**ESOGU**

**AIRCRAFT TECHNOLOGY PROGRAMME**

**COURSE INFORMATION PACKAGE – COURSE CATALOGUE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1st Year** | | | | | | | | |
| Course Code | Course name | T | P | | C | | ECTS | |
| **Fall Semester (1st Semester)** | | | | | | | | |
| 241011004 | Turkish Language I | 2 | | 0 | | 2 | | 2 |
| 241411002 | History of the Turkish Revolution & Principles of Atatürk I | 2 | | 0 | | 2 | | 2 |
| 241011005 | English I | 3 | | 0 | | 3 | | 2 |
| 241411004 | Mathematics I | 3 | | 0 | | 3 | | 3 |
| 241411013 | Aviation Rules | 2 | | 0 | | 2 | | 3 |
| 241411006 | Human Factors | 2 | | 0 | | 2 | | 3 |
| 241411007 | Aircraft Information I | 3 | | 0 | | 3 | | 5 |
| 241411008 | Basic Electricity | 3 | | 0 | | 3 | | 4 |
| 241411009 | Physics | 2 | | 0 | | 2 | | 3 |
| SSI | Social Elective Course I | 2 | | 0 | | 2 | | 3 |
| Total : | | 24 | | 0 | | 24 | | 30 |
| **Spring Semester (2nd Semester)** | | | | | | | | |
| 241012003 | Turkish Language II | 2 | | 0 | | 2 | | 2 |
| 241412002 | History of the Turkish Revolution & Principles of Atatürk II | 2 | | 0 | | 2 | | 2 |
| 241012004 | English II | 3 | | 0 | | 3 | | 2 |
| 241412004 | Mathematics II | 3 | | 0 | | 3 | | 5 |
| 241412005 | Aircraft Information II | 3 | | 0 | | 3 | | 5 |
| 241412006 | Basic Electronics | 3 | | 0 | | 3 | | 4 |
| 241412007 | Aircraft Structures and Systems | 3 | | 0 | | 3 | | 5 |
| 241412013 | Aerodynamics | 3 | | 0 | | 3 | | 4 |
| SSII | Social Elective Course II | 2 | | 0 | | 2 | | 3 |
| Total : | | 24 | | 0 | | **24** | | **30** |

***T:****Theoretic,* ***U:*** *Practice / Laboratory,* ***C:*** *Credit.*

|  |  |  |  |  |
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| **SOCIAL ELECTIVE COURSE I (SEI)** | |  | **SOCIAL ELECTIVE COURSE II (SEII)** | |
| 241411014 | Aviation Terminology |  | 241412014 | Professional Ethics |
| 241411015 | Science and Technology History |  | 241412015 | Measurement Technique |

**ESOGU**

**ENVIRONMENTAL CONSERVATION AND PROTECTION PROGRAM**

**COURSE INFORMATION PACKAGE – COURSE CATALOGUE**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2nd Year** | | | | | | | | | | |
| Course Code | Course Name | T | | | P | C | | | ECTS | |
| **Fall Semester (3rd Semester)** | | | | | | | | | | |
| 241413009 | Special Topics in Aviation | 2 | | 2 | | | 3 | | | 5 |
| 241413004 | Gas Turbine Engines | 3 | | 0 | | | 3 | | | 5 |
| 241413001 | Communication and Navigation | 3 | | 0 | | | 3 | | | 5 |
| TEI | Technical Elective Course I | 3 | | 0 | | | 3 | | | 5 |
| TEI | Technical Elective Course I | 3 | | 0 | | | 3 | | | 5 |
| TEI | Technical Elective Course I | 3 | | 0 | | | 3 | | | 5 |
| Total : | | 17 | | 2 | | | 18 | | | 30 |
| **Spring Semester (4th Semester)** | | | | | | | | | | |
| 241414009 | Aerospace Applications | | 2 | | 2 | | | 3 | | 5 |
| 241414005 | Internship | | 0 | | 2 | | | 0 | | 5 |
| 241414003 | Flight Performance | | 3 | | 0 | | | 3 | | 5 |
| TEII | Technical Elective Course II | | 3 | | 0 | | | 3 | | 5 |
| TEII | Technical Elective Course II | | 3 | | 0 | | | 3 | | 5 |
| TEII | Technical Elective Course II | | 3 | | 0 | | | 3 | | 5 |
| Bahar Dönemi Toplamı : | | | 14 | | 4 | | | 15 | | 30 |

***T:****Theoretic,* ***U:*** *Practice / Laboratory,* ***C:*** *Credit.*

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| **TECHNICAL ELECTIVE COURSE I (TEI)** | |  | **TECHNICAL ELECTIVE COURSE II (TEII)** | |
| 241413006 | Technical Drawing |  | 241414010 | Piston Engines |
| 241413010 | Aircraft Maintenance and Applications I |  | 241414011 | Aircraft Maintenance and Applications II |
| 241414012 | Propeller |
| 241413011 | Electronic Instrument System |  | 241414013 | Optimization in Aviation |
| 241413012 | Materials and Hardware |  | 241414014 | Unmanned Aerial Vehicles |
| 241413013 | Aviation Meteorology |  | 241414015 | Air Traffic Control Services |
| 241413008 | Aircraft Design Principles |  | 241414016 | Vocational Training in Business |

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| The History of the Principles and The Revolutions of Atatürk I | 241411002 |

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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** |
|  |  |  |  | 2 |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To provide historical awareness and to ensure that the basic principles on which our Republic is based are necessary for individual and social freedom. |
| **Short Course Content** | The Last Periods of the Ottoman Empire, Intellectual Movements to Save the Empire and the Historical Environment in which Mustafa Kemal Grew Up, World War I and the World Gaining a New Appearance. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student becomes aware of history and its importance. | 6,7,8 | 1 | A |
| **2** | Explains the environment before the establishment of the Republic of Turkey. | 6,7,8 | 1 | A |
| **3** | He realizes that the fundamental principles on which our Republic is based are necessary for individual and social freedom. | 6,7,8 | 1 | A |

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| **Main Textbook** | M. Derviş Kılıçkaya (ed.), “Atatürk ve Türkiye Cumhuriyeti Tarihi”, Ankara, 2005. |
| **Supporting References** | Atatürk, “Nutuk I-II”, Türk Tarih Kurumu Yayını, Ankara. |
| **Necessary Course Material** |  |

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| **Course Schedule** | |
| **1** | Concepts that have an important place in the course content: Principle, Revolution, Evolution, Reform, Revolution, Coup, Tanzimat; French Revolution and its Effect on the Turkish Revolution |
| **2** | The Ottoman Empire and the Causes of the Turkish Revolution |
| **3** | The Ottoman Empire and the Causes of the Turkish Revolution |
| **4** | The Weakening of the Ottoman Empire; Internal and External Causes of Decline |
| **5** | Renovation Efforts in the Ottoman Empire, Pre-Tanzimat Reform Movements, Tanzimat and Reform Edicts; Eastern Question |
| **6** | XIX. Political Situation of the Ottoman Empire in the 19th Century; Basic Features of the Century; Straits Problem and Independence Movements in the Ottoman Empire |
| **7** | I. Constitutional Monarchy, Declaration of the Constitution and the Birth of the Opposition; II. Declaration of the Constitutional Monarchy |
| **8** | Midterm Exams |
| **9** | Foreign Events (Tripolitan War, Balkan Wars); |
| **10** | II. Intellectual Movements in the Constitutional Monarchy Period: Westernism, Turkism, Islamism, Social Movement, Socialism (Midterm exam) |
| **11** | World War I: Causes and Beginning of the War |
| **12** | Participation of the Ottoman Empire in the War and the Fronts |
| **13** | Secret Treaties Concerning the Sharing of the Territories of the Ottoman Empire, Wilson Principles |
| **14** | Armistice of Mudros and Reactions to the Armistice |
| **15** | Armistice of Mudros and Reactions to the Armistice |
| **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 | 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 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **64** |
|  | **Total workload / 30** | | **2,13** |
|  | **Course ECTS Credit** | | **2** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Aviation Rules | 241411013 |

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| **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** |
|  |  |  |  | 3 |

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

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It is the examination of the Civil Aviation laws and rules of our country's EASA and FAA member countries. |
| **Short Course Content** | Regulatory Framework, Certifying Personnel – Maintenance, Approved Maintenance Organizations, Air Operations, Aircraft – parts and equipment certification, Continuing Airworthiness, Applicable National – International Requirements |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Our country's civil aviation authority is defined | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **2** | The structure of the General Directorate of Civil Aviation is summarized | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **3** | Requirements for membership in international organizations are determined | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **4** | International Aviation authorities are classified | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **5** | ICAO, EASA and FAA are defined | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **6** | International rules and national rules (CAR) are summarized | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **7** | The contents of SHY 145, SHY M, SHY 66, SHY 147 and SHY 6A regulations are described. | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **8** | Relationships between regulations are expressed | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |
| **9** | The usage areas of the regulations are interpreted | 1, 2, 5, 6, 7, 8 | 1,2,5,7,8,11,12 | A, B, D |

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| **Main Textbook** | Module 10 Aviation Regulations Textbook EASA Part 66 – Total Training Support – Module 10- Aaircraft Regulations |
| **Supporting References** | Megep, (2012), Aviation rules, T.R. National Education Publications, Ankara |
| **Necessary Course Material** | Projection, Computer |

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| **Course Schedule** | |
| **1** | Introduction, Aviation Authorities, ICAO. |
| **2** | ICAO, EASA and DGCA duties |
| **3** | Certifying Personnel, SHY 66 |
| **4** | Certifying Personnel, SHY 66 |
| **5** | Approved Maintenance Organizations Regulation, SHY 145 |
| **6** | Approved Maintenance Organizations Regulation, SHY 145 |
| **7** | Introduction, Aviation Authorities, ICAO. |
| **8** | Midterm Exams |
| **9** | Aircraft Maintenance Training Organizations Regulation, SHY 147 |
| **10** | Aircraft Maintenance Training Organizations Regulation, SHY 147 |
| **11** | School Recognized within the Scope of SHY-147 |
| **12** | Air Operations, Commercial Air Transportation |
| **13** | Certification of Aircraft and Parts |
| **14** | Applicable National and International Requirements |
| **15** | Aircraft Maintenance Training Organizations Regulation, SHY 147 |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 1 | 10 | 10 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 2 | 8 |
| 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 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 100 |
|  | **Total workload / 30** | | **3,33** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Associate Prof Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Human Factors | 241411006 |

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| --- | --- | --- | --- | --- |
| **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** |
|  |  |  |  | 3 |

