employee, employer, customer, etc.) communicate successfully in relationships | 10 | 1, 2, 5,11 | A |

| **Main Textbook** | Anadolu Üniversitesi Yayınları, SÖZLÜ VE SÖZSÜZ İLETİŞİM- Aralık 2018-Eskişehir  Anadolu Üniversitesi Yayınları, İKNA EDİCİ İLETİŞİM - Ağustos 2018-Eskişehir |
| --- | --- |
| **Supporting References** | Slides Prepared by the Instructor Regarding the Course Content, Lecture Notes |
| **Necessary Course Material** | Blackboard- Projection, Computer |

| **Course Schedule** | |
| --- | --- |
| **1** | Definitions and importance of communication |
| **2** | Purpose and elements of communication |
| **3** | Internal communication |
| **4** | Close communication, Remote communication |
| **5** | Types of individual communication |
| **6** | Verbal and non-verbal communication, written communication |
| **7** | Technical communication |
| **8** | MIDTERM EXAM |
| **9** | Mass communication |
| **10** | Formal communication |
| **11** | Types of organizational communication |
| **12** | Communication efficiency |
| **13** | Persuasive communication |
| **14** | Communication failures and their consequences |
| **15** | Project-presentation, communication applications |
| **16,17** | FINAL EXAM |

| **Calculation of Course Workload** | | | |
| --- | --- | --- | --- |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 2 | 6 | 12 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 2 | 10 | 20 |
|  | **Total workload** | | **76** |
|  | **Total workload / 30** | | **2,5333333** |
|  | **Course ECTS Credit** | | **3** |

| **Evaluation** | |
| --- | --- |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Homework |  |
| **Final Exam** | 60 |
| **Total** | 100 |

| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| --- | --- | --- |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| BEHAVIORAL SCIENCES | 221411164 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 2 | 0 | 2 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | x |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | To inform students about the basic concepts of behavioral sciences and to introduce them to the importance of behavior in their work and normal lives. |
| **Short Course Content** | Basic concepts related to Behavioral Sciences. Branches of science that fall within the scope of Behavioral Sciences. Behavioral sciences that contribute to the study of organizations. The place of behavioral sciences in practice. Behavioral Approaches. Individual Basic Model of Behavior. Needs as the root cause of behaviors. Plane of behavior. Status and role behaviors. The place and importance of social institutions in human behavior. Interpersonal communication. Groups. Culture. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | To improve knowledge of the effects of society on our behavior | 10 | 1, 2, 5,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Anadolu University Press, Introduction to Behavioral Sciences- 2013-Eskişehir |
| **Supporting References** | Slides Prepared by the Instructor Regarding the Course Content, Lecture Notes |
| **Necessary Course Material** | Projection, Computer |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Introduction of the course |
| **2** | Introduction to sociology |
| **3** | Introduction to Psychology |
| **4** | Emerging sociology and hypothetical approaches |
| **5** | Emerging sociological and hypothetical approaches |
| **6** | Motives and Emotions |
| **7** | Sensation and Perception |
| **8** | MIDTERM EXAM |
| **9** | Community and community structure, |
| **10** | Community life, Community groups, Family |
| **11** | Classification of communities |
| **12** | Learning & Culture |
| **13** | Personality Psychology and Personality Theories |
| **14** | Social Influences on Behavior, Attitudes |
| **15** | Social Influences on Behavior, Attitudes |
| **16,17** | FINAL EXAM |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 2 | 8 | 16 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 2 | 8 | 16 |
|  | **Total workload** | | **76** |
|  | **Total workload / 30** | | **2,533333** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| TURKISH LANGUAGE II | 221012005 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 2 | 0 | 2 | 2 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | X |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To show the richness of Turkish by informing students about the development and current situation of Turkish, to gain a national language awareness, to ensure that they can speak and write Turkish correctly. To compare Turkish language with major languages in the world. To compare the language policies of major languages with the language policy of Turkish language. To give speech training. |
| **Short Course Content** | Definition and properties of language; languages of the world and the place of Turkish among the world languages; historical development of Turkish language and the development of Western Turkish; Atatürk's studies and views on Turkish language; phonetics; spelling rules and punctuation; language policies. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student explains the language families of the world and the place of Turkish among the world languages. | 10 | 1 | A |
| **2** | Defines the rules of Turkish. | 10 | 1, 5 | A |
| **3** | Recognizes sound events. | 10 | 1, 5, 11 | A |
| **4** | Applies spelling rules. | 10 | 5, 6 | A |
| **5** | Compose written and oral compositions. | 10 | 6 | A |
| **6** | Uses Turkish correctly. | 10 | 6, 11 | A |

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| **Main Textbook** | *Türk Dili I-II*, ed. Ferruh Ağca, Eskişehir Osmangazi Üniversitesi Yayınları, 2022**.** |
| **Supporting References** | *Üniversiteler İçin Türk Dili*, Bayrak Yayınları, İstanbul, 1997. |
| **Necessary Course Material** |  |

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| --- | --- |
| **Course Schedule** | |
| **1** | Elements of a Sentence |
| **2** | Elements of a Sentence |
| **3** | Sentence Types |
| **4** | Sentence Types |
| **5** | Punctuation Marks |
| **6** | Punctuation Marks |
| **7** | Punctuation Marks |
| **8** | Mid-Term Exam |
| **9** | Written Expression |
| **10** | Written Expression |
| **11** | Oral Expression |
| **12** | Oral Expression |
| **13** | Spelling Rules |
| **14** | Spelling Rules |
| **15** | Expression Disorders |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 4 | 4 | 16 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 2 | 2 |
| Studying for Mid-Term Exam | 1 | 4 | 4 |
| Final Exam | 1 | 2 | 2 |
| Studying for Final Exam | 1 | 4 | 4 |
|  | **Total workload** | | **56** |
|  | **Total workload / 30** | | **1,86** |
|  | **Course ECTS Credit** | | **2** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| THE HISTORY OF THE PRINCIPLES AND THE REVOLUTIONS OF ATATURK II | 221012001 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 2 | 0 | 2 | 2 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | X |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** | None |
| **Objectives of the Course** | The Students can understand; the victory at the Liberation War; The Treaty of Lausanne which paved the way for the foundation of the republic; The Principles and the Revolutions of Atatürk. Then the course will also provide the students to understand democracy and modern concepts |
| **Short Course Content** | The Armistice of Mudanya, The abolition of the dynasty, The Treaty of Lausanne, the foundation of the Republic, the abolution of Caliphate, the Constitution of 1924, the attempts for the multi-party system, the uprising of Şeyh Sait, the changing of alphabet, university reform, the revolutions of Atatürk towards all sides of life, interior and exterior politics of Atatürk, the principles of Atatürk, the developments in Turkey and world after the death of Atatürk |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Students,  learn the Armistice of Mudanya and the Treaty of Lausanne | 10 | 1 | K |
| **2** | understand the abolition of dynasty and the Caliphate; foundation of the republic | 10 | 1 | K |
| **3** | learn the attempts for multi-party system during Atatürk’s era | 10 | 1 | K |
| **4** | see the revolutions on education and law which dedicate to create a secular and modern social structure | 10 | 1 | K |
| **5** | learn the revolutions related with socio-economic life | 10 | 1 | K |
| **6** | understand the foreign policy of Atatürk | 10 | 1 | K |
| **7** | learn the principles of Atatürk | 10 | 1 | K |
| **8** | understand the politics in Turkey after the death of Atatürk | 10 | 1 | K |