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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To examine human factors in aircraft maintenance activities and to raise awareness about ensuring safety among graduates who will work in the maintenance system in the future. |
| **Short Course Content** | 1. General: The need to consider human factors; Incidents attributable to human factors/human errors; "Murphy" Law  2. Human Performance and Limitations:  3. Social Psychology:  4. Factors Affecting Performance: Fitness/health; Stress: Family and work related; Pressures related to time pressure and time to complete the work; Workload: Overload and underload; Sleep and excessive fatigue, shift work; Alcohol, medication and drug use.  5. Physical Environment: Noise and smoke; Lighting, Climate and temperature; Movement and vibration; working environment  6. Duties: Physical work; Repetitive tasks, Visual inspection (control); Complex (complex) systems.  7. Communication: Communication within and between teams; Study writing and record keeping; Keeping it current and valid; Dissemination/dissemination/sharing of information.  8. Human Error: Error models and theories; Types of errors in maintenance tasks; Consequences arising from errors (i.e. accidents); Avoidance and management errors.  9. Workplace Hazards: Recognizing and avoiding hazards; Ability to deal with emergencies. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will know the effects of human error on the system. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **2** | Will be able to identify human error patterns. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **3** | Will be able to explain the human information processing process. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **4** | Knows individual and organizational factors. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **5** | Knows stress and workload. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **6** | Will be able to explain automation and human-machine interaction. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |
| **7** | Will be able to discuss human factors situations in future aviation systems. | 1,2,5,6,7,8 | 1,2,5,7,8,11,12 | A, B, D |

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| **Main Textbook** | Total Training Support, Integrated Training System, Module 9 – Human Factors for EASA Part 66 (2010). |
| **Supporting References** | Aviation Safety, T.R. Anadolu University Publication No: 3275 Open Education Faculty Publication No: 2138, Eskişehir, Türkiye |
| **Necessary Course Material** | computer and projector |

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| **Course Schedule** | |
| **1** | The need to consider human factors; |
| **2** | Human Performance and Limitations I |
| **3** | Human Performance and Limitations II |
| **4** | Social Psychology I |
| **5** | Social Psychology II |
| **6** | Factors Affecting Performance |
| **7** | Factors Affecting Performance |
| **8** | Midterm Exams |
| **9** | Physical Environment |
| **10** | Tasks |
| **11** | Communication |
| **12** | Human mistake |
| **13** | Human mistake |
| **14** | Workplace Hazards |
| **15** | Plane Accidents- 1 |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 1 | 10 | 10 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 2 | 8 |
| 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 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | **100** |
|  | **Total workload / 30** | | **3,33** |
|  | **Course ECTS Credit** | | **3** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 3 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 3 |
| 6 | Having social, scientific and ethical values | 5 |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 5 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Associate Prof Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| English I | 241011005 |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | 2 |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| English | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The course aims to teach basic English grammar, speaking, writing, reading, and listening skills. |
| **Short Course Content** | Basic Concepts in English. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Identification of basic grammar of English | 6,7,8 | 1 | A |
| **2** | Understanding English dialogues | 6,7,8 | 1 | A |
| **3** | Understanding English texts in the technical field | 6,7,8 | 1 | A |
| **4** | Communication English in written and verbal form | 6,7,8 | 1 | A |

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| **Main Textbook** | 1.English For Life, Elementary Student’s Book, Oxford University Press 2.English For Life, Elementary Workbook, Oxford Universty Press 3.English For Life, Pre-intermediate Student’s Book, Oxford University Press 4.English For Life, Pre-intermediate Workbook, Oxford University Press |
| **Supporting References** | 1.Murphy, R., 2004, English Grammar in Use, Cambridge University Press, 2.Dictionary of Contemprary English, Longman. 3.Start Up Comprehensive English Practice, 2007, Nüans Publishing, |
| **Necessary Course Material** | Explanation of the topics, repetition with example sentences, exercises carried out with student participation, listening to and repeating listening pieces, workbook exercises |

|  |  |
| --- | --- |
| **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** | 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 |
| **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-terms |
| **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** | 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 |
| **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,….) | 5 | 2 | 10 |
| 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 | 15 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 15 | 10 |
|  | **Total workload** | | **72** |
|  | **Total workload / 30** | | **2,4** |
|  | **Course ECTS Credit** | | **2** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Science and Technology History | 241411015 |

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| --- | --- | --- | --- | --- |
| **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** |
|  |  |  |  | 3 |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | While telling the story of the birth and development of science to students, at the same time to monitor and clarify the way of thinking brought by science and the birth and development of scientific concepts, theories and understanding. |
| **Short Course Content** | Science and Technology in Prehistory and Ancient Greece, Science and Technology in the Roman Period and the Middle Ages, Science and Technology in the Islamic Period for the Turks, History of Science and Technology, Science and Technology in the Ottomans |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student gains knowledge about the development of science and technology. | 6,7, 8 | 1 | A |
| **2** | The student learns to learn from what happened in history and plan the future accordingly. | 6,7, 8 | 1 | A |
| **3** | The student gains scientific enthusiasm and investigative personality by being influenced by the life stories of scientists and important scientific developments.; | 6,7, 8 | 1 | A |

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| --- | --- |
| **Main Textbook** | Bilim ve Teknoloji Tarihi T.C. Anadolu Üniversitesi Yayını No: 3625 Açık Öğretim Fakültesi Yayını No: 2453 |
| **Supporting References** |  |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Science and Technology in Prehistoric Times |
| **2** | The Birth of Science and Technology |
| **3** | Thales and His Students |
| **4** | Atomic Universe Theory |
| **5** | Alexandria Mechanical School |
| **6** | Roman Era Technology |
| **7** | Epicureanism and Stoicism |
| **8** | Midterm Exams |
| **9** | Scientific Developments in the Medieval Christian World |
| **10** | Scientific Institutions in the Medieval Islamic World |
| **11** | Technological Studies in the Medieval Islamic World |
| **12** | The Effects of Turks on Science and Technology in the Period of Their Conversion to Islam |
| **13** | Science in the Renaissance |
| **14** | Science during the Enlightenment 17th and 18th Centuries |
| **15** | Classical Ottoman Science Tradition and Institutions |
| **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 | 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Total workload** | | **84** |
|  | **Total workload / 30** | | **2,8** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Turkish Language I | 241011004 |

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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** |
|  |  |  |  | 2 |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The subject of the course is to expose the value of Turkish language by giving information about the development of Turkish language, to gain national language awareness, to develop reading and writing skills, to compare and contrast the Turkish language to other languages, to compare and contrast language policy of developed countries to Turkish language policy, to gain skill of speaking. |
| **Short Course Content** | Description and features of language, languages of the world, Position of Turkish among other languages, historical development of Turkish, development of western Turkish, Atatürk’s ideas and projects on Turkish, pronunciation 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 on Earth and the place of Turkish among world languages.** | 6,7,8 | 1 | A |
| **2** | **The student defines the rules of Turkish.** | 6,7,8 | 1 | A |
| **3** | **The student identifies phonological processes.** | 6,7,8 | 1 | A |
| **4** | **The student applies spelling rules.** | 6,7,8 | 1 | A |
| **5** | **The student creates written and oral compositions.** | 6,7,8 | 1 | A |
| **6** | **The student uses Turkish correctly.** | 6,7,8 | 1 | A |

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| **Main Textbook** | 1. Kültür, M. E., “Üniversiteler İçin Türk Dili”, Bayrak Yayınları, İstanbul, 1997.2. “Türk Dil Yazım Kılavuzu”, TDK Yayınları, 24. baskı, Ankara, 2005. |
| **Supporting References** | 1. Kaplan, M., “Kültür ve Dil”, 8. baskı, ,Dergah Yayınları, İstanbul, 1993.2.Fuat, M., “Dil Üstüne”, Adam Yayınları, İstanbul, 2001. |
| **Necessary Course Material** | - |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | **Definition and Characteristics of Language** |
| **2** | **Languages on Earth and the Structural and Historical Place of Turkish among World Languages** |
| **3** | **The Importance of Language in Terms of Culture and Nation, Language Policies** |
| **4** | **Spoken Language and Its Characteristics (Dialect, Accent, Vernacular)** |
| **5** | **Written Language and Its Characteristics** |
| **6** | **Classification of Sounds** |
| **7** | **Sound Changes, Phonological Processes** |
| **8** | **Midterm Exams** |
| **9** | **Spelling Rules** |
| **10** | **Spelling Rules** |
| **11** | **Spelling Rules** |
| **12** | **Spelling Rules** |
| **13** | **Written Composition Exercises** |
| **14** | **Planned Composition Writing Exercises** |
| **15** | **Planned Composition Writing Exercises** |
| **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,….) | 5 | 2 | 10 |
| 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** | | **64** |
|  | **Total workload / 30** | | **2,13** |
|  | **Course ECTS Credit** | | **2** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Physics | 241411009 |

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| **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** |
|  | 2 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to teach the basic principles of physics and to gain the ability to calculate by supporting the concepts with experiments.  This course helps students understand basic physical quantities and units, make their transformations, and make calculations related to thermal and fluid systems. |
| **Short Course Content** | Unit systems, vectors, balance and equilibrium conditions, laws of motion, work, power, energy, heat and temperature, flow in channels and pipes, pressure loss. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | By understanding basic physical quantities and units, their transformations can be made. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Vectors, Vector and Scalar quantities can be defined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Static and dynamic systems can be distinguished | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | The concepts of Impulse, Momentum and Mass can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Uniform linear and circular motion can be distinguished. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Motion in Two Dimensions and Newton's Laws of Motion can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | The concepts of work, power and energy are known and can be expressed with relations. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Laws and principles of thermodynamics can be defined | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Calculations related to fluid systems can be made | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Heat transfer concepts can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** | Physics for Universities  Prof. Dr. Bekir Karaoglu  Barcode / ISBN:  9789750261206 |
| **Supporting References** | Instructor notes |
| **Necessary Course Material** | Projection, Computer |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Physical Quantities and Unit Systems |
| **2** | Vectors, Scalar and Vector Quantities |
| **3** | Statics (Vector, Force, Moment, Balance, Mass and Center of Gravity) |
| **4** | Newton's Laws of Motion |
| **5** | Dynamics (Velocity, Acceleration, Free Fall, Laws of Friction) |
| **6** | Work, Power, Energy |
| **7** | Work, Power, Energy |
| **8** | Midterm Exams |
| **9** | Impulse, Momentum and Mass |
| **10** | Rotational Motion of Solid Objects |
| **11** | Balance and Harmonic Movement |
| **12** | Temperature and Heat |
| **13** | Laws of Thermodynamics |
| **14** | Fluid mechanics |
| **15** | Heat Transfer principles |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 2 | 5 | 10 |
| Quiz Exam | 3 | 1 | 3 |
| Studying for Quiz Exam | 2 | 2 | 4 |
| 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | **102** |
|  | **Total workload / 30** | | **3,4** |
|  | **Course ECTS Credit** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

|  |  |  |
| --- | --- | --- |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| --- | --- | --- | --- | --- |
| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aircraft Information-1 | 241411007 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 3 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Within the scope of this course, it is aimed for the student to have basic aircraft knowledge, aircraft components and basic flight performance parameters. |
| **Short Course Content** | With this course, the student learns to express the physical properties of the atmosphere, the theory of flying, basic aircraft performance parameters, structural loads and load coefficient.  The student will be able to express basic aircraft performance parameters. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The physical properties of the Atmosphere and Air can be defined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | International standard atmosphere can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | The theory of flight may express | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Basic principles (aerostatics, aerodynamics) can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Aircraft can be classified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | The basic components that make up the aircraft can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Can express basic aircraft performance parameters | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Permanent flight can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | The bending movement can be explained. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Structural loads and load coefficient can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Getting Started with Flight for Aerospace Engineers “Introduction to Flight”  Author: John D. Anderson Jr.  Translator: Adil Yükselen  Publisher: Nobel Academic Publishing |
| **Supporting References** | Aircraft technical documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Modules, Aircraft Maintenance Manual)" |
| **Necessary Course Material** | Projection, Computer |

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| --- | --- |
| **Course Schedule** | |
| **1** | Atmospheric physics: Physical properties of air, International standard atmosphere |
| **2** | Flight theory: Aerostatic cling |
| **3** | Flight theory: Aerodynamic grip |
| **4** | Angle of attack, Aerodynamic force and its components, Aerodynamic moment, L/D ratio |
| **5** | Aircraft aerodynamics: Air flow, Boundary layer, Boundary layer control |
| **6** | Airfoils |
| **7** | Basic Aircraft Components |
| **8** | Midterm Exams |
| **9** | Auxiliary Aircraft Components |
| **10** | Stall |
| **11** | High transport devices |
| **12** | Drag |
| **13** | Induced drag |
| **14** | Basic performances (steady flight, cornering) |
| **15** | Structural loads and load coefficient |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,7** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Aviation Terminology | 241411014 |

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| --- | --- | --- | --- | --- |
| **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 |  |  |  | x |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | The aim of this course is to enable students to have knowledge about aviation terms they will encounter in their working life and to have a good command of the aviation industry. |
| **Short Course Content** | Communication and its Importance, Aviation alphabet, Air transport terms, Airport terms, Air terms, Aircraft terms, Flight terms, Aircraft control surfaces, Cabin & kitchen terms, Toilet terms, Emergency terms, Catering terms, Document terms, Health & first aid terms, Passenger terms, Ticket processing & passenger pick-up terms, Personal goods terms. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Define the National Authorities and Aviation Language | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Define the International Aviation Authorities and Aviation Language | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Understand the Air Vehicles | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Understand the Air Transport and the Basic Terminology | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Basic Terms used at the Airport can be interpreted | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Basic Terms used in Flight can be interpreted | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Understand the Importance of Quality and Human Factors | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Understand Basic Terminology Used in Emergency and Healthcare | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Masters airport codes. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Uses the aviation alphabet. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | MEB. (2011).Havacılık Terminolojisi, Ankara, Meb Yayınları. |
| **Supporting References** | İstanbul Üniversitesi Açık ve Uzaktan Eğitim Fakültesi (2017). Havacılık İşletmeciliği Terminolojisi.  D H M İşletmesi 2011. Havacılık Terimleri Sözlüğü  Tuncay H 2014 Havacılık Terimleri ve Kısaltmalar Sözlüğü Aviation Dictionary of Terms and Abbreviations Yalın Yayıncılık |
| **Necessary Course Material** | Square, protractor, compass and calculator. |

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| **Course Schedule** | |
| **1** | The Concept of Terminology The Importance of Using Correct Terminology for Flight Safety |
| **2** | The Concept of Terminology The Importance of Using Correct Terminology for Flight Safety |
| **3** | Concepts Related to Civil Aviation Sector Concepts Related to Subsidiary/Complementary Sectors of Civil Aviation |
| **4** | International and National Civil Aviation Organizations and Authorities |
| **5** | Aviation alphabet |
| **6** | Codings Used in Passenger Services and Equivalents |
| **7** | Passenger and crew codes / Special passenger categories |
| **8** | Midterm Exams |
| **9** | Operation - Apron - Airport Transportation Services |
| **10** | Flight and Weather Terms and Equivalents |
| **11** | Flight and Weather Terms and Equivalents |
| **12** | Terms and Equivalents for Aircraft and Its Important Parts |
| **13** | Aircraft Kitchen with Cockpit and Cabin |
| **14** | Ticketing and Fees (Passenger, Baggage and Cargo) |
| **15** | Cargo Services |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 3 | 3 | 9 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 2 | 8 |
| 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Toplam iş yükü** | | 98 |
|  | **Toplam iş yükü / 30** | | **3,27** |
|  | **Dersin AKTS Kredisi** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 4 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 3 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 5 |
| 4 | Having basic knowledge about the performance of aircraft. | 3 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 3 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 4 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 4 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 4 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Mathematics I | 241411004 |

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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** |
| 4 |  |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | Ability to work with numbers, calculate LCM, GCD, absolute value. Solving equations, functions, exponential, logarithmic, trigonometric and hyperbolic functions and drawing plots, ability to perform vector operations, matrices, matrix operations, equation solving with matrices. |
| **Short Course Content** | 1) Learn to work with numbers, calculate LCM, GCD, absolute value.  2) Learning equation solving, functions, exponential, logarithmic, trigonometric and hyperbolic functions and drawing plots  3) Learning vector operations, matrices, matrix operations, equation solving with matrices.  4) Applications about his/her profession |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Recognizes the roll of mathematics | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Interpret the basis of set theory | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Explain operations on numbers | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Explains operations on natural numbers | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Interprets the notions MCD and MCM | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Recognizes rational numbers | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Recognizes real numbers | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Describes operations on real numbers | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Knows basic geometric concepts | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Gains knowledge about solid objects. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** | Lecture notes |
| **Supporting References** | 1) Anadolu Üniversitesi Yayınları Genel Matematik. Eskişehir 2)  Görgülü,A.(2000) Genel Matematik. Eskişehir3)  Şenel  M. , Orhun N.  , Tüzemen Ş. ( 2003)  Genel Matematik. Eskişehir4) Yıldız E. (2004)  Genel Matematik. Trabzon 5)  Argün Z.  (2001)  Temel Matematik. Ankara : Seçkin Yayınevi |
| **Necessary Course Material** | Square, protractor, compass and calculator. |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Numbers (integers, rational numbers) |
| **2** | Numbers (Exponential numbers, Root numbers, absolute value) |
| **3** | Equations and Inequalities (1st degree equations and their solutions) |
| **4** | Equations and Inequalities (2nd degree equations and solutions) |
| **5** | Functions and Graphs (logarithmic) |
| **6** | Functions and Graphs (polynomial) |
| **7** | Functions and Graphs (polynomial) |
| **8** | Midterm Exams |
| **9** | Functions and Graphs (Exponential) |
| **10** | Functions and Graphs (trigonometric) |
| **11** | Basic Geometry (Angle, Triangle) |
| **12** | Basic Geometry (Rectangle, Polygon, Circle, Circle) |
| **13** | Basic Geometry (Rectangle, Polygon, Circle, Circle) |
| **14** | Solid Body (Environment and Spatial account) |
| **15** | Solid Body (Volume account) |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 3 | 9 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 2 | 8 |
| 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Toplam iş yükü** | | 98 |
|  | **Toplam iş yükü / 30** | | **3,27** |
|  | **Dersin AKTS Kredisi** | | **3** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Basic Electric | 241411008 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 1 | 3 | 0 | 3 | 4 |

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

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

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| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | It is aimed for the student to learn the basic electrical terms and to have knowledge about electricity production-electricity resources. |
| **Short Course Content** | Electron theory, electrical terminology, electricity generation, DC electricity sources, AC theory |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to explain the static electricity and conduction. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Explain the Coulomb’s Law. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Recognize conduction of electricity in solids, liquids, gases and a vacuum. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to explain the basic concepts related to DC circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Reconize the concepts of electrical charge, current, voltage, energy, power, open circuit, short circuit, series and parallel elements, resistance, inductance and capacitance. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Calculate current, voltage, power, resistance, inductance and capacitance. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Will be able to do steady-state analysis of linear circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Analyze circuits using Kirchhoff’s Laws, or loop or nodal analysis methods. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Find and analyze time constant of RL circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Find and analyze time constant of RW circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Total Training Support (TTS) Module 3 Electrical Fundamentals, 2016 |
| **Supporting References** | 1. Uçak Bakım MEGEP Modülü-Dirençler ve Temel Elektrik Kanunları (522EE0005) 2. Uçak Bakım MEGEP Modülü-Elektrik Kabloları ve Konnektörler (525MT0012) 3. Uçak Bakım MEGEP Modülü-Elektrik Yükü ve Elektrik Üretimi(522EE0003) 4. Uçak Bakım MEGEP Modülü-Kapasitans-kondansatör (525MT0011) 5. Uçak Bakım MEGEP Modülü-Yarı iletken (522EE0006) 6. Uçak Bakım MEGEP Modülü-DC Motor ve Generatör(522EE0026) 7. Uçak Bakım MEGEP Modülü-Uçak Elektriksel Güç Üniteleri |
| **Necessary Course Material** | Square, protractor, compass and calculator. |

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| **Course Schedule** | |
| **1** | Electron Theory |
| **2** | Static Electricity and Conduction/Transmission |
| **3** | Electrical Terminology |
| **4** | Electrical Terminology |
| **5** | Electricity Generation |
| **6** | Electricity Generation |
| **7** | Electricity Generation |
| **8** | Midterm Exams |
| **9** | DC Circuits |
| **10** | DC Electric Sources |
| **11** | DC Electric Sources |
| **12** | DC Electric Sources |
| **13** | AC Theory |
| **14** | AC Theory |
| **15** | AC Theory |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Toplam iş yükü** | | **128** |
|  | **Toplam iş yükü / 30** | | **4,27** |
|  | **Dersin AKTS Kredisi** | | **4** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aircraft Structures and Systems | 241412007 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Introducing the structural elements and systems that make up the aircraft. |
| **Short Course Content** | Flight theory, rotary wing aerodynamics, flight control systems, blade tracking and vibration analysis, transmission, helicopter fuselage structures and systems, air conditioning |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Flight theory – can explain rotary wing aerodynamics | 2,4,7,8,12 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Can recognize flight control systems | 2,3,4,7,8,12,15 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Knows helicopter body structure and systems. | 2,3,4,7,8,15 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Knows air conditioning systems | 2,7,8,10,15 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Knows the working principle and functions of transmissions. | 2,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 12 |
| **Necessary Course Material** | Projection, PC |