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| --- | --- |
| **Main Textbook** | Turan Şerafettin, *Türk Devrim Tarihi, C.I-II*, İstanbul, 1991–1995 |
| **Supporting References** | Ateş, Toktamış, Türk Devrim Tarihi, İstanbul: Der Yayınları, 2001.  Aybars, Ergün, Türkiye Cumhuriyeti Tarihi, İzmir: Ercan Kitabevi, 2000.  Eroğlu, Hamza, Türk İnkılap Tarihi, Ankara: Savaş Yayınları, 1990.  Kongar, Emre, Devrim Tarihi ve Toplumbilim Açısından Atatürk, İstanbul: Remzi Kitabevi, 1999.  Selek, Sebahattin, Anadolu İhtilali, İstanbul: Kastaç Yayınları, 1987.  Timur, Taner, Türk Devrimi ve Sonrası, Ankara: İmge Kitabevi, 1997. |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | The Armistice of Mudanya; the abolition of dynasty and the Peace Treaty of Lausanne |
| **2** | The Foundation of the Republic and the abolition of the Caliphate |
| **3** | The Attempts for multi-party system; Assassination of İzmir and the movement in Menemen |
| **4** | The Revolutions on Law System: The constitutions of New Turkish State |
| **5** | The Revolutions on Law System: The acceptence of Civil Code and the regulations fort he woman rights |
| **6** | The Revolutions on Education and Cultural Life: The unity of education, the acceptance of new letters, the reforms on language, history and the other fields |
| **7** | The Revolutions for Economic Life: The abolition of aşar, reforms on agriculture and industry, etatism |
| **8** | Mid-Term Exam |
| **9** | The Changes on Social Life: the closing of tekkes and zawiyahs, the law of having surname, weekend holiday |
| **10** | The Foreign Policy of Atatürk: The problems of Etabli and Mosul, relations with foreign states |
| **11** | The Foreign Policy of Atatürk: membership to the United Nations, the Balkan Agreement, Montreux Convention, The Pact of Sadabad |
| **12** | The Principles of Atatürk: Republicanism, Secularism, Revolutionism, Nationalism, Populism, Etatism |
| **13** | The Supplementary Principles of Atatürk |
| **14** | The Interior and exterior developments during the period of İsmet İnönü |
| **15** | The Period of Democratic Party |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **60** |
|  | **Total workload / 30** | | **2** |
|  | **Course ECTS Credit** | | **2** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| ENGLİSH II | 221012006 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | X |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| English | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Students can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. They can describe in simple terms aspects of their background, immediate environment and matters in areas of immediate need.  Students can understand standard speech related to areas of most immediate personal relevance (e.g. personal and family information, shopping, local geography and employment) and can catch the main point in simple messages and announcements.  Students can read and find specific, predictable information in simple everyday material such as advertisements, prospectuses and timetables.  Students can handle very short social exchanges, even though they cannot usually keep the conversation going of their own accord.  They can write relating to matters in areas of immediate need, linking a series of phrases and sentences with connectors. |
| **Short Course Content** | The aim of the course is to teach students basic grammar rules in elementary level, give them speaking, writing, reading and listening knowledge of English. It consists of content and activities aimed at having students acquire Elementary Level English language skills according to evaluation and reference system of The Common European Framework. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student becomes familiar with basic grammar rules in English. | 10 | 1, 5, 11 | A |
| **2** | Analyzes English dialogues. | 10 | 1, 4, 5, 11 | A |
| **3** | Understands and explains an English text at the level. | 10 | 1, 4, 5, 11 | A |
| **4** | Communicates in written and spoken English. | 10 | 1, 4, 5, 11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Warwick L., Williams D. (2020). *Roadmap A2 Students’ Book & Workbook*. Pearson Education Limited. |
| **Supporting References** | Murphy, R., (2004). *English Grammar in Use*, Cambridge University Press, |
| **Necessary Course Material** | Computer, Webcam, Speakers; or Smart phone |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | 6A past simple (regular verbs) - prepositions - describe an event - understand reviews - understanding adjectives  6B past simple (irregular verbs) - describe a good weekend - understand a narrative - understanding the order of events |
| **2** | 6C past simple (questions) - verbs + prepositions - did you? - ask and answer questions - write a short story - using subject pronouns  6D give and accept an apology |
| **3** | 7A countable and uncountable nouns; some, any, lots of and a lot of - food and drink - vowel sounds; connected speech - describe food shopping items - understand announcements - listening for special information |
| **4** | 7B how much/how many? + quantifiers – food containers - sentence stress - create a dish - write a social media post - giving opinions and reasons |
| **5** | 7C comparative adjectives - describing places to eat - compare places to eat - follow instructions - understanding instructions  7D order in a café |
| **6** | 8A present continuous - geography -ing - describe a travel experience - write a guide - using adjectives  8B present simple and present continuous - weather - contractions - describe the weather - understand a news report - understanding connected speech |
| **7** | 8C superlative adjectives - phrases describing travel - compare places, activities and transport - understand a short article - understanding paragraph topics  8D make a phone call |
| **8** | Mid-Term Exam |
| **9** | 9A should/shouldn’t - health - give advice - understand a short talk - dealing with unknown words |
| **10** | 9B be going to - future plans - discuss your goals for the future - write an informal email - organising an email to a friend |
| **11** | 9C would like/want - activities with go - tonic stress; weak forms - describe what you want to do - understand a blog post - understanding because and so  9D make arrangements and invitations |
| **12** | 10A verb patterns - housework - sentence stress - interview people - write a personal profile - expressing likes and dislikes |
| **13** | 10B have to/don’t have to - clothes - word stress; have to - play a guessing game - understand an opinion article - identifying opinions |
| **14** | 10C present perfect simple - technology - contractions - talk about past experiences - understand an interview  - understanding time expressions  10D give a compliment |
| **15** |  |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework | 1 | 2 | 2 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 2 | 2 |
| Studying for Mid-Term Exam | 1 | 4 | 4 |
| Final Exam | 1 | 2 | 2 |
| Studying for Final Exam | 1 | 6 | 6 |
|  | **Total workload** | | **72** |
|  | **Total workload / 30** | | **2,4** |
|  | **Course ECTS Credit** | | **2** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| **CALCULUS II** | 221412305 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| x |  |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | No |
| **Objectives of the Course** | Being able to operate with vectors. Understanding the concept of limit and continuity. Being able to use derivatives and integrals to solve problems. |
| **Short Course Content** | Vectors, complex numbers, matrices, derivatives and their applications, integrals and their applications. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Makes quantity and discovery operations and can organise progress payments. | 10 | 1, 5, 8, 10,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | 1. Anadolu Üniversitesi Yayınları Genel Matematik. Eskişehir  2. Görgülü., A. (2000) Genel Matematik. Eskişehir  3. Şenel, M. , Orhun N. , Tüzemen Ş. ( 2003) Genel Matematik. Eskişehir  4. Yıldız E. (2004) Genel Matematik. Trabzon  5. Argün Z. (2001) Temel Matematik. Ankara : Seçkin Yayınevi |
| **Supporting References** |  |
| **Necessary Course Material** | Square square, protractor, compass and calculator. |

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| **Course Schedule** | |
| **1** | Vectors |
| **2** | Vectors |
| **3** | Definition of complex numbers, vector representation, four operations of complex numbers in Cartesian form |
| **4** | Polar and Cartesian transformations of complex numbers |
| **5** | Polar and Cartesian transformations of complex numbers |
| **6** | Matrices |
| **7** | Matrices |
| **8** | Midterm |
| **9** | Derivatives and applications |
| **10** | Derivatives and applications |
| **11** | Derivatives and applications |
| **12** | Integration and its applications |
| **13** | Integration and its applications |
| **14** | Integration and its applications |
| **15** | Integration and its applications |
| **16,17** | Final Exams |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 2 | 5 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 2 | 6 | 12 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,666666667** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| MANUFACTURING METHODS II | 221412306 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Classification of machining methods, explanation of lathe and milling applications. |
| **Short Course Content** | The main aim of the course is to explain machining techniques |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to design and evaluate manufacturing procedure. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |
| **2** | Ability to perform ethical responsibilities in terms of engineering and social standarts. | 1,2,3,4,5,6,8,10 | 1,5,6,10,11 | A,D,K |
| **3** | Ability to understand basic principles of machining processes. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |
| **4** | Acquire experience about safety issues of machining. | 1,2,3,4,6,8,10 | 1,5,6,10,11 | A,D,K |

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| --- | --- |
| **Main Textbook** | Mikell P. Groover, Principles of Modern Manufacturing, 2016 |
| **Supporting References** | ADDISON W.,Manufacturing Processes for Engineering Materials, 1999  AKKURT M., Talaş kaldırma bilimi ve teknolojisi CNC takım tezgahları ve üretim otomasyonu, 2012 |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Types of machining and machining principles |
| **2** | Safety at machining operations |
| **3** | Desicion making in machining and calculation of process parameters |
| **4** | Desicion making in machining and calculation of process parameters |
| **5** | Basic machining tools |
| **6** | Surface machining |
| **7** | Lathe machining |
| **8** | Mid-Term Exam |
| **9** | Lathe machining |
| **10** | Lathe machining |
| **11** | Milling |
| **12** | Milling |
| **13** | Milling |
| **14** | Project (practice) |
| **15** | Project (presentation) |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 6 |
|  | **Total workload** | | **84** |
|  | **Total workload / 30** | | **2,8** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MECHANICAL DRAWING | 221412122 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 1 | 2 | 2 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to use of industrial methods used in the field of complex drawing. |
| **Short Course Content** | Various assembly drawings, designation of drawings, text fields, part and assembly draftings, inspection, modelling parts from assembly drawings, designing the missing part in the assembly drawing, bearings, gears, shafts, wedge, pin, bolt-and-nut assembly drawings and pictures. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learning the removable and non-removable joint elements. | 2,4,10 | 1,6,11,14 | A,D |
| **2** | Learning mechanical drawing and letterhead. | 2,4,10 | 1,6,11,14 | A,D |
| **3** | Learning assembly drawing. | 2,4,6,8,10 | 1,6,11,14 | A,D |
| **4** | Gaining insight into mechanical drawing. | 2,4,6,8,10 | 1,6,11,14 | A,D |

|  |  |
| --- | --- |
| **Main Textbook** | KIRAÇ N., Makine Meslek Resmi, Bursa, 2012 |
| **Supporting References** | 1.ŞEN, İ. Zeki., ÖZÇİLİNGİR, Nail, Teknik Resim A4 Uygulama Yaprakları, DEHA Yayıncılık, 2003. |
| **Necessary Course Material** | Technical drawing tools and equipment |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | General information about screws |
| **2** | Related applications with screws |
| **3** | Wedge, pin, riveted joints |
| **4** | Springs, cams, belt pulleys |
| **5** | General applications |
| **6** | Bearings |
| **7** | General information about screws |
| **8** | Mid-Term Exam |
| **9** | Gear wheels |
| **10** | Assembly with technical drawings of related applications |
| **11** | Assembly with technical drawings of related applications |
| **12** | Assembly with technical drawings of related applications |
| **13** | Sketch |
| **14** | Modeling and other applications |
| **15** | Modeling and other applications |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 52 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 52 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **126** |
|  | **Total workload / 30** | | **4,2** |
|  | **Course ECTS Credit** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| INDUSTRIAL MEASUREMENT TECHNIQUES | 221412301 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to use of measuring instruments used in the industrial field. |
| **Short Course Content** | Measurement and control definition and history, SI unit systems, length measurement (caliper gage, micrometers, comparators), strain and stress measurement, hardness measurement, surface roughness measurement, pressure and temperature measurement, vibration and noise measurement. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learning Measurement and control, SI unit systems. | 4,5,6,8,10 | 1,2,3,6,10,11 | A,D |
| **2** | Learning length, hardness, surface roughness measurement. | 4,5,6,8,10 | 1,2,3,6,10,11 | A,D |
| **3** | Learning vibration and noise, pressure and temperature measurement. | 4,5,6,8,10 | 1,2,3,6,10,11 | A,D |
| **4** | Learning ISO tolerance system. | 4,5,6,8,10 | 1,2,3,6,10,11 | A,D |