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| --- | --- |
| **Course Schedule** | |
| **1** | Flight Theory – Rotary Wing Aerodynamics |
| **2** | Flight Control Systems (Cycle) |
| **3** | Flight Control Systems (Collective) |
| **4** | Flight Control Systems (Tail Rotor Propeller) |
| **5** | Main Rotor and Tail Rotor Systems |
| **6** | Blade Tracking and Vibration Analysis |
| **7** | Blade Tracking and Vibration Analysis |
| **8** | Midterm Exams |
| **9** | Transmissions |
| **10** | Transmissions |
| **11** | Helicopter Motion Transmission Systems |
| **12** | Helicopter Hull Structure and Systems |
| **13** | Air Conditioning Systems |
| **14** | Air Conditioning Systems |
| **15** | Air Conditioning Systems |
| **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,….) | 5 | 3 | 15 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 150 |
|  | **Total workload / 30** | | **5** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 4 |
| 4 | Having basic information about aircraft performance | 2 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 2 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 2 |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 3 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**28.11.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aerodynamics | 241412013 |

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

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 4 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Within the scope of SHT-66 Module 8, to provide basic aerodynamics knowledge for aircraft and to make basic calculations on the subject. |
| **Short Course Content** | Atmospheric physics, Air flow around an object, Boundary layer, laminar and turbulent flow, free flow, relative airflow, eddies, stagnation of flow, Obliquity, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, center of pressure, attack angle, roughness ratio, smoothness ratio, wing shape and visibility ratio, Thrust, Weight, Aerodynamic Result; Formation of transport and drag; Angle of Attack, Lift coefficient, Drag coefficient, polar tilt, Relationship between lift, weight, thrust and drag |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The fundamental equations of aerodynamics can be expressed | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | The difference between non-viscous flow and viscous flow is defined. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | The occurrence of transport and drag is expressed. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | The speed of sound and its importance in aviation can be expressed | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | The working principle of wind tunnels can determine aircraft speed measurement. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Differences between compressible and incompressible flow can be expressed. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Differences between laminar and turbulent flows can be determined | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Drag types are expressed in detail. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | The source and effects of induced drag are identified. | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Arrow angle wings, critical Mach number, and drag divergence Mach number can be defined | 1,2,4,5,6,7,8,10,12 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Aerodinamiğin Esasları, John D. Anderson (Eser Sahibi), Adil Yükselen (Çevirmen), Osman Ergüven Vatandaş (Çevirmen), Nobel Yayınevi |
| **Supporting References** | Modül 10 Havacılık Mevzuatı Ders Kitabı EASA Part 66 – Total Training Support Module 10- Aaircraft Regulations  Megep, (2012), Havacılık kuralları, T.C. Milli Eğitim Yayınları, Ankara |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Standard Atmosphere Concept |
| **2** | Standard Atmosphere Concept |
| **3** | Introducing the concepts of pressure, temperature, density and speed |
| **4** | Frictionless flow, Continuity equation, Bernoulli equation |
| **5** | Energy equations, Concept of Isentropic flow |
| **6** | Measurement of sound speed, explanation of subsonic, sonic and supersonic speed concepts |
| **7** | Calculating the speed of sound and discussing its effects on aviation |
| **8** | Midterm Exams |
| **9** | Discuss the concepts of Lift and Drag by explaining the main forces acting on aircraft. |
| **10** | Measuring aircraft speed and explaining the wind tunnel working mechanism |
| **11** | Explanation of compressible flow and introduction to viscous flow |
| **12** | Explaining the concepts of laminar and turbulent flow by expressing viscous flows |
| **13** | Learning current separation and explaining drag types |
| **14** | Explaining Infinite and Finite wings and discussing induced drag |
| **15** | Swept angle wings, critical Mach number, drag divergence Mach number definition |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 1 | 4 |
| 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 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 117 |
|  | **Total workload / 30** | | **3,9** |
|  | **Course ECTS Credit** | | **4** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| The History of the Principles and The Revolutions of Atatürk II | 241412002 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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** |
|  |  |  |  | 2 |

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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To provide historical awareness and to ensure that the basic principles on which our Republic is based are necessary for individual and social freedom. |
| **Short Course Content** | The Last Periods of the Ottoman Empire, Intellectual Movements to Save the Empire and the Historical Environment in which Mustafa Kemal Grew Up, World War I and the World Gaining a New Appearance. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The student becomes aware of history and its importance. | 6,7,8 | 1 | A |
| **2** | Explains the environment before the establishment of the Republic of Turkey. | 6,7,8 | 1 | A |
| **3** | He realizes that the fundamental principles on which our Republic is based are necessary for individual and social freedom. | 6,7,8 | 1 | A |

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| **Main Textbook** | M. Derviş Kılıçkaya (ed.), “Atatürk ve Türkiye Cumhuriyeti Tarihi”, Ankara, 2005. |
| **Supporting References** | Atatürk, “Nutuk I-II”, Türk Tarih Kurumu Yayını, Ankara. |
| **Necessary Course Material** |  |

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| **Course Schedule** | |
| **1** | Armistice of Mudros and Turkey during the Armistice Period, Istanbul after the Armistice, Patriotic Parties and Societies in Istanbul. |
| **2** | Parties and Institutions Against the War of Independence, Societies Established by Minorities, National Societies Established for the Purpose of Fighting the Enemy, Mustafa Kemal's Arrival in Istanbul and His Activities in Istanbul. |
| **3** | Mustafa Kemal Pasha's Sending to Anatolia as an Army Inspector and His Landing in Samsun on May 19, 1919, Greek Occupation of Izmir and Reactions, Kuvayi-ı Milliye, Mustafa Kemal's Arrival in Samsun and Its Surroundings |
| **4** | Amasya Circular, Erzurum Congress.. Balıkesir and Alaşehir Congresses and the Formation of the National Front Against the Greeks, Sivas Congress and its Results. |
| **5** | The Fall of Damat Ferit Pasha's Government, the Relations between the Ali Rıza Pasha Government and the Representative Committee and the Amasya Meetings, the Last Ottoman Parliament and the National Pact Decisions, the Opening of the Turkish Grand National Assembly |
| **6** | Structure of the Grand National Assembly of Turkey, Formation of the Government of the Grand National Assembly of Turkey and Its Handling of Management. Rebellions Supported by the Istanbul Government Against the Grand National Assembly of Turkey and its Government and the National Police Movement, the Greek Operation and the Treaty of Sèvres |
| **7** | Gediz Offensive and the Establishment of Regular Armies, Ankara-Moscow Relations and the Eastern Front. The First Battle of İnönü and Political Developments, "The Constitution of the Essential Organization", London Conference, Treaty of Moscow. |
| **8** | Midterm Exams |
| **9** | II. Battles of İnönü and Its Political Effects, New Greek General Offensive, Mustafa Kemal's Election as Commander-in-Chief and Tekalif-i Milliye Decisions, Sakarya Square Battle. |
| **10** | Great Offensive Operation, Mudanya Armistice and Its Implementation, Lausanne Conference and Peace Treaty. (Midterm) |
| **11** | Turkish Domestic Policy during the Ataturk Period, Ankara's Becoming the Capital, Proclamation of the Republic, Abolition of the Caliphate, Establishment of the Progressive Republican Party and Sheikh Sait Rebellion - Izmir Assassination Attempt, S. |
| **12** | Foreign Policy of the Ataturk Era, Population Population Exchange Problem, Mosul Problem, Balkan Pact, Montreux Straits Convention, Sadabat Pact, Hatay Problem, Revolutionary Movements: Law, Education, Culture, Economy and Social |
| **13** | Ataturk's Principles: Republicanism, Nationalism, Populism, Secularism, Statism, Revolutionism |
| **14** | Ataturk's Principles: Republicanism, Nationalism, Populism, Secularism, Statism, Revolutionism |
| **15** | Ataturk's Principles: Republicanism, Nationalism, Populism, Secularism, Statism, Revolutionism |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 2 | 10 |
| 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 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 15 | 15 |
|  | **Total workload** | | **70** |
|  | **Total workload / 30** | | **2,33** |
|  | **Course ECTS Credit** | | **2** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| English II | 241012004 |

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

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | 2 |

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| **Course Language** | **Course Level** | **Course Type** |
| English | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It is a course developed to improve English language concepts of tense at an intermediate level, how to construct sentences, respond by understanding what is spoken, and increase vocabulary knowledge. |
| **Short Course Content** | Basic Concepts in English |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Identification of basic grammar of English | 6,7,8 | 1 | A |
| **2** | Understanding English dialogues | 6,7,8 | 1 | A |
| **3** | Understanding English texts in the technical field | 6,7,8 | 1 | A |
| **4** | Communication English in written and verbal form | 6,7,8 | 1 | A |

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| **Main Textbook** | 1.English For Life, Elementary Student’s Book, Oxford University Press 2.English For Life, Elementary Workbook, Oxford Universty Press 3.English For Life, Pre-intermediate Student’s Book, Oxford University Press 4.English For Life, Pre-intermediate Workbook, Oxford University Press |
| **Supporting References** | 1.Murphy, R., 2004, English Grammar in Use, Cambridge University Press, 2.Dictionary of Contemprary English, Longman. 3.Start Up Comprehensive English Practice, 2007, Nüans Publishing, |
| **Necessary Course Material** | Explanation of the topics, repetition with example sentences, exercises carried out with student participation, listening to and repeating listening pieces, workbook exercises |

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| **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** | Midterm Exams |
| **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** | 10C present perfect simple - technology - contractions - talk about past experiences - understand an interview - understanding time expressions 10D give a compliment |
| **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,….) | 5 | 2 | 10 |
| 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 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 15 | 15 |
|  | **Total workload** | | **84** |
|  | **Total workload / 30** | | **2,8** |
|  | **Course ECTS Credit** | | **3** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| Professional Ethics | 241412014 |

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

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| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  |  |  |  | 3 |

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

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | This course aims to provide students with competencies regarding professional ethics and social responsibilities. |
| **Short Course Content** | Concepts of ethics and morality, factors that play a role in the formation of morality, professional ethics and the concept of social responsibility |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Examining the concepts of ethics and morality | 6,7,8 | 1 | A |
| **2** | To understand the principles of professional ethics | 6,7,8 | 1 | A |
| **3** | To raise awareness about social responsibilities | 6,7,8 | 1 | A |

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| **Main Textbook** | “Meslek Etiği”, Doç. Dr. Menşure Kolçak, Murathan Yayıncılık |
| **Supporting References** |  |
| **Necessary Course Material** |  |