|  |  |
| --- | --- |
| **Main Textbook** | Şekercioğlu, T., Ölçme Tekniği, Birsen Yayınevi, 2016 |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Definition and history of measurement and control, considerations |
| **2** | SI unit systems |
| **3** | Analysis of measurement results |
| **4** | Length measurement (calipers, micrometers, comparators) |
| **5** | ISO Tolerance System |
| **6** | Unit elongation and stress measurement |
| **7** | Hardness Measurement |
| **8** | Mid-Term Exam |
| **9** | Measurement of force, moment and number of revolutions |
| **10** | Surface roughness measurement |
| **11** | Vibration and noise measurement |
| **12** | Pressure and temperature measurement |
| **13** | Gear wheel measurement |
| **14** | Flow and level measurement |
| **15** | Flow and level measurement |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **112** |
|  | **Total workload / 30** | | **3,73** |
|  | **Course ECTS Credit** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 50 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 2 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| MACHINE ELEMENTS | 221412307 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to design and strength to comprehend basic static face, according to the elements of the machine to classify, calculate the strength of machine elements and you can choose the appropriate elements. |
| **Short Course Content** | To understand the basic static and strength face design, the machine classification of the elements according to the characteristics, and the appropriate element seçebilmektir Strength calculations of machine elements. Elements used in machine industry is to be able to calculate strength |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learning the machinery and machine parts. | 1,2,4,6,8,10 | 1,10 | A |
| **2** | Learning the stress analysis of machine elements. | 1,2,4,6,8,10 | 1,10 | A |
| **3** | Learning the elements of the machine. | 1,2,4,6,8,10 | 1,10 | A |
| **4** | Learning the linking elements can be recognized and calculations | 1,2,4,6,8,10 | 1,10 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Makine Elemanları ve Konstrüksiyon Örnekleri, Fatih C. BABALIK |
| **Supporting References** | Lecture notes |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | General Principles and Definitions |
| **2** | Overall Strength Info |
| **3** | Classification of Machine Elements |
| **4** | Fasteners |
| **5** | Fasteners |
| **6** | Welding Technology |
| **7** | Welding Technology |
| **8** | Mid-Term Exam |
| **9** | Rivet Connections |
| **10** | Rivet Connections |
| **11** | Screw Connections |
| **12** | Shaft-hub connections |
| **13** | Support Staff |
| **14** | Support Staff |
| **15** | Power and Power Transmission Components |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **106** |
|  | **Total workload / 30** | | **3,53** |
|  | **Course ECTS Credit** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 4 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL** 

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| QUALITY MANAGEMENT SYSTEMS | 221412303 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to gain qualifications related to quality assurance and standards for business life. |
| **Short Course Content** | The concept of quality, standard and standardization, the importance of standards for manufacturing and service sectors, quality tools to define and solve problems, quality costs, quality management system models, process and resource management system, control charts and distributions |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Organizing the infrastructure of the quality management system. | 4,6,10 | 1,6,11 | A |
| **2** | Applying the quality standards. | 4,6,10 | 1,6,11 | A |
| **3** | Learning the quality management system models. | 4,6,10 | 1,6,11 | A |
| **4** | Learning the process and resource management systems. | 4,6,10 | 1,6,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | 1.DİLSİZ İ.,KARTAL C.S.,Kalite Güvencesi ve Standartları, Detay Yayıncılık, Ankara, 2012.  2.BURNAK N., Toplam Kalite Yönetimi (İstatistiksel Süreç Kontrolü), Osmangazi Üniversitesi Yayınları, Eskişehir, 1997. |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Quality and basic concept of quality |
| **2** | Quality control, quality assurance, total quality management and the relationships between them |
| **3** | Quality tools to define and solve problems |
| **4** | Quality costs |
| **5** | Standards and standardization |
| **6** | Certification and accreditation |
| **7** | Calibration and Metrology |
| **8** | Mid-Term Exam |
| **9** | Quality management systems |
| **10** | Quality management systems |
| **11** | Quality management systems |
| **12** | Quality management systems |
| **13** | Process and resource management system |
| **14** | Control charts and distributions |
| **15** | Control charts and distributions |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 5 | 5 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 5 | 5 |
|  | **Total workload** | | **82** |
|  | **Total workload / 30** | | **2,73** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 4 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 3 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| INDUSTRIAL AUTOMATION | 221412129 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to define automatic control elements and applications automatic control systems. |
| **Short Course Content** | Automatic control elements, symbols,automatic control circuits design |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to use of automatic control elements | 1,4,6,8,10 | 1,5,11 | A |
| **2** | Ability to establish power circuits and control circuits | 1,4,6,8,10 | 1,5,11 | A |
| **3** | Ability to prepare projects for power circuits and control circuits | 1,4,6,8,10 | 1,5,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | PLC ile Endüstriyel Otomasyon, Salman Kurtulan, 2003, Birsen Yayınevi |
| **Supporting References** | Yaşar B., İsmail S., Elektrik-Elektronik Bilgisi, MEB 2003, |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Importance of industrial automation and applications |
| **2** | Definitions and symbols |
| **3** | Production lines and automated machines |
| **4** | Calibration |
| **5** | Automation in transport |
| **6** | Sensors and applicaitons |
| **7** | First motion |
| **8** | Mid-Term Exam |
| **9** | Servo motors |
| **10** | Step motors |
| **11** | Pneumatics and hydraulics |
| **12** | PLC, definitions and apllications |
| **13** | Automated controll elements, signal circuits and measurements |
| **14** | Automated controll circuits |
| **15** | Automated controll circuits |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 5 | 5 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 5 | 5 |
|  | **Toplam iş yükü** | | **82** |
|  | **Toplam iş yükü / 30** | | **2,73** |
|  | **Dersin AKTS Kredisi** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 3 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| ENERGY EFFICIENCY | 221412128 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is, to learn types of energy, power-energy units and ways of efficient energy consumption |
| **Short Course Content** | Kinds of energy, energy sources, efficient energy production and consumption |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to make energy and power calculations | 8,10 | 1,7,10,11 | A |
| **2** | Knows energy sources and energy production methods. | 8,10 | 1,7,10,11 | A |
| **3** | Learns the definitions of usuable energy, energy storage, wasted energy. | 8,10 | 1,7,10,11 | A |
| **4** | Acquire experience about principles of efficient energy usuage. | 8,10 | 1,7,10,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Lecture notes |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Classification of types of energy |
| **2** | Power, energy, unit conversions and calculations |
| **3** | Energy sources |
| **4** | Renewable energy |
| **5** | Renewable energy |
| **6** | Avaible energy and energy storage |
| **7** | Avaible energy and energy storage |
| **8** | Mid-Term Exam |
| **9** | Energy applications (transport, climate controlling – air conditioning) |
| **10** | Energy applications (manufacturing, industry, agriculture) |
| **11** | Re-use of waste energy in industrial applicaitons |
| **12** | Residental energy consumption |
| **13** | Material technology and energy efficiency |
| **14** | Project |
| **15** |  |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 5 | 5 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 5 | 5 |
|  | **Total workload** | | **82** |
|  | **Total workload / 30** | | **2,73** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

| **Course Name** | **Course Code** |
| --- | --- |
| BUSINESS ETHICS | 221412302 |

| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| --- | --- | --- | --- | --- |
| **Theory** | **Practice** |
| 2 | 2 | 0 | 2 | 3 |

| **Course Category (Credit)** | | | | |
| --- | --- | --- | --- | --- |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | X |

| **Course Language** | **Course Level** | **Course Type** |
| --- | --- | --- |
| Turkish | Associate degree | Elective |

| **Prerequisite(s) if any** | NONE |
| --- | --- |
| **Objectives of the Course** | The aim of this course is to teach to gain competencies related to professional ethics. |
| **Short Course Content** | To examine the concepts of ethics and morality, to examine the factors that play a role in the formation of morality, to examine professional ethics and to examine the concept of social responsibility |

| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| --- | --- | --- | --- | --- |
| **1** | Examines the concepts of ethics and morality | 10 | 1, 5, 8,12,13 | A |
| **2** | Complies with the principles of professional ethics | 10 | 1, 5, 8,12,13 | A |

| **Main Textbook** | Anadolu Üniversitesi Yayınları İş Etiği. Eskişehir |
| --- | --- |
| **Supporting References** |  |
| **Necessary Course Material** | Projector |

| **Course Schedule** | |
| --- | --- |
| **1** | Examine the concepts of ethics and morality |
| **2** | Examine the concepts of ethics and morality |
| **3** | Examine the ethical systems |
| **4** | Examine the ethical systems, investigate the factors that play a role in the formation of morality |
| **5** | Investigate the factors that play a role in the formation of morality |
| **6** | Examine the ethics of profession |
| **7** | Examine the ethics of profession |
| **8** | Mid-term exam |
| **9** | Examine the ethics of profession |
| **10** | Examine the ethics of profession |
| **11** | Analyzing the results of corruption and unethical behavior in professional life Professional |
| **12** | Analyzing the results of corruption and unethical behavior in professional life Professional |
| **13** | Examine the concept of social responsibility |
| **14** | Examine the concept of social responsibility |
| **15** | Examine the concept of social responsibility |
| **16,17** | Final exam |

| **Calculation of Course Workload** | | | |
| --- | --- | --- | --- |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 1 | 6 | 6 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 14 | 1,5 | 21 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 14 | 1,5 | 21 |
|  | **Total workload** | | **78** |
|  | **Total workload / 30** | | **2,6** |
|  | **Course ECTS Credit** | | **3** |

| **Evaluation** | |
| --- | --- |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| **Final Exam** | 60 |
| **Total** | 100 |

| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| --- | --- | --- |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 5 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 1 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents |  |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| CAREER PLANNING | 221412304 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 2 | 0 | 2 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | X |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | No |
| **Objectives of the Course** | This course aims to help students plan their own careers. |
| **Short Course Content** | Career-related concepts, Career planning, Stages of the career planning process, Career planning models, CV writing, Job interview |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to distinguish between career-related concepts | 10 | 1,2,5 | A |
| **2** | Ability to explain career planning steps | 10 | 1,2,5 | A |
| **3** | Ability to determine career goals | 10 | 1,2,5 | A |
| **4** | Ability to prepare own CV and business letters | 10 | 1,2,5 | A |
| **5** | Gaining interview skills | 10 | 1,2,5 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Öz Temel, K. (2020). Career planning and development |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projector |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Career-related concepts |
| **2** | Career development theories |
| **3** | What is career planning? What are its features and principles? |
| **4** | Stages of the career planning process |
| **5** | Stages of the career planning process |
| **6** | Career planning models Goal setting in career planning |
| **7** | World career trends |
| **8** | Midterm |
| **9** | CV preparation |
| **10** | Resume types, CV format and examples, points to consider when preparing a CV |
| **11** | Cover letter Reference letter |
| **12** | Job interview purposes, methods and types |
| **13** | Preparation for the interview and interview stages |
| **14** | Situations that may be encountered during interviews; question types, body language-bodily signs |
| **15** | Situations that may be encountered during interviews; question types, body language-bodily signs |
| **16,17** | Final Exams |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 2 | 2 | 4 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 14 | 1,5 | 21 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 14 | 1,5 | 21 |
|  | **Toplam iş yükü** | | **76** |
|  | **Toplam iş yükü / 30** | | **2,53** |
|  | **Dersin AKTS Kredisi** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| CNC LATHE TECHNOLOGY | 221413146 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 2 | 2 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to gain proficiency on writing and production of the parts and usage of the CNC lathes. |
| **Short Course Content** | CNC lathe, tools and tool holders, reference points, reset settings, linking elements, CNC programming, lower programming flair application made, looms fault codes, measurement and control, machine maintenance |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Preparing the CNC lathe and learning parts | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |
| **2** | Writing programs for the CNC milling machines | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |
| **3** | Production parts in CNC lathe | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |

|  |  |
| --- | --- |
| **Main Textbook** | Gülesin, M., “CNC Torna ve Freze Tezgahlarının Programlanması”, Asil Yayın Dağıtım, Ankara, 2008. |
| **Supporting References** | Akkurt, M., “CNC Takım Tezgahlarının Programlanması ve CAD-CAM Sistemleri |
| **Necessary Course Material** | Computer, CNC lathe, lab, tools and tool holders |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | CNC lathe features and components, operating principles |
| **2** | Types of control panels, buttons and features, coordinate axis and reference points |
| **3** | Insert varieties, characteristics and usage, tool compensation settings, tool holders |
| **4** | Properties of the elements used in the reset, reset the tool with respect to the work piece |
| **5** | Calculation of tool’s roughing, cutting depth, angle and progress |
| **6** | CNC lathe programming principles, process and preparation instructions |
| **7** | CNC lathe’s coordinate and moving systems, CNC lathe applications |
| **8** | Mid-Term Exam |
| **9** | CNC lathe programming using cycles, CNC lathe applications |
| **10** | CNC lathe programming using cycles, CNC lathe applications |
| **11** | CNC lathe programming using cycles, CNC lathe applications |
| **12** | CNC lathe programming using cycles, CNC lathe applications |
| **13** | Sub-programming technique and structure, CNC lathe applications |
| **14** | Sub-programming technique and structure, CNC lathe applications |
| **15** | CNC looms in the alarm and error code, CNC lathe applications |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework | 2 | 9 | 18 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **140** |
|  | **Total workload / 30** | | **4,66** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
| **Final Exam** | 50 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| HYDRAULIC AND PNEUMATIC SYSTEMS | 221413147 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 2 | 2 | 3 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to learn, explanation of used hydraulic and pneumatics systems on the machine, hydraulic and pneumatic maintenances, and working of hydraulic and pneumatic machines |
| **Short Course Content** | The hydraulic laws, hydraulic circuit components, hydraulic circuit drawing, hydraulic circuit analysis, hydraulic presses, hydraulic construction machinery, haydraulic measurements, the hydraulic failures, defines pneumatic, pneumatic equipment, pneumatic circuit drawing, pneumatic circuit analysis, pneumatic air lines, pneumatic applications, pneumatic systems maintenance and failures |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Hydraulic equipments are known | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **2** | Hydraulic equipment can be connect | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **3** | To comment hydraulic failures | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **4** | Pneumatic equipments are known | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **5** | Pneumatic equipment can be connect | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **6** | To comment pneumatic failures | 2,4,8,9,10 | 1,5,10,11 | A,D |
| **7** | Making hydraulic and pneumatic systems maintenance | 2,4,8,9,10 | 1,5,10,11 | A,D |

|  |  |
| --- | --- |
| **Main Textbook** | Hidrolik ve Pnömatik Sistemler, İsmail KARACAN, Bursa Teknik Kitapevi, 2000, Bursa |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector, Lab |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Hydraulic definitions and laws |
| **2** | Hydraulic circuit components |
| **3** | Hydraulic circuit components |
| **4** | Hydraulic circuit drawing |
| **5** | Hydraulic circuit drawing |
| **6** | Hydraulic circuit assembly |
| **7** | Hydraulic definitions and laws |
| **8** | Mid-Term Exam |
| **9** | Pneumatic definitions and laws |
| **10** | Pneumatic circuit components |
| **11** | Pneumatic circuit components |
| **12** | Pneumatic circuit drawing |
| **13** | Pneumatic circuit assembly |
| **14** | Pneumatic and hydraulic maintenance and fault finding |
| **15** | Pneumatic and hydraulic maintenance and fault finding |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Toplam iş yükü** | | **120** |
|  | **Toplam iş yükü / 30** | | **4** |
|  | **Dersin AKTS Kredisi** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 5 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| CUTTING TOOLS AND MACHINE REMOVAL TECHNIQUES | 221413149 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To know every aspect of the cutting tools used in machining |
| **Short Course Content** | Brief Content of the Course To learn the cutting tools used in machining, cutting tool materials, cutting tool geometry, tool life and tool fixing systems. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Metal Cutting and Cutting Too | 1,2,3,4,6,8,10 | 1,3,6,8,10,11 | A,C,I |
| **2** | Single-blade cutting tool geometry | 1,2,3,4,6,8,10 | 1,3,6,8,10,11 | A,C,I |
| **3** | Tool life and wear | 1,2,3,4,6,8,10 | 1,3,6,8,10,11 | A,C,I |
| **4** | Types of wear | 1,2,3,4,6,8,10 | 1,3,6,8,10,11 | A,C,I |

|  |  |
| --- | --- |
| **Main Textbook** | Talaş Kaldırma Ekonomisi ve Kesici Takımlar Y.Müh. Güngör Avuncan |
| **Supporting References** | Tesviyecilik Teknolojisi cilt:1-2 Henry D. Burghardt-Aaron Axelrod-James Anderson |
| **Necessary Course Material** | Various cutting tools and fasteners |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Metal Cutting and Cutting Tools |
| **2** | Metal Cutting and Cutting Tools |
| **3** | Cutting Tool Materials |
| **4** | Cutting Tool Materials |
| **5** | Single-blade cutting tool geometry |
| **6** | Single-blade cutting tool geometry |
| **7** | Cutting tool selection criteria |
| **8** | Mid-Term Exam |
| **9** | Cutting tool selection criteria |
| **10** | Tool life and wear |
| **11** | Tool life and wear |
| **12** | Tool life and wear |
| **13** | Apparatus used to connect the counter cutting tools |
| **14** | Apparatus used to connect the counter cutting tools |
| **15** | Apparatus used to connect the counter cutting tools |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **108** |
|  | **Total workload / 30** | | **3,6** |
|  | **Course ECTS Credit** | | **4** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 3 |
| **2** | The design of machine elements | 4 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MACHINERY MAINTENANCE MANAGEMENT | 221413150 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 2 | 0 | 2 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to teach the techniques of basic maintenance applied to the industrial field. |
| **Short Course Content** | Mechanical, electrical and electronic maintenance activities, daily, weekly, monthly, 3-month, 6-month and 1-year maintenance activities applied to the machines and the importance of maintenance activities in establishments. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learning the general maintenance, machine elements and structure. | 1,6,8,10,11 | 1,5,8,11 | A,D |
| **2** | Learning the maintenance principles | 1,6,8,10,11 | 1,5,8,11 | A,D |
| **3** | Learning the maintenance periods and recording. | 1,6,8,10,11 | 1,5,8,11 | A,D |
| **4** | Learning the computerized maintenance and implementation | 1,6,8,10,11 | 1,5,8,11 | A,D |