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| **Course Schedule** | |
| **1** | Examining the Concepts of Ethics and Morality |
| **2** | Examining the Concepts of Ethics and Morality |
| **3** | Examining Ethics Systems |
| **4** | Examining the Factors Playing a Role in the Formation of Morality |
| **5** | Examining Professional Ethics |
| **6** | Examining the Consequences of Ethical Behavior in Professional Life |
| **7** | Examining the Consequences of Ethical Behavior in Professional Life |
| **8** | Midterm Exams |
| **9** | Examining the Consequences of Professional Corruption and Unethical Behavior in Professional Life |
| **10** | Examining the Consequences of Professional Corruption and Unethical Behavior in Professional Life |
| **11** | Examining the Concept of Social Responsibility |
| **12** | Examining the Concept of Social Responsibility |
| **13** | Ethics in the Public, Responsibilities of Electrical Technicians |
| **14** | Case studies |
| **15** | Case studies |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 2 | 10 |
| 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Total workload** | | **80** |
|  | **Total workload / 30** | | **2,66** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| Turkish Language II | 241012003 |

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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** |
|  |  |  |  | 2 |

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| --- | --- | --- |
| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | 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 of Turkish and its current situation, to raise awareness of the national language, to ensure that they fully know the subtleties of Turkish and can use them in their daily lives. |
| **Short Course Content** | Definition of the language, language families in the world and the place of Turkish among the world languages, historical development of the Turkish written language, ways of recognizing Turkish words and phonetic events in Turkish. To gain the ability to write proper compositions. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | **The student explains the language families on Earth and the place of Turkish among world languages.** | 6,7,8 | 1 | A |
| **2** | **The student defines the rules of Turkish.** | 6,7,8 | 1 | A |
| **3** | **The student identifies phonological processes.** | 6,7,8 | 1 | A |
| **4** | **The student applies spelling rules.** | 6,7,8 | 1 | A |
| **5** | **The student creates written and oral compositions.** | 6,7,8 | 1 | A |
| **6** | **The student uses Turkish correctly.** | 6,7,8 | 1 | A |

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| **Main Textbook** | 1. Kültür, M. E., “Üniversiteler İçin Türk Dili”, Bayrak Yayınları, İstanbul, 1997.2. “Türk Dil Yazım Kılavuzu”, TDK Yayınları, 24. baskı, Ankara, 2005. |
| **Supporting References** | 1. Kaplan, M., “Kültür ve Dil”, 8. baskı, ,Dergah Yayınları, İstanbul, 1993.2.Fuat, M., “Dil Üstüne”, Adam Yayınları, İstanbul, 2001. |
| **Necessary Course Material** | - |

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| **Course Schedule** | |
| **1** | Words in Terms of Structure; Word Groups |
| **2** | Name |
| **3** | Adjective |
| **4** | Pronoun |
| **5** | Envelope |
| **6** | Preposition, Conjunction, Exclamation |
| **7** | Verb |
| **8** | Midterm Exams |
| **9** | Sentence, Elements of the Sentence |
| **10** | Sentence, Elements of the Sentence |
| **11** | Written Composition Types |
| **12** | Types of Verbal Composition |
| **13** | Prepared Speaking Practice, Unprepared Speaking Practice |
| **14** | Text Analysis Studies |
| **15** | Text Analysis Studies |
| **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 | 10 | 10 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 10 | 10 |
|  | **Total workload** | | **64** |
|  | **Total workload / 30** | | **2,13** |
|  | **Course ECTS Credit** | | **2** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary |  |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aircraft Information-2 | 241412005 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 3 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Objectives of this course: To provide basic aircraft knowledge to graduates who will work in aircraft maintenance activities and the maintenance system in the future. To be able to classify aircraft elements. To define the working principles of aircraft elements. Explain the main flight control surfaces. Explain auxiliary flight control surfaces. Explaining static stability. Explaining dynamic stability. Explaining subsonic flight. Explaining transonic and supersonic flight. |
| **Short Course Content** | With this course, the student will be able to express aircraft elements, flight control surfaces, stability and flight regimes. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Airplane elements can be defined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Can classify aircraft elements. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Working principles of aircraft elements can be defined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | The main flight control surfaces can be explained. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Auxiliary flight control surfaces may be described. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | The issue of stability can be expressed. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Static stability and Dynamic stability can be distinguished. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Flight regimes can be defined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Subsonic flight can be explained. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Transonic, supersonic and hypersonic flights can be explained. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Getting Started with Flight for Aerospace Engineers “Introduction to Flight”  Author: John D. Anderson Jr.  Translator: Adil Yükselen  Publisher: Nobel Academic Publishing |
| **Supporting References** | Aircraft technical documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Modules, Aircraft Maintenance Manual)" |
| **Necessary Course Material** | Projection, Computer |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Aircraft elements (wing) |
| **2** | Aircraft elements (fuselage) |
| **3** | Aircraft elements (power group) |
| **4** | Aircraft elements (landing gear) |
| **5** | Aircraft elements (tail assembly) |
| **6** | Main flight control surfaces (aileron, elevator, heading rudder, stabilator) |
| **7** | Differences in the concepts of speed-altitude-density and Mach number in flight in airplanes |
| **8** | Midterm Exams |
| **9** | Auxiliary flight control surfaces (spoilers, flaps, flaps, etc.) |
| **10** | Flaperon, ruddervator, taileron, elevon, Canard configuration |
| **11** | Static stability |
| **12** | Dynamic stability |
| **13** | Subsonic flight |
| **14** | Transonic flight |
| **15** | Performance comparisons of narrow and wide body civil aircraft and military aircraft |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,7** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Mathematics II | 241412004 |

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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** |
| 4 |  |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | To get knowledge about vectors, complex numbers, matrices, derivative and integral nearly for work level. |
| **Short Course Content** | Vectors, Complex Numbers, Matrices, Derivative-Integral and Applications |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Knows the concept of vector | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Knows the definitions of complex numbers. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Gains knowledge about matrices. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Recognizes multivariable functions and their graphs. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Uses partial derivative steps correctly. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Solves the problems of finding extrema and saddle points of graphs of two-variable functions | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Solves area, volume and arc length calculation problems with the help of definite integral. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Takes the derivative of functions. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Takes the derivative of the piecewise function. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Performs integral calculations. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Lecture notes |
| **Supporting References** | 1)Anadolu University Publications General Mathematics. Eskisehir  2) Görgülü,A.(2000) General Mathematics. Eskisehir  3) Şenel M. , Orhun N. , Tüzemen Ş. ( 2003) General Mathematics. Eskişehir  4) Yıldız E. (2004) General Mathematics. Trabzon  5) Argün Z. (2001) Fundamental Mathematics. Ankara : Seçkin Publishing |
| **Necessary Course Material** | Square, protractor, compass and calculator. |

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| --- | --- |
| **Course Schedule** | |
| **1** | Vectors |
| **2** | Vectors |
| **3** | Complex Numbers, Vector Form of Complex Numbers, The four arithmetical operations in cartesian form of Complex Numbers |
| **4** | Polar and Cartesian Transformation of Complex Numbers |
| **5** | Matrices |
| **6** | Matrices |
| **7** | Matrices |
| **8** | Midterm Exams |
| **9** | Derivative and its applications |
| **10** | Derivative and its applications |
| **11** | Derivative and its applications |
| **12** | Integral and its applications |
| **13** | Integral and its applications |
| **14** | Integral and its applications |
| **15** | Integral 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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 3 | 3 | 9 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 2 | 8 |
| 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 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Toplam iş yükü** | | 98 |
|  | **Toplam iş yükü / 30** | | **3,27** |
|  | **Dersin AKTS Kredisi** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 40 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:** 06.06.2024

**ESOGU**   
**MOTOR VEHICLES AND TRANSPORTATION TECHNOLOGIES**

**DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| MEASUREMENT TECHNIQUE | 241412015 |

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

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

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

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| --- | --- |
| **Prerequisite(s) if any** | There is no prerequisite for this course. |
| **Objectives of the Course** | Recognize and use appropriate measurement tools |
| **Short Course Content** | To learn Measuring instruments and to know the standards;  To learn Measurement and control terminology;  To learn Electrical and electronic measuring devices; |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Explain measurement techniques and its the importance. | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **2** | Explain units of measurement. | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **3** | Explain analog and digital multimeters. | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **4** | Explain measurement of current, voltage, power and frequency | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **5** | Explain measurement of phase and electric energy | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **6** | Explain error and its types. | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **7** | Use oscilloscope | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **8** | Know SI unit system | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **9** | Perform unit conversions | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |
| **10** | Has a good command of occupational safety in measurement. | 1,2,3,6,7,8 | 1,2,5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** |  |
| **Supporting References** | Pastacı, H., Abbasoğlu, H., (1996) Elektrik ve Elektronik Ölçmeler, Yıldız Teknik Üniversitesi  Elektrik Elektronik Ölçme Tekniği ve Uygulamaları-Mustafa ÖZDEMİR  ELMAKİN – TEKYAY Mühendislik Müşavirlik ve Yayıncılık |
| **Necessary Course Material** | Projection, Computer |

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| --- | --- |
| **Course Schedule** | |
| **1** | Measurement and Control Terminology, Dimensional Measurement |
| **2** | Measuring Instruments Direct Measurement Methods, Indirect (Comparative) Measurement Methods |
| **3** | Measuring Instruments Direct Measurement Methods, Indirect (Comparative) Measurement Methods |
| **4** | Calipers |
| **5** | Micrometers |
| **6** | National and International Systems of Units |
| **7** | National and International Systems of Units |
| **8** | Mid-Term Exam |
| **9** | Electrical Measuring Instruments |
| **10** | Electrical Measuring Instruments |
| **11** | To do the calibration of Measuring Instruments |
| **12** | To do the calibration of Measuring Instruments |
| **13** | To do Maintenance and Configuring Measuring Instruments |
| **14** | To do Maintenance and Configuring Measuring Instruments |
| **15** | Other measurement tools (laser, etc.) |
| **16,17** | Final Exam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Calculation of Course Workload** | | | |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 1 | 14 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 10 | 1 | 10 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | **100** |
|  | **Total workload / 30** | | **3,3** |
|  | **Course ECTS Credit** | | **3** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 35 |
| Homework | 15 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| --- | --- | --- | --- | --- |
| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:** 06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Basic Electronics | 241412006 |

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| --- | --- | --- | --- | --- |
| **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 | X |  |  |  |