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| **Main Textbook** | Machine Maintenance Management course notes. |
| **Supporting References** | Köksal, M., “Bakım Planlaması”, Seçkin Yayıncılık, Ankara, 2015 |
| **Necessary Course Material** | Computer and projection. |

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| **Course Schedule** | |
| **1** | Introduction to general maintenance operation |
| **2** | Introduction to general maintenance operation |
| **3** | Preventive maintenance |
| **4** | Corrective maintenance |
| **5** | Bearing maintenance |
| **6** | Chain maintenance |
| **7** | Chain maintenance |
| **8** | Mid-Term Exam |
| **9** | Belt and pulley mechanism and their maintenance |
| **10** | Reductor maintenance |
| **11** | Coupling maintenance |
| **12** | Hydraulic systems, fluids and their maintenance |
| **13** | Maintenance of pneumatic systems |
| **14** | Computer-aided maintenance |
| **15** | Computer-aided maintenance |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,67** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 3 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| COMPUTER AIDED DRAWING | 221413144 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 1 | 2 | 2 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | X | X |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To gain two dimensional computer aided drawing ability |
| **Short Course Content** | Using basic drawing commands, correcting and editing commands, making perspective drawings, taking printouts in the preferred CAD program. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Drawing with basic commands. | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |
| **2** | Making 2D and 3D drawing applications | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |
| **3** | Making perspective drawing applications. | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |

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| --- | --- |
| **Main Textbook** | AUTOCAD 2009 (Gökalp BAYKAL) |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

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| **Course Schedule** | |
| **1** | To select CAD software running options via display and draw commands |
| **2** | To modify display and drawing adjustment and exit form CAD |
| **3** | To draw drawing by using basic drawing commands and to use coordinate systems |
| **4** | To draw technical drawing by using drawing coomands and to add text to drawings |
| **5** | To draw technical drawing by using drawing coomands and to add text to drawings |
| **6** | To be able to use modify commands |
| **7** | To change drawing objects |
| **8** | Mid-Term Exam |
| **9** | To multiply drawing objects |
| **10** | To modify dimensioning format |
| **11** | To use dimensioning commands To change dimensions, to add finish symbol and tolerance |
| **12** | To use dimensioning commands To change dimensions, to add finish symbol and tolerance |
| **13** | To be able to do data transfer between 2D CAD softwares |
| **14** | To use file extensions for 2D data transfer processing |
| **15** | To select plotter, paper size using for printing |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 4 | 56 |
| Homework | 2 | 9 | 18 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 12 | 12 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **142** |
|  | **Total workload / 30** | | **4,73** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| INTRODUCTION TO ELECTRIC AND ELECTRONICS | 221413142 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The main aim of the course is to be able to discern basic electric issues, learning electric and alectronic circuit components |
| **Short Course Content** | Definitions of volt, amper, power, electric circuit, measuring devices, power circuits, signal circuits, electric circuit units, power supply, conductor, thermal fuse, current breaker, electronic circuit units, resistance, diot, transistor, tristor applications, medium and high voltage, safety and precautions, magnetic field, motors, servo driver |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learns definitions of electric units and components | 1,2,4,8,10 | 1,3,6,11 | A |
| **2** | Able to discern basic electric flaws | 1,2,4,8,10 | 1,3,6,11 | A |
| **3** | Able use electric motors. | 1,2,4,8,10 | 1,3,6,11 | A |
| **4** | Acquire experience about safety issues of electricity | 1,2,4,8,10 | 1,3,6,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Yaşar B., İsmail S., Elektrik-Elektronik Bilgisi, MEB 2003 |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

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| --- | --- |
| **Course Schedule** | |
| **1** | Definitions and units |
| **2** | Basic electric circuits |
| **3** | Properties of power circuits |
| **4** | Properties of signal circuits |
| **5** | Measuring equipments |
| **6** | Electric circuit components |
| **7** | Electronic citcuit components |
| **8** | Mid-Term Exam |
| **9** | AC Motors |
| **10** | DC Motors |
| **11** | Servo Motors |
| **12** | Batteries, induction and applications |
| **13** | Safety and precautions |
| **14** | Project-practice |
| **15** | Project-practice |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,67** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| UNUSUAL MANUFACTURING METHODS | 221413143 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course, with the advanced technology needed for manufacturing technicians engaged in the production looms, To gain the system and techniques. The new technologies of production, manufacturing, production time and more efficient processes, how to comprehend that. How and where skills can be used in different manufacturing city. |
| **Short Course Content** | Non-traditional production methods used in industry to define the basic features of Electric Discharge method. Electro-erosion processing with basic features, advantages and disadvantages comprehend. Electro-discharge drilling, cutting and grinding operations understand the basic properties of varieties. Chemical Etching (ECM) Machining Method. Chemical Etching method for non-traditional production methods used in industry to define the basic properties. Laser Machining Method. Used in the manufacturing industry to define the basic features and types of LASER. Laser processing with basic features, advantages and disadvantages comprehend. Industry also describes the basic features of laser cutting processing. Used in the manufacturing industry, advanced welding methods to understand the basic functions of varieties. Advanced welding methods are classified. Understand the basic functions of the six sources of gas applications. Submerged arc welding applications, understand the basic functions |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | You might be able to comprehend the manufacture of non-contact machining. | 1,2,3,4,6,7,8,10 | 1,6,10,11,12,14 | A,C,D,I |
| **2** | Make the appropriate selection of manufacturing technology. | 1,2,3,4,5,6,7,8,10,11 | 1,6,10,11,12,14 | A,C,D,I |
| **3** | Traditional methods to understand the difference between advanced manufacturing. | 1,4,5,6,7,8,10 | 1,6,10,11,12,14 | A,C,D,I |
| **4** | To understand the limitations of machining and chipless production. | 1,2,3,4,6,7,8,10,11 | 1,6,10,11,12,14 | A,C,D,I |
| **5** | To understand the meaning and use of new technologies. | 1,2,3,4,5,6,7,8 | 1,6,10,11,12,14 | A,C,D,I |
| **6** | To understand the capabilities of advanced manufacturing methods. | 1,2,3,4,6,7,8, | 1,6,10,11,12,14 | A,C,D,I |
| **7** | To understand what looms üretilebileceğinin different designs. | 1,2,3,4,5,6,7,8,10,11 | 1,6,10,11,12,14 | A,C,D,I |

|  |  |
| --- | --- |
| **Main Textbook** | 1-Kısa,M,(2002) Özel Üretim Teknikleri, Bursa,  2-Anık,S,Dikicioğlu,A,Vural,M,(1999) İmal Usulleri, İstanbul, |
| **Supporting References** | 1-Metal Meslek Bilgisi, MEB  2-Çeşitli ders notları |
| **Necessary Course Material** | Computer, projector, Lab |

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| **Course Schedule** | |
| **1** | Comparison of advanced manufacturing methods, the traditional method. |
| **2** | Powder metallurgy and composite materials. |
| **3** | Precision casting method, and application areas. |
| **4** | Punch press and method of application areas |
| **5** | EDM and ECM methods and application areas |
| **6** | Wire erosion methods and application areas. |
| **7** | CNC technology, advanced manufacturing location |
| **8** | Mid-Term Exam |
| **9** | CNC-Plasma technology and its applications. |
| **10** | CNC Laser technology and its applications |
| **11** | CNC Water jet technology and application areas |
| **12** | CNC welding technology and its applications |
| **13** | CNC marking technology and its applications |
| **14** | Rapid prototyping technology and its applications |
| **15** | 3D scaner technology and application areas |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework | 2 | 10 | 20 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **92** |
|  | **Total workload / 30** | | **3,07** |
|  | **Course ECTS Credit** | | **3** |
| **Evaluation** | | | |
| **Activity Type** | **%** | | |
| Mid-term | 30 | | |
| Homework | 20 | | |
|  |  | | |
|  |  | | |
|  |  | | |
| **Final Exam** | 50 | | |
| **Total** | 100 | | |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 3 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 3 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| PROFESSIONAL ENGLISH | 221413152 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  | X |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| English | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | In this course, the student; It is aimed to provide basic professional concepts and definitions and basic professional language competencies. |
| **Short Course Content** | Ability to learn professionally required foreign language terms. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Using professional foreign language knowledge | 10 | 1,5,11 | A,D |
| **2** | Using professional concepts and definitions | 10 | 1,5,11 | A,D |

|  |  |
| --- | --- |
| **Main Textbook** | Lecture notes |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

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| **Course Schedule** | |
| **1** | Updating and repeating general English knowledge that will form the basis of professional foreign language proficiency |
| **2** | Updating and repeating general English knowledge that will form the basis of professional foreign language proficiency |
| **3** | Terms, Words and Concepts Frequently Used in the Field of Machinery Manufacturing |
| **4** | Hand tools used in machine manufacturing workshop |
| **5** | Benches and their elements used in the machine manufacturing workshop |
| **6** | Basic Identification Patterns |
| **7** | Basic Identification Patterns |
| **8** | Mid-Term Exam |
| **9** | Numerical Values ​​and Quantities |
| **10** | Mathematical Terms and Four Basic Operations |
| **11** | Mathematical Terms and Four Basic Operations |
| **12** | Shapes and Colors |
| **13** | One, Two and Three Dimensional Shapes |
| **14** | Straight and Curved Edge Shapes |
| **15** | Angles |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework | 2 | 10 | 20 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **92** |
|  | **Total workload / 30** | | **3,07** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 50 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 1 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL** 

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| COMPUTER AIDED MANUFACTURING I | 221413145 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credi** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | X | X |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | In this course, using the CAM programs, two-dimensional, three-dimensional drawings aimed to gain competencies to create tool paths for CNC lathes |
| **Short Course Content** | Explaining how to code and manufacture a CNC lathe using the CAM program. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | CAM software for CNC lathes and create tool paths and program codes | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **2** | Turning to select operations | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **3** | Tool determine the path of | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **4** | Finish turning. | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **5** | Drill | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **6** | Cutting tool and cutting edge to choose. | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |

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| **Main Textbook** | Mikell P. Groover, Principles of Modern Manufacturing, 2016 |
| **Supporting References** | ADDISON W.,Manufacturing Processes for Engineering Materials, 1999  AKKURT M., Talaş kaldırma bilimi ve teknolojisi CNC takım tezgahları ve üretim otomasyonu, 2012 |
| **Necessary Course Material** | Computer, projector, Lab |

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| **Course Schedule** | |
| **1** | Working to adjust the settings screen and drawing. Drawing commands and drawing. Drawings, models are ready for editing. Billet creation (to determine the shape of rough). 3D Drawing and 3D drawing commands. Drawings, models are ready for editing. Billet 3D rendering options (rough shape determination). |
| **2** | To determine the reference point. Identification on the part solid model element. |
| **3** | Transfer processing part of a two-dimensional workpiece, the tool path fading, cutting edge and tool holder used in selecting, creating cutting edge and tool holder |
| **4** | Selection process is to be used, forehead turning process, rough turning operation, precision (finish) turning process. |
| **5** | Rough turning operation channel, precision turning operation channel. Hole drilling process.Hole turning process. Thread cutting. |
| **6** | Making the tool path simulation. Transfer processing part of a three-dimensional workpiece, Feature identification. |
| **7** | To appear in the tool path. Cutter and tool holder used in selecting, creating cutting edge and tool holder |
| **8** | Mid-Term Exam |
| **9** | Selection process will be used. Get the turning process. Rough turning operation. |
| **10** | Precision (finish) turning process. Rough turning operation channel. Precision (finish) turning channel process. |
| **11** | Hole drilling process. Internal turning process. Thread cutting. Making the tool path simulation. |
| **12** | NC codes counter code to derive the derivative (postprocessor) of choice. NC codes to derive. |
| **13** | NC codes to derive. |
| **14** | Data transfer methods of CNC lathe. |
| **15** | Data transfer methods of CNC lathe |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **86** |
|  | **Total workload / 30** | | **2,87** |
|  | **Course ECTS Credit** | | **3** |
| **Evaluation** | | | |
| **Activity Type** | **%** | | |
| Mid-term | 30 | | |
| Homework | 20 | | |
|  |  | | |
|  |  | | |
|  |  | | |
| **Final Exam** | 50 | | |
| **Total** | 100 | | |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MECHANISM DESIGN | 221413151 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to intended to show the basic rules necessary for machines used in the study of the movements of bodies and machines, taking advantage of these rules need to perform motion analysis and synthesis of the information needed to determine the need for action. |
| **Short Course Content** | The basic concepts of mechanisms, motion analysis, the mechanism sizing rules, the four bar linkage, motion analysis, motion analysis of crank-connecting rod mechanism, Grashof theorem, the mechanisms linking the critical angle. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Learning the space, joint degrees of freedom and mechanisms. | 2,4,6,10 | 1,5,11 | A,D |
| **2** | Learning given a mechanism to find the degrees of freedom. | 2,4,6,10 | 1,5,11 | A,D |
| **3** | Learning the space, joint degrees of freedom and mechanisms. | 2,4,6,10 | 1,5,11 | A,D |

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| --- | --- |
| **Main Textbook** | AKÇALI İ. D., Mekanizma Tekniği, Birsen Yayınevi, 2002 |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

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| **Course Schedule** | |
| **1** | Introduction to mechanism techniques. |
| **2** | Introduction to mechanism techniques. |
| **3** | Basic concepts. |
| **4** | Introduction of commonly used mechanisms in well known machine systems |
| **5** | Classification of degrees of freedom of mechanisms and mechanisms |
| **6** | Classification of degrees of freedom of mechanisms and mechanisms |
| **7** | Position analysis of mechanisms. |
| **8** | Mid-Term Exam |
| **9** | Velocity and acceleration analysis of mechanisms. |
| **10** | Instantaneous center of rotation. |
| **11** | Linear mechanical systems. |
| **12** | Linear mechanical systems. |
| **13** | Four-link mechanisms. |
| **14** | Gear train mechanisms |
| **15** | Gear train mechanisms |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework | 1 | 14 | 14 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **92** |
|  | **Total workload / 30** | | **3,07** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
| **Final Exam** | 50 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 4 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| CNC MILLING MACHINE TECHNOLOGY | 221414139 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 2 | 2 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of the program is to gain proficiency on writing and production of the parts and usage of the CNC milling machines. |
| **Short Course Content** | CNC milling machines, tools and tool holders, reference points, reset settings, linking elements, CNC programming, lower programming flair application made, looms fault codes, measurement and control, machine maintenance |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Preparing the CNC milling machines and learning parts | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |
| **2** | Writing programs for the CNC milling machines | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |
| **3** | Production parts in CNC milling machines | 1,3,4,6,7,10 | 1,5,6,8,10,11,12,14 | A,C,D |

|  |  |
| --- | --- |
| **Main Textbook** | Gülesin, M., “CNC Torna ve Freze Tezgahlarının Programlanması”, Asil Yayın Dağıtım, Ankara, 2008. |
| **Supporting References** | Akkurt, M., “CNC Takım Tezgahlarının Programlanması ve CAD-CAM Sistemleri |
| **Necessary Course Material** | Computer, CNC lathe, lab, tools and tool holders |

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| **Course Schedule** | |
| **1** | Review of basic machining operations and their capabilities |
| **2** | CNC milling features and components, operating principles |
| **3** | Types of control panels, buttons and features, coordinate axis and reference points |
| **4** | Insert varieties, characteristics and usage, tool compensation settings, tool holders |
| **5** | Properties of the elements used in the reset, reset the tool with respect to the work piece |
| **6** | Calculation of tool’s roughing, cutting depth, angle and progress |
| **7** | CNC milling programming principles, process and preparation instructions |
| **8** | Mid-Term Exam |
| **9** | CNC milling’s coordinate and moving systems, CNC milling applications |
| **10** | CNC milling programming using cycles, CNC milling applications |
| **11** | CNC milling programming using cycles, CNC milling applications |
| **12** | CNC milling programming using cycles, CNC milling applications |
| **13** | Sub-programming technique and structure, CNC milling applications |
| **14** | CNC looms in the alarm and error code, CNC milling applications |
| **15** | Analyzing the procedure and process steps from technical drawing to manufacturing, application on CNC milling machine |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework | 2 | 9 | 18 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **140** |
|  | **Total workload / 30** | | **4,66** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
| **Final Exam** | 50 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| WELDING TECHNOLOGY | 221414144 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 2 | 0 | 2 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of the course is to understand and learn welding porcesses, welding principles, to gain experience about welding methods. |
| **Short Course Content** | Welding types, welding positions, safety for welding |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to perform oxy-gas welding. | 1,3,5,8,10 | 1,3,6 | A,K |
| **2** | Ability to perform electric arc welding | 1,3,5,8,10 | 1,3,6 | A,K |
| **3** | Ability to perform MIG/MAG welding | 1,3,5,8,10 | 1,3,6 | A,K |
| **4** | Ability to perform TIG welding | 1,3,5,8,10 | 1,3,6 | A,K |

|  |  |
| --- | --- |
| **Main Textbook** | GIACINHO J. W, Kaynak Teknolojisi |
| **Supporting References** | GÜRLEYİK M. Y, Malzeme Bilgisi ve Muayenesi, KTÜ, 1988 |
| **Necessary Course Material** | Computer, projector, laboratory |

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| **Course Schedule** | |
| **1** | Definition of welding and safety issues |
| **2** | Welding metalurgy |
| **3** | Welding principles |
| **4** | Oxidation and protective environment |
| **5** | Basic welding methods |
| **6** | Oxy-Gas welding |
| **7** | Electric arc welding |
| **8** | Mid-Term Exam |
| **9** | MIG/MAG welding |
| **10** | TIG welding |
| **11** | Industrial applicaitons of welding, welding positions |
| **12** | Weld defects and inspection methods |
| **13** | Project-practice |
| **14** | Project-practice |
| **15** | Project-practice |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **94** |
|  | **Total workload / 30** | | **3,13** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| OCCUPATIONAL HEALTH AND SAFETY | 221414131 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 2 | 0 | 2 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | This course aims to gain the competencies needed to ensure job security. |
| **Short Course Content** | Human health, occupational safety, occupational diseases, the causes of work-related accidents and accident chain, threatening the security elements of the environment, personal protective equipment, worker health and safety legislation. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Understanding the importance of accidents and occupational diseases Understanding the factors threatening security around | 4,10,11 | 1,5,7,8,11,13 | A,C,D,K |
| **2** | Understanding the occupational diseases | 4,10,11 | 1,5,7,8,11,13 | A,C,D,K |
| **3** | Learning accidents, labor force and to understand their effects on the economy | 4,10,11 | 1,5,7,8,11,13 | A,C,D,K |
| **4** | Comprehension occupational health and safety legislation | 4,10,11 | 1,5,7,8,11,13 | A,C,D,K |
| **5** | Understanding the importance of accidents and occupational diseases Understanding the factors threatening security around | 4,10,11 | 1,5,7,8,11,13 | A,C,D,K |