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

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| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | To provide necessary knowledge and skills about basic electronics. |
| **Short Course Content** | Semiconductors (Diodes, Transistors, Integrated Circuits), Printed Circuit Boards, Servomechanism |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to tell theory of semiconductors | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Recognizes conductor, semiconductor, and insulator and explains characteristics of these materials. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Recognizes p and n type materials and explains characteristics of these materials. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to recognize types of diode, explain basic terms related with diodes and tell the operating principle of diodes | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Explains ideal diode, equivalent circuit and dc characteristic of a diode. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Recognizes half-wave, full-wave and bridge rectifier circuits and explains the operation of these circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Recognizes the types and the construction of transistors; explains the operation of these devices, and tests transistors | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Analyzes transistor dc biasing | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Explains the operation of transistor dc biasing circuits. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Explains the amplification in amplifier circuits with transistors. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Total Training Support (TTS) Module 4 Electronic Fundamentals, 2016 |
| **Supporting References** | Uçak Bakım / Elektrik Elektronik Teknolojisi MEGEP Modülleri Yarı İletkenler (522EE0006) Transistörlü Devreler (522EE0161) Transistör ve FET İşlemsel Yükselteçler (523EO0009) Ardışık Mantık Devreleri (522EE0254) Lehimleme ve Baskı Devre Ölçü Transformatörleri (522EE0134) Servomekanizma (522EE0030) Elektronik Devreler ve Sistemler (523E00447) Biyopotansiyel Yükselteçler (522EE0155) |
| **Necessary Course Material** | Computer and projector |

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| **Course Schedule** | |
| **1** | Semiconductors: Diodes; Diode symbols, Diode characteristics and properties, Series and parallel diodes |
| **2** | Semiconductors: Diodes; Diode symbols, Diode characteristics and properties, Series and parallel diodes |
| **3** | Main features and usage of silicon controlled rectifiers (thyristors), light emitting diodes, photoconductor diodes, varistors, rectifier diodes; Functional testing of diodes. |
| **4** | P and N type materials: effects of impurities on transmission, minority or majority characters; Potential development across PN junction in semiconductor under PN junction, non biased, straight biased and reverse bias conditions; |
| **5** | Diode parameters: Inverse peak voltage, maximum straight current, temperature, frequency, leakage current, power loss; Operation and function of diodes in these circuits: "Breaker circuits, clamp circuits, full and half-wave rectifiers, bridge rectifiers / rectifiers, voltage stunts and triplers" |
| **6** | Detailed functioning and characteristic features of these diodes: ?Silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photoconductor diode, varactor diode, varistor, rectifier diodes?; Zener diode. |
| **7** | Transistor symbols; Component description and orientation; Transistor characteristics and properties; Structure and functioning of PNP and NPN transistors; Base, collector and emitter configurations; Testing transistors, Basic understanding of other transistor types and their uses |
| **8** | Midterm Exams |
| **9** | Transistors; Application of transistors: Amplifier classes (A, B, C); Simple circuits including bias, decoupling, feedback and stabilization |
| **10** | Transistors; Application of transistors: Amplifier classes (A, B, C); Simple circuits including bias, decoupling, feedback and stabilization |
| **11** | Multi-stage / multi-stage circuit principles; cascades / arrays, push-pull / push-pull, oscillators, multivibrators, flip-flops / bi-stable circuits |
| **12** | Integrated Circuits: Definition and functioning of logic circuits and linear circuits / operational amplifiers; Definition and functioning of logic circuits and linear circuits |
| **13** | Integrated Circuits: Introduction to operation and function of operational amplifier used as integrator, differential, voltage follower, comparator; Operation and amplification stages connection methods: resistive, capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback |
| **14** | Printed Circuit Boards: Introduction and use of printed circuit boards |
| **15** | Servomechanism: Understanding of the terms open and closed loop systems, feedback, tracking, analog transducers; Principles of operation and use of components / properties of resolvers, differential, control and troch, transformers, inductance and capacitance transmitters |
| **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 | 2 | 28 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Toplam iş yükü** | | **128** |
|  | **Toplam iş yükü / 30** | | **4,27** |
|  | **Dersin AKTS Kredisi** | | **4** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 35 |
| Quiz | 15 |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Electronic Instrument Systems I | 241413011 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | None |
| **Objectives of the Course** | In the course students; It is aimed to increase their knowledge and skills about electronic device systems. |
| **Short Course Content** | Instruments / Avionic Systems  Avionic Systems  Electrical Power (ATA 24)  On Board Maintenance Systems (ATA 45)  Integrated Modular Avionics (ATA 42)  Cabin Systems  Information Systems |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Avionic Systems can recognize Instrument (Device) Systems. | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Knows the basics and operation of Avionic Systems System layouts | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Knows and explains Automatic Flight, Communication, Navigation Systems. | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Know and explain Built-in Maintenance Systems | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Knows and explains cabin systems | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Knows and can explain Information Systems. | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Can read and interpret electronic display indicators. | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Knows the features of electrostatic sensitive devices | 2,3,7,8,11,15,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 05, 11A |
| **Necessary Course Material** | Projection, PC |

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| **Course Schedule** | |
| **1** | Instruments / Avionic Systems (ATA 31) |
| **2** | Instruments / Avionic Systems (ATA 31) |
| **3** | Avionic Systems (ATA 22) |
| **4** | Comnication (ATA 23) |
| **5** | Navigation Systems (ATA 34) |
| **6** | Electrical Power (ATA 24) |
| **7** | On Board Maintenance Systems (ATA 45) |
| **8** | Midterm Exams |
| **9** | Integrated Modular Avionics (ATA42) |
| **10** | Cabin Systems (ATA 44) |
| **11** | Cabin Network Service (ATA 44) |
| **12** | Cabin Network Service (ATA 44) |
| **13** | Information Systems (ATA 44) |
| **14** | Information Systems (ATA 44) |
| **15** | Information Systems (ATA 44) |
| **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,….) | 5 | 3 | 15 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 150 |
|  | **Total workload / 30** | | **5** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 4 |
| 4 | Having basic information about aircraft performance | 2 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 2 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 3 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 3 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 3 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 3 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | 5 |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | 5 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**28.11.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Materials and Hardware | 241413012 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** | None |
| **Objectives of the Course** | To provide necessary knowledge and skills about aircraft materials and equipment. |
| **Short Course Content** | Materials of aircrafts (Ferro, nonferro, composite and nonmetalic), wooden structures, fabric coating, corrosion, connecting elements, locking devices, aircraft rivets, pipes, springs, bearings, trasmissions, controlling cables, electrical cables and connectors. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Get students defining the characteristics of materials | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Get students classifying the materials | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Get students expressing the structure and characteristics of composite materials | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Get students explaining the corrosion types | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Get students expressing the reasons of corrosion | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Get students defining the connectives of aircrafts | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Get students defining the pipes and tube jonts of aircrafts | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Get students classfying the springs of aircrafts | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Get students defining and classifying the ball bearings | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Get students defining the motion transmission elements | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **11** | Get students defining and classifying the control cables of aircrafts | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **12** | Get students explaining and defining the electrical cables and connectors of aircrafts | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 6 |
| **Necessary Course Material** | Projection, PC |

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| --- | --- |
| **Course Schedule** | |
| **1** | Aircraft materials (Ferro); Characteristics, properties and description of alloy steels commonly used in aircraft; heat treatment and application of alloy steels; |
| **2** | Aircraft materials (Ferro); Testing ferro (ferrous) materials for hardness, tensile strength, fatigue strength and impact resistance. Aircraft materials (Non-ferrous); Characteristics, properties and identification of non-ferrous materials commonly used in aircraft |
| **3** | Aircraft materials non-ferrous, heat treatment and application of materials. Non-Ferro (nonferrous) materials to be tested for hardness, tensile strength, fatigue strength and impact resistance. |
| **4** | Aircraft materials (composite and non-metallic); Composites and non-metallic materials other than wood and fabric; characteristics, characteristics and description of non-metallic composite and non-metallic materials widely used in aircraft; sealing and sealing materials; Detection of imperfections / defects in composite and non-metallic material, repair of composite and non-metallic material. |
| **5** | Aircraft materials (composite and non-metallic); Wood structures; construction methods related to wood body construction, characteristics and properties of wood and adhesives used in airplanes, preservation and preservation of wood structure, types of wood structure and wood structure defects, determination of imperfections in wood structure, repair of wooden structure. |
| **6** | Aircraft materials (composite and non-metallic); Fabric coating; Characteristics, properties and types of fabrics used in airplanes, methods of fabric inspection, types of defects in fabrics, repair of fabric coatings. |
| **7** | Corrosion; Chemical principles; galvanic processing process, formation by stress, microbiological formation |
| **8** | Midterm Exams |
| **9** | Corrosion;Types of corrosion and their definition; causes of corrosion, types of corrosion susceptible materials. |
| **10** | Connecting elements; screw threads; screw definitions, tooth shapes for standard teeth used in aircraft, dimensions and tolerances, measurement of thread; |
| **11** | Connecting elements; screw threads; Bolts, studs and screws; bolt types, characteristics of aircraft bolts, identification and marking, international standards, nuts; self-safe, fixed, standard types, Screws: aircraft specifications, studs; types and uses, fitting, disassembly, Trifon screws, pin studs |
| **12** | Connecting elements; screw threads; Bonding / Fasteners; Locking devices; strip and spring washers, locking plates, split pins, lock nuts, safety lock, easy detachable fasteners, shutters, locks aircraft rivets; forging and pulling rivets; properties and definitions, solid and blind rivets, heat treatments. |
| **13** | Pipes and Connections; fixed and flexible pipes used in air vehicles, types and definitions of their connecting elements, |
| **14** | Bearings: purpose of the bearings, purpose of the bearings, loads, materials and structures, bearing types and applications. Transmissions; gear types and applications, gear ratios, reducer and raising gear systems, rotating and rotating gears, idle gears, intermeshing of teeth, belts and pulleys, chains and chain gears |
| **15** | Control Cables; cable types, end joints, tension joints and end joint devices, rollers and cable system components, curved cables, air-operated elastic control systems. Electrical cables and connectors; cable types, features and properties, high voltage and coaxial cables, crimping, connector types, pins, sockets, plugs, insulators, current and voltage values, coupling, identification levels. |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,66** |
|  | **Course ECTS Credit** | | **5** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 3 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 3 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**28.11.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aircraft Maintenance And Practices I | 241413010 |

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| --- | --- | --- | --- | --- |
| **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** |
|  | 5 |  |  |  |

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

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | In this course, it is aimed to give information about the importance of aircraft maintenance and to understand professional awareness and safety measures about their responsibilities. |
| **Short Course Content** | Safety Precautions-Aircraft and Workshop  Workshop Practices , Tools  Fits and Clearances , Electrical Wiring Interconnection System (EWIS)  Co-axial cables: testing and installation precautions, Riveting , Pipes and Hoses |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will have information about Safety Precautions-Aircraft and Workshop. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Will have information about Tools. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Workshop Applications will be able to. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will have information about Fits and Clearances. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Will be able to rivet on metal. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Have knowledge about Engineering Drawings, Diagrams and Standards. | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 7 |
| **Necessary Course Material** | Projection, PC |

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| **Course Schedule** | |
| **1** | Safety Precautions-Aircraft and Workshop |
| **2** | Workshop Practices |
| **3** | Tools |
| **4** | Fits and Clearances |
| **5** | Fits and Clearances |
| **6** | Electrical Wiring Interconnection System (EWIS) |
| **7** | Electrical Wiring Interconnection System (EWIS) |
| **8** | Midterm Exams |
| **9** | Riveting |
| **10** | Riveting |
| **11** | Engineering Drawings, Diagrams and Standards, Drawing types and diagrams, symbols, dimensions, tolerances and projections; Identification of name / title blur information |
| **12** | Engineering Drawings, Diagrams and Standards, Microfilm, microfiche and computerized presentations, American Air Transport Association (ATA) Specification 100 Document |
| **13** | Engineering Drawings, Diagrams and Standards, Microfilm, microfiche and computerized presentations, American Air Transport Association (ATA) Specification 100 Document |
| **14** | Pipes and Hoses |
| **15** | Pipes and Hoses |
| **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 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 3 | 15 |
| Homework | 3 | 10 | 30 |
| Quiz Exam | 4 | 2 | 8 |
| Studying for Quiz Exam | 4 | 5 | 20 |
| Mid-Term Exam | 1 | 1 | 2 |
| Studying for Mid-Term Exam | 1 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 15 | 15 |
|  | **Total workload** | | 161 |
|  | **Total workload / 30** | | **5,36** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 3 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 3 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| Aircraft Design Principles | 241413008 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | One should understand the aircraft conceptual design process and learn aircraft conceptual design methods. |
| **Short Course Content** | Driven by reaction. Structure and Loads. Weights. Stability, control and handling quality. Performance and flight mechanics. Cost analysis. Flight Safety and Certification |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Understanding the aircraft conceptual design process | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Have basic knowledge of aircraft propulsion system calculations | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Have basic knowledge of aircraft structural design and analysis. | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Have basic knowledge of aircraft weight and balance calculations | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Have basic knowledge of aircraft stability and control calculations | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Have basic knowledge of aircraft performance calculations | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Have basic knowledge of aircraft cost calculations | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Knowledge of flight safety and aircraft certification | 1,2,3,4,5,6,7,8, 10,11,12,13,14,15 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Raymer D. P, 2006, Aircraft Design: A Conceptual Approach, Fourth (Textbook) Edition, AIAA Education Series, New York, NY, ISBN:1-56347-829-. |
| **Supporting References** | Aircraft Design A Systems Engineering Approach ISBN 978-1-119-95340-1 |
| **Necessary Course Material** |  |

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| --- | --- |
| **Course Schedule** | |
| **1** | Reaction Drive |
| **2** | Structure and Loads |
| **3** | weights |
| **4** | Stability, control and handling quality |
| **5** | Performance and Flight Mechanics |
| **6** | Cost analysis |
| **7** | Cost analysis |
| **8** | Midterm Exams |
| **9** | General Airworthiness Certification |
| **10** | General Airworthiness Certification |
| **11** | Safety |
| **12** | hydromechanical |
| **13** | Flight Performance |
| **14** | Flight Performance |
| **15** | General Airworthiness Certification |
| **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,….) | 14 | 1 | 14 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 145 |
|  | **Total workload / 30** | | **4,83** |
|  | **Course ECTS Credit** | | **5** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 20 |
| Homework | 10 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. | 3 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 3 |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 3 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aviation Meteorology | 241413013 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim is to give basic information about meteorological measurements and observation procedures. In addition, it is aimed to introduce the methods and methods used in meteorological features and observation and to show their distribution in practice. |
| **Short Course Content** | Atmosphere: Temperature, Humidity, Density; Pressure: Pressure systems (Low pressure, high pressure); ICAO Standard Atmosphere; Wind: Jet stream; Clouds and Precipitation (Rain, fog, etc.); Visibility: Meteorological events affecting runway visibility (Fog, haze, smoke, etc.); Air Masses and Fronts; Icing; Thunderstorm; Turbulence; General Circulation; Meteorological Documents for the Flight: Meteorological cards and reports (METAR, TAF, SPECI, TREND). |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to explain the atmosphere and ICAO standard atmosphere. | 1,2,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Will be able to explain meteorological concepts | 1,2,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Will be able to explain pressure systems and altimetry. | 1,2,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to explain meteorological phenomena occurring in the atmosphere. | 1,2,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Will be able to explain meteorological events that are dangerous for flight. | 1,2,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Havacılık Meteorolojisine Giriş, Mikdat KADIOĞLU, Nobel Akademik Yayıncılık, 2022 |
| **Supporting References** | Devlet Hava Meydanları İşletmesi Genel Müdürlüğü Yayınları-1 Havacılık Meteorolojisi 1.Baskı; Ankara, 2018 ISBN:978-975-493-032-0 |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Atmosphere, ICAO Standard Atmosphere |
| **2** | Pressure, Pressure Systems, Temperature |
| **3** | Humidity, Density |
| **4** | Wind, General Circulation |
| **5** | Visibility, Factors limiting meteorological vision, |
| **6** | Visibility, Factors limiting meteorological vision |
| **7** | Clouds and precipitation |
| **8** | Midterm Exams |
| **9** | Jet streams, Icing, Thunderstorm, Turbulence |
| **10** | Air Masses, Fronts |
| **11** | Meteorological documentation for the flight, METAR |
| **12** | Meteorological documentation for the flight, METAR |
| **13** | SPECI, TAF |
| **14** | Meteorological Cards |
| **15** | Meteorological Cards |
| **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,….) | 14 | 1 | 14 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 149 |
|  | **Total workload / 30** | | **4,96** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 20 |
| Homework | 10 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 3 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Communication and Navigation | 241413001 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It is the examination of the working principles of different navigation systems used in air transportation and their use in aircraft. |
| **Short Course Content** | Learning the structure, size and properties of radio and sound waves, learning the basic subjects such as measurement units used in aviation, runway and wind relations, as well as explaining all the features of the navigation systems used in aviation. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to explain in which stages of the flight and for what purpose navigation systems are used. | 1,2,4,5,6,7,8,9,10,11 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Will be able to explain the necessity of using radio waves to transfer information in navigation systems. | 1,2,4,5,6,7,8,9,10,11 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Will be able to explain the functions and working principles of ground navigation systems. | 1,2,4,5,6,7,8,9,10,11 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to explain the function and working principle of navigation systems on the aircraft. | 1,2,4,5,6,7,8,9,10,11 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Will be able to explain the working principles and usage areas of satellite-based navigation systems. | 1,2,4,5,6,7,8,9,10,11 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Uçaklarda Haberleşme ve Seyrüsefer Sistemleri, Satılmış ÜGÜN, Nobel Akademik Yayıncılık, 2022 |
| **Supporting References** | Hava Taşımacılığında Seyrüsefer Sistemleri, Hakan OKTAL ve Kadriye YAMAN, Nobel Akademik Yayıncılık, 2023 |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Radio Waves Basic Concepts |
| **2** | Properties of Radio Waves |
| **3** | Classification of Frequency Bands and Navigation Systems |
| **4** | VDF, ADF systems |
| **5** | VOR |
| **6** | DME, TACAN, VORTAC |
| **7** | ILS, MLS |
| **8** | Midterm Exams |
| **9** | RADAR Systems |
| **10** | RADAR Systems, GPWS |
| **11** | Omega, Loran, Decca, IRS |
| **12** | TCAS, FMS, RNAV |
| **13** | GNSS (GPS, GLONASS, GALILEO, BEIDOU) |
| **14** | GNSS and Performance Improvement Methods (SBAS, GBAS, ABAS) |
| **15** | CNS/ATM |
| **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,….) | 14 | 1 | 14 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 149 |
|  | **Total workload / 30** | | **4,96** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | - |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | - |
| 13 | Having information about the propellers in piston engine aircraft. | - |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | - |
| 15 | Having information about the basic issues related to aircraft manufacturing. | - |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | - |
| 17 | Ability to evaluate and solve fault situations in aircraft. | - |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | - |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | - |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Special Topics In Aviation | 241413009 |

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

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | This course aims to ensure that students are informed about the problems they may encounter in their working lives, the current solution methods used, and that they are prepared and equipped for the situations they will encounter in business life. |
| **Short Course Content** | Identifying the problems experienced in the aviation industry, conducting research on the solutions to these problems, presenting the methods used in the research and the results, and preparing a detailed report as a result of the research. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Can describe the problem by collecting and analyzing data. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **2** | Can access the problem and solution methods by using publications such as books and articles. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **3** | Can choose the method appropriate to the problem. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **4** | Can discuss the contribution of solution methods in terms of innovation and sustainability. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **5** | He can present his work. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |

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| **Main Textbook** | Uçaklarda Haberleşme ve Seyrüsefer Sistemleri, Satılmış ÜGÜN, Nobel Akademik Yayıncılık, 2022 |
| **Supporting References** | Hava Taşımacılığında Seyrüsefer Sistemleri, Hakan OKTAL ve Kadriye YAMAN, Nobel Akademik Yayıncılık, 2023 |
| **Necessary Course Material** |  |