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| **Main Textbook** | GEREK, N.,İşçi Sağlığı ve İş Güvenliği, Anadolu Üniversitesi Yayınları,Eskişehir,2004 |
| **Supporting References** | Selek, S.H., İş Sağlığı ve Güvenliği (İSG) Temel Konular, Seçkin yayınları, 2016 |
| **Necessary Course Material** | Computer and projection. |

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| --- | --- |
| **Course Schedule** | |
| **1** | Occupational health and safety in Turkey and in the world |
| **2** | Work accidents and causes |
| **3** | Personal protective equipment |
| **4** | Workplace safety (workplace arrangement, hand tools and electrical tools and machines) |
| **5** | Occupational diseases and occupational diseases |
| **6** | Risk assessment and management |
| **7** | Risk assessment and management |
| **8** | Mid-Term Exam |
| **9** | Fire and emergency plans |
| **10** | Fire and emergency plans |
| **11** | Occupational health and safety organization |
| **12** | Occupational health and safety management systems |
| **13** | Occupational health and safety management systems |
| **14** | Occupational health and safety in laws and other relevant legislation |
| **15** | Occupational health and safety in laws and other relevant legislation |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **78** |
|  | **Total workload / 30** | | **2,6** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 1 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 5 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| COMPUTER AIDED DESIGN AND MANUFACTURING | 221414137 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 2 | 2 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | X | X |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Implementation of computer-aided design guidelines, Preparation of 2 and 3-dimensional drawings |
| **Short Course Content** | Creating two and three-dimensional drawings using a drawing program. sizing, scaling, and to be output on paper on created drawings |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Drawing 2 dimension | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |
| **2** | Drawing 3 dimension | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |
| **3** | Drawing files other software accurately and reliably transfers | 2,4,6,7,8,10 | 1,6,11,14 | A,D,E |

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| --- | --- |
| **Main Textbook** |  |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projection. |

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| **Course Schedule** | |
| **1** | Introduction to program and basic parameters |
| **2** | Layers and lines, drawing and modifying 2D geometrical objects |
| **3** | 2D measurement and tolerance, using plotter and printer |
| **4** | 3D drawing coordinate system and basic parameters |
| **5** | The creation of models and drawings of the draft |
| **6** | Modelling solids and surfaces, processes on solids and surfaces |
| **7** | Modelling solids and surfaces, processes on solids and surfaces |
| **8** | Mid-Term Exam |
| **9** | Modelling solids and surfaces, processes on solids and surfaces |
| **10** | Modify 3D drawings |
| **11** | Measurement on 3D models |
| **12** | Pictures to be ready for production, transferring to other software and systems |
| **13** | Computer aided manufacturing |
| **14** | Computer aided manufacturing |
| **15** | Computer aided manufacturing |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 4 | 56 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 12 | 12 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **138** |
|  | **Total workload / 30** | | **4,6** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SİVRİHİSAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| INTERNSHIP APPLICATIONS | 221414143 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 0 | 5 | 0 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  | x |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Compulsory |

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| --- | --- |
| **Prerequisite(s) if any** | No |
| **Objectives of the Course** | Business Application |
| **Short Course Content** | Internship work |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Business Application | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 | 6, 7, 8, 10, 11, 12 | E, K |

|  |  |
| --- | --- |
| **Main Textbook** |  |
| **Supporting References** |  |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Internship |
| **2** | Internship |
| **3** | Internship |
| **4** | Internship |
| **5** | Internship |
| **6** | Internship |
| **7** | Internship |
| **8** | Internship |
| **9** | Internship |
| **10** | Internship |
| **11** | Internship |
| **12** | Internship |
| **13** | Internship |
| **14** | Internship |
| **15** | Internship |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) |  |  |  |
| Classroom Studying Time (review, reinforcing, prestudy,….) |  |  |  |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) | 1 | 150 | 150 |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam |  |  |  |
| Studying for Mid-Term Exam |  |  |  |
| Final Exam |  |  |  |
| Studying for Final Exam |  |  |  |
|  | **Total workload** | | **150** |
|  | **Total workload / 30** | | **5** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| **Final Exam** | 100 |
| **Total** | 100 |

|  |  |  |
| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 5 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 5 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 5 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL** 

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| AIR CONDITIONING TECHNOLOGY | 221414141 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| X | X |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | No |
| **Objectives of the Course** | With this course, students will be provided with competencies regarding the basic physical concepts required for air conditioning and refrigeration applications. |
| **Short Course Content** | Basic physical quantities, Work, power and energy concepts  Simple heat transfer problems, flow rate and pressure loss values P-h diagram and Psychrometric diagram |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Ability to explain basic physical quantities, work, power and energy concepts | 2,3,4,6,8,10 | 1,5 | A |
| **2** | Solving simple heat transfer problems and calculating flow rate and pressure loss values | 2,3,4,6,8,10 | 1,5,10 | A |
| **3** | Ability to use P-h diagram and Psychrometric diagram | 2,3,4,6,8,10 | 1,5,10 | A |

|  |  |
| --- | --- |
| **Main Textbook** | Cooling Techniques and Applications (R. YAMANKARADENİZ, İ.HORUZ, S. COŞKUN) |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and projector |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Basic physical and chemical concepts, Unit systems |
| **2** | Latent and sensible heat, temperature and temperature measurement |
| **3** | Temperature unit conversions |
| **4** | Pressure and pressure measurement, Gas and gas laws |
| **5** | work, power, energy |
| **6** | Heat transfer and types of heat transfer: Conduction, convection and radiation |
| **7** | Types of heat transfer: Conduction, convection and radiation |
| **8** | Midterm |
| **9** | Basic fluid properties, flow types, continuity and energy equation, flow in channels and pipes |
| **10** | Definition of refrigeration, types of refrigeration, basic mechanical compression refrigeration cycle and application areas, examples |
| **11** | Refrigeration cycles shown on P-h diagram |
| **12** | P-h Diagram |
| **13** | P-h Diagram |
| **14** | Psychrometric Diagram |
| **15** | Psychrometric Diagram |
| **16,17** | Final Exams |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 4 | 2 | 8 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) | 3 | 4 | 12 |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Toplam iş yükü** | | **84** |
|  | **Toplam iş yükü / 30** | | **2,8** |
|  | **Dersin AKTS Kredisi** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 1 |
| **2** | The design of machine elements | 4 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 2 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 4 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 3 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| QUALITY CONTROL | 221414136 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The main aim of the course is to be able to discern basic electric issues, learning electric and alectronic circuit components |
| **Short Course Content** | Techniques to determine and solve quality problems, tolerances and specifications, statistical process control, control charts for quantitative / qualitative measurements, tools used for quality problems, the process and machine capability analysis, failure mode and effects analysis, inspection and acceptance sampling in production |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Describing relationship between production and quality control. | 1,4,5,6,10 | 1,10,11 | A |
| **2** | Learning the functions of the quality control in the machinery industry. | 1,4,5,6,10 | 1,10,11 | A |
| **3** | Applying the quality control methods. | 1,4,5,6,10 | 1,10,11 | A |
| **4** | Learning the measuring and quality control instruments in the quality control unit. | 1,4,5,6,10 | 1,10,11 | A |
| **5** | Applying quality control procedures for the raw materials, semi-finished and finished products. | 1,4,5,6,10 | 1,10,11 | A |

|  |  |
| --- | --- |
| **Main Textbook** | 1.Burnak, N. (1997) : Toplam Kalite Kontrolu : İstatistiksel Süreç Kontrolu, Osmangazi Üniv.,TEKAM yayın no:TS-97-008-NB, Eskişehir,  2.Kobu, B., Endüstriyel Kalite Kontrol, İÜ İşletme Fakültesi Yayın No. 3425,1987,İstanbul |
| **Supporting References** | Montgomery D.C. (2005) :Introduction to Statistical Quality Control, John Wiley&Sons, Inc., NewYork, |
| **Necessary Course Material** | Computer, projection, MINITAB |