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| --- | --- |
| **Course Schedule** | |
| **1** | State the problem in general terms. |
| **2** | Being able to describe the problem with data |
| **3** | Research publications from books and journals about the problem |
| **4** | Ability to read and understand found publications |
| **5** | Draw conclusions from found publications. |
| **6** | Revealing methods related to the problem from the publications he researched |
| **7** | Learning problem-related methods from researched publications |
| **8** | Midterm Exams |
| **9** | Choosing the method best suited to the problem |
| **10** | Describing the selected methods with their steps |
| **11** | Reporting your research |
| **12** | Reporting your research |
| **13** | Review and correction of the report |
| **14** | Turning the report into a presentation |
| **15** | Submission of the report |
| **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,….) | 5 | 1 | 5 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam | - | - | - |
| Studying for Oral Exam | - | - | - |
| Report (Preparation and presentation time included) | 2 | 40 | 40 |
| Project (Preparation and presentation time included) | - | - | - |
| Presentation (Preparation time included) | 1 | 15 | 15 |
|  | - | - | - |
|  | - | - | - |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Total workload** | | 144 |
|  | **Total workload / 30** | | **4,8** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Report | 30 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **Final Exam** | 40 |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 4 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. | 5 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 5 |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 5 |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 5 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | 5 |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | 5 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Gas Turbine Engines | 241413004 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 3 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 3 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Within the scope of this course, it is aimed to gain knowledge about gas turbine engines used in aircraft and to have comprehensive information about their maintenance and repair. |
| **Short Course Content** | The module mentioned in the Basic Information Requirements in SHT-66 Rev.02 Aircraft Maintenance Personnel License Instruction Annex-2 has been prepared in accordance with the course contents and taking into account the levels required by the relevant license category. Inlet, Compressors, Combustion Section, Turbine Section, Exhaust, Lubricants and Fuels, Lubrication Systems, Fuel Systems, Air Systems, Starting and Ignition Systems, Engine Indicator Systems, Turbo-prop Engines, Turbo-shaft Engines, Auxiliary Power Units (APUs), Power System Installation, Fire Protection Systems, Engine Monitoring/Tracking and Ground Operation. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Gas turbine engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | The main operating principle of gas turbine engines can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Subcomponents and functions of Gas Turbine engines can be defined | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Turbojet engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Turbofan engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Turboprop engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Turboshaft engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | FADEC systems can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Thermodynamic cycles of Gas Turbine engine types can be analyzed | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Brayton cycle applications can be analyzed | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Gas Turbine Engineering Handbook Hardcover – 30 December 2011  English Edition Meherwan P. Boyce Fellow American Society of Mechanical Engineers (ASME USA) and Fellow The Institute of Diesel and Gas Turbine Engineers (IDGTE U.K.)  ISBN: 978-0123838421  Publisher: Butterworth-Heinemann |
| **Supporting References** | Instructor notes |
| **Necessary Course Material** | Projection, Computer |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Introduction to Gas Turbine Engines; History; Engine Types: Turbojet, Turbofan, Turboprop; Turboshaft; Drive Systems; Thermodynamic Cycle |
| **2** | Inlet; Compressor inlet channels Effect of various inlet configurations; ice protection |
| **3** | Compressors; Axial and centrifugal types; Structural features, operating principles and applications; Fan balancing; Operation: Compressor stall and surge, causes and effects; Airflow control methods: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades; Compressor ratio |
| **4** | Combustion Part; Structural features and operating principles; |
| **5** | Turbine Section; Operation and characteristics of various types of turbine blades; Blade disk connection; Nozzle guide vanes (turbine guide/director fixed blades); Turbine blade stress and creep causes and effects. |
| **6** | Exhaust; Structural features and operating principles; Convergent, divergent and variable field nozzles; Reducing engine noise; Thrust reversers. |
| **7** | Main Sections; Single and Multiple Shaft Systems; Impulse; SFC; Engine efficiencies; Pressure, temperature and speed changes in the flow in the engine; Bypass rate; Factors affecting performance; Water injection; Afterburner |
| **8** | Midterm Exams |
| **9** | Start-up systems; Working principles; System components; Automatic and manual start-up, Motoring; Common malfunctions |
| **10** | Ignition system; Working principle; System components; Safety precautions |
| **11** | Fuel system; Hydromechanical fuel control units; Governing, restriction and dimensioning sections; Constant speed control; Constant thrust control; FADEC |
| **12** | Engine indicator systems; Engine performance indicator; Torque meter; N1; EPR; Engine system indicators; Oil temperature, pressure and quantity indicators; Fuel flow; EGT; Vibration indicator |
| **13** | APU; System components; Working principle; APU start-up, Lubrication, fuel and control systems; Load compressor; anti surge system |
| **14** | Thermodynamics based Brayton cycle applications of gas turbine engine types |
| **15** | Thermodynamics based Brayton cycle applications of gas turbine engine types |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,7** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Technique Painting | 241413006 |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** | NONE |
| **Objectives of the Course** | 1-Ability to use CAD programs  2- Transition from 2D part to 3D part  3-Ability to display technical drawing symbols on a 2D image using a CAD program  4-To be able to use metal sheet design, assembly and analysis methods |
| **Short Course Content** | By using CAD program, ability to 3D parts drawing and technical drawing will be gained. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to list commands using in 3d modeling at AutoCAD. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Defines surface modeling and solid modeling, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Defines view toolbar and viewport toolbar with their commands, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Defines surface toolbar with their commands, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Defines solid toolbar with their commands, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Defines solid editing toolbar with their commands | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Defines thickness, elevation and extrude commands, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Defines UCS toolbar and UCS II toolbar with their commands | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Defines 3d orbit toolbar and visual styles toolbar with their commands, | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Can draw three dimensional (3D) shapes | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | |  | | --- | | 1-Solid Edge St7 for Designers, 2015, Prof Sham Tickoo Purdue Univ.  2-Bilgisayar Destekli Tasarım / Serdar Mercan - Fırat Hakverdi - Alperen Tosun, birsen yayınevi. | |
| **Supporting References** | Yok |
| **Necessary Course Material** | Square, protractor, compass and calculator. |

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| --- | --- |
| **Course Schedule** | |
| **1** | Introduction to CAD Programs |
| **2** | Layers and lines, 2D geometric shapes drawing and editing |
| **3** | Layers and lines, 2D geometric shapes drawing and editing |
| **4** | 3D drawing coordinate system and basic parameters |
| **5** | Creation of draft models and drawings |
| **6** | Formation of solid and surface models, operations on solid and surface models |
| **7** | Formation of solid and surface models, operations on solid and surface models |
| **8** | Midterm Exams |
| **9** | In the CAD program, machine tool bolts, rivets, gears, bearing drawings |
| **10** | In the CAD program, machine tool bolts, rivets, gears, bearing drawings |
| **11** | Drawing and analysis of metal sheet and profile parts in CAD program |
| **12** | Drawing and analysis of metal sheet and profile parts in CAD program |
| **13** | Technical picture symbol display in CAD program |
| **14** | Technical picture symbol display in CAD program |
| **15** | Technical picture symbol display in CAD program |
| **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 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Toplam iş yükü** | | **156** |
|  | **Toplam iş yükü / 30** | | **5,2** |
|  | **Dersin AKTS Kredisi** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 35 |
| Quiz | 15 |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 4 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

|  |  |  |  |  |
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| **LECTUTER(S)** | | | | |
| **Prepared by** | Öğr. Gör. Zeynel BAŞ |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aircraft Maintenance And Practices II | 241414011 |

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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** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Riveting; Pipes and Hoses; Springs; To acquire the necessary qualifications to conduct studies to obtain information about bearings. |
| **Short Course Content** | Riveting; Pipes and Hoses; Springs; Bearings the topics will be processed |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | He has knowledge of the Riveting and well suited to his profession | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | He has knowledge of the Pipes and Hoses and well suited to his | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | He has knowledge of the Springs and Bearings and well suited to his profession | 2,3,7,8,9,11,15,17 | 1, 2, 5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 7 |
| **Necessary Course Material** | Projection, PC |

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| --- | --- |
| **Course Schedule** | |
| **1** | Riveting: Riveted joints / connections, rivet clearance/spacing and throwing |
| **2** | Riveting: Tools for riveting and dimpling |
| **3** | Riveting: Tools for riveting and dimpling |
| **4** | Riveting: Examination of riveted joints / connections |
| **5** | Pipes and Hoses: Twisting and bending aircraft pipes / opening their mouths |
| **6** | Pipes and Hoses: Twisting and bending aircraft pipes / opening their mouths |
| **7** | Pipes and Hoses: Twisting and bending aircraft pipes / opening their mouths |
| **8** | Midterm Exams |
| **9** | Pipes and Hoses: Inspection and testing of aircraft pipes and hoses |
| **10** | Pipes and Hoses: Assembly and connection / clamping of pipes and hoses |
| **11** | Springs: Examination and testing of Springs |
| **12** | Bearings: Testing, cleaning and examination of bearings |
| **13** | Bearings: Lubrication requirements for bearings |
| **14** | Bearings: Defects and reasons in bearings |
| **15** | Bearings: Defects and reasons in bearings |
| **16,17** | Final exams |

|  |  |  |  |
| --- | --- | --- | --- |
| **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,….) | 5 | 3 | 15 |
| Homework | 3 | 10 | 30 |
| Quiz Exam | 4 | 2 | 8 |
| Studying for Quiz Exam | 4 | 5 | 20 |
| Mid-Term Exam | 1 | 1 | 2 |
| Studying for Mid-Term Exam | 1 | 15 | 15 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 15 | 15 |
|  | **Total workload** | | 161 |
|  | **Total workload / 30** | | **5,36** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance |  |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 3 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 3 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**28.11.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Propeller | 241414012 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | To have knowledge about propeller structure and systems used in air vehicles and to be able to practice |
| **Short Course Content** | The content of this course has been prepared in accordance with the module course contents in SHT-66 Rev.02 Aircraft Maintenance Personnel License Instruction Annex-2 "Basic Knowledge Requirements" and considering the levels required by the relevant license category. Basic Principles, Propeller Structure, Propeller Pitch Control, Propeller Ice Protection, Propeller Maintenance, Propeller Storage and Preservation |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Have knowledge about the basic principles of propeller | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Have knowledge about propeller structure | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Have knowledge about propeller pitch control and apply to profession | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Have information about propeller ice protection systems and apply to the profession | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Have knowledge about propeller maintenance and apply to the profession | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Have knowledge about propeller storage and preservation and apply to profession | 2,3,4,7,8,9,12,13,15 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | Aircraft training documents accepted by civil aviation authorities  (Total Training Support,ICAT,Megep Moduls) |
| **Supporting References** | EASA 66 Module 17A |
| **Necessary Course Material** | Projection, PC |

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| --- | --- |
| **Course Schedule** | |
| **1** | Basic Principles: Blade element theory; High / low blade angle, Reverse angle, angle of attack, rotational velocity; Loss on the propeller |
| **2** | Basic Principles: Aerodynamics, centrifugal and thrust forces; Torque; Relative airflow at blade attack angle; Vibration and resonance |
| **3** | Propeller Structure: Construction methods and materials used in wood, composite and metal propellers; Blade reference point, blade surface, blade shank, blade back and hub assembly |
| **4** | Propeller Structure: fixed pitch, controllable pitch, constant speed propeller; Propeller / spinner installation (assembly) |
| **5** | Propeller Pitch Control: Speed control and pitch change methods, mechanical and electrical / electronic; |
| **6** | Propeller Pitch Control: Feathering / unfeathering and reverse pitch (reverse pitch); Protection from excessive acceleration. |
| **7** | Propeller Pitch Control: Feathering / unfeathering and reverse pitch (reverse pitch); Protection from excessive acceleration. |
| **8** | Midterm Exams |
| **9** | Propeller Ice Protection: Fluid and electric icing removal equipment |
| **10** | Propeller Ice Protection: Fluid and electric icing removal equipment |
| **11** | Propeller Maintenance: Static and dynamic balancing; Blade tracking; Evaluation of blade damage, erosion, corrosion, effect damage, delamination; |
| **12** | Propeller Maintenance: Static and dynamic balancing; Blade tracking; Evaluation of blade damage, erosion, corrosion, effect damage, delamination; |
| **13** | Propeller Maintenance: Propeller process / repair schemes; Propeller engine starting. |
| **14** | Propeller Storage and Enclosure: Propeller housing and unpacking. |
| **15** | Propeller Storage and Enclosure: Propeller housing and unpacking. |
| **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,….) | 5 | 3 | 15 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 150 |
|  | **Total workload / 30** | | **5** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| 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 | Knowing, understanding and applying basic principles, rules and laws