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| --- | --- |
| **Course Schedule** | |
| **1** | Definition and importance of quality control |
| **2** | Quality control for the machinery industry |
| **3** | Concepts and methods of the statistical quality control |
| **4** | Tools for quality problems (practice) |
| **5** | Control Charts |
| **6** | Control Charts (practice) |
| **7** | Control Charts (practice) |
| **8** | Mid-Term Exam |
| **9** | Process capability analysis |
| **10** | Process capability analysis (practice) |
| **11** | Machine capability analysis |
| **12** | Machine capability analysis (practice) |
| **13** | Failure mode and effects analysis |
| **14** | Sampling plans and sampling methods |
| **15** | Sampling plans and sampling methods Project-practice |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 12 | 12 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,67** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 1 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 3 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 1 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| ADDITIVE MANUFACTURING TEKCHNOLOGY | 221414140 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 3 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To understand the basics of Additive Manufacturing and additive manufacturing methods, to have knowledge about the application areas, to have information about the differences of the methods, final product properties and materials used. It is to explain the advantages and disadvantages it has compared to traditional production methods. |
| **Short Course Content** | Having Knowledge About Additive Manufacturing and Learning to Use It in Addition to Traditional Manufacturing Methods |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Understand the basics of Additive Manufacturing and additive manufacturing methods | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **2** | To have knowledge about the devices used in additive manufacturing technologies and their capabilities | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **3** | To have knowledge about application areas, | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **4** | To have knowledge about the differences of the methods, final product properties and materials used. | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **5** | To be able to explain the advantages and disadvantages compared to traditional production methods. | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **6** | Knowing design concepts specific to additive manufacturing methods | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |
| **7** | Having knowledge about software used in additive manufacturing methods | 1,2,3,4,6,7,8,10 | 1,3,6,10,11,12,14 | A,C,D,J,K |

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| --- | --- |
| **Main Textbook** | Gibson, I., Rosen, D. W., Stucker, B., & Khorasani, M. (2021). Additive manufacturing technologies. Cham, Switzerland: Springer. |
| **Supporting References** |  |
| **Necessary Course Material** | Computer, projector |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Introduction to Additive Manufacturing: Transformation from rapid prototyping to advanced manufacturing method |
| **2** | Materials for Additive Manufacturing: Polymers |
| **3** | Additive Manufacturing technologies: Polymer-based production methods |
| **4** | Materials for Additive Manufacturing: Metals and ceramics |
| **5** | Additive Manufacturing technologies: Metal-based production methods |
| **6** | Additive Manufacturing technologies: Ceramic-based production methods |
| **7** | In Additive Manufacturing technologies: Integrated processes |
| **8** | Mid-Term Exam |
| **9** | Raw materias and part characterization in Additive Manufacturing |
| **10** | Additive Manufacturing of Composite Materials |
| **11** | Bioprinters |
| **12** | Design Concept in Additive Manufacturing |
| **13** | Additive manufacturing application areas |
| **14** | Additive Manufacturing Applications |
| **15** | Additive Manufacturing Applications |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 52 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 8 | 8 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **84** |
|  | **Total workload / 30** | | **2,8** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
|  |  |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 60 |
| **Total** | 100 |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 5 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 5 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| COMPUTER AIDED MANUFACTURING II | 221414138 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | X | X |  |  |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | In this course, using the CAM programs, two-dimensional, three-dimensional drawings is to gain competence to create tool paths for CNC milling machines. |
| **Short Course Content** | Explaining how to code and manufacture a CNC milling machines using the CAM program. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Using the CAM programs, two-dimensional, three-dimensional drawings is to gain competence to create tool paths for CNC milling machines | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **2** | Finish mill | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **3** | Create tool paths. | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **4** | NC codes to derive. | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |
| **5** | CNC milling machine parts to handle. | 1,2,3,4,6,7,8,10 | 1,6,11,14 | A,C,D,P |

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| **Main Textbook** | Mikell P. Groover, Principles of Modern Manufacturing, 2016 |
| **Supporting References** | ADDISON W.,Manufacturing Processes for Engineering Materials, 1999  AKKURT M., Talaş kaldırma bilimi ve teknolojisi CNC takım tezgahları ve üretim otomasyonu, 2012 |
| **Necessary Course Material** | Computer, projector, |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Two-dimensional section of the workpiece transfer process.To appear in the tool path. Cutter and tool holder used in selecting, creating cutting edge and tool holder |
| **2** | Selection process will be used. Surface milling process. Search for coarse and rough milling process. Hole drilling process. |
| **3** | Profile milling process. Channel milling process. Precision (finish) milling process. Making the tool path simulation |
| **4** | Transfer processing part of a three-dimensional workpiece. To appear in the tool path. Choose to use the cutting tool and tool holder, cutting tool and |
| **5** | Selection process will be used. Surface milling process. Search for coarse and rough milling process. Drilling. |
| **6** | Profile milling process. Channel milling process. Helical milling process. |
| **7** | Precision (finish) milling process. Precision surface and edge cleaning.Making the tool path simulation |
| **8** | Mid-Term Exam |
| **9** | Making a 4-axis milling. Indexing 4-axis machining. Continuous (simultaneous) 4-axis machining. Hole drilling. |
| **10** | Surface profile wrapping (Wrap). To rough milling. To finish milling. Making the tool path simulation. |
| **11** | Choosing to use 5-axis operation. Rough milling process. Hole drilling process. Profile milling process. |
| **12** | Side wall processing (Swarf). Precision (finishing) milling process. Making the tool paths simulation |
| **13** | NC codes counter code to derive the derivative (postprocessor) of choice. |
| **14** | NC codes to derive. Data transfer methods of CNC milling bench. Data transfer methods of CNC milling machines. |
| **15** | NC codes to derive. Data transfer methods of CNC milling bench. Data transfer methods of CNC milling machines. |
| **16,17** | Final Exam |

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| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 52 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **82** |
|  | **Total workload / 30** | | **2,73** |
|  | **Course ECTS Credit** | | **3** |
| **Evaluation** | | | |
| **Activity Type** | **%** | | |
| Mid-term | 40 | | |
|  |  | | |
|  |  | | |
|  |  | | |
|  |  | | |
| **Final Exam** | 60 | | |
| **Total** | 100 | | |

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| --- | --- | --- |
| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 4 |
| **2** | The design of machine elements | 3 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 5 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 5 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 5 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 4 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 5 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |

**ESOGU SIVRIHISAR VOCATIONAL SCHOOL**

**MACHINERY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| MECHANICS OF MATERIALS | 221414142 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Associate degree | Elective |

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To acquire and apply the basic knowledge necessary for the mechanics of materials and machine elements courses |
| **Short Course Content** | Introduction-concept of stress, Stress and strain-axial loading, Shear and bending-moment diagrams, Transformations of stress and strain, Torsion, Pure bending, Deflection of beams |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | To be able to recognize and identify the mechanics of  materials problem | 1,2,4,6,8,10 | 1,,10,11 | A,D |
| **2** | Define the problem | 1,2,4,6,8,10 | 1,,10,11 | A,D |
| **3** | Using the necessary formulas to solve the problem | 1,2,4,6,8,10 | 1,,10,11 | A,D |
| **4** | Conclusion To be able to evaluate, | 1,2,4,6,8,10 | 1,,10,11 | A,D |
| **5** | To be able to evaluate by evaluating the resultant solutions | 1,2,4,6,8,10 | 1,,10,11 | A,D |

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| --- | --- |
| **Main Textbook** | Cisimlerin Mukavemeti, F.P. Beer ve ark., Literatür Kitapevi, 2014 |
| **Supporting References** | Çözümlü Mukavemet Problemleri, Mustafa Savcı, Alaeddin Arpacı, Birsen  Yayınevi,1994.  Mukavemet. Prof.Dr. Mehmet H. OMURTAG, Birsen Yayınevi - 2005 |
| **Necessary Course Material** | Computer, projector |

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| **Course Schedule** | |
| **1** | General principles of mechanics of materials |
| **2** | Introduction-concept of stress |
| **3** | Shear and bending-moment diagrams |
| **4** | Shear and bending-moment diagrams |
| **5** | Stress and strain-axial loading |
| **6** | Stress and strain-axial loading |
| **7** | Transformations of stress and strain |
| **8** | Mid-Term Exam |
| **9** | Transformations of stress and strain |
| **10** | Transformations of stress and strain |
| **11** | Torsion |
| **12** | Pure bending |
| **13** | Deflection of beams |
| **14** | Deflection of beams |
| **15** | Deflection of beams |
| **16,17** | Final Exam |

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| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 1 | 14 |
| Homework | 2 | 7 | 14 |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam |  |  |  |
| Studying for Oral Exam |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 6 | 6 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 8 | 8 |
|  | **Total workload** | | **86** |
|  | **Total workload / 30** | | **2,87** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 30 |
| Homework | 20 |
|  |  |
|  |  |
|  |  |
| **Final Exam** | 50 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) | | |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Knows the general properties and uses of industrial materials, makes the selection of materials | 5 |
| **2** | The design of machine elements | 4 |
| **3** | Machining and welding machines and benches using chipless manufacturing can produce. | 1 |
| **4** | Mechanical technology needed for the measurement and control instruments with measuring, manufacturing control, quality control, statistics, quality management systems, planning, implementation, monitoring and remediation procedures can | 3 |
| **5** | Welded parts are produced in non-destructive test methods necessary to eliminate these errors by using the errors in determining the make the necessary adjustments. | 1 |
| **6** | Statistical errors, these errors will occur as a pre-determined machinery preventive maintenance can prevent the formation, in case of failure can make the necessary interventions | 3 |
| **7** | Work station parts of the CAD drawings, CNC bench can make the applications. CAD / CAM programs, runs | 1 |
| **8** | Engineering sciences and technology transfer of scientific principles into practice by doing calculations | 5 |
| **9** | Automatic control systems, pneumatic and hydraulic systems are indispensable elements of the work of staff and arranges repair. | 1 |
| **10** | All students throughout the program grows in Mechanical technician, working in the field of fault detection in industrial task definition, problem solving, decision making, and these people know that the function and planning of activities aiming to acquire these properties is provided. | 4 |
| **11** | Having occupational safety awareness and knowledge of worker health and occupational diseases, being able to provide first aid in case of work accidents | 1 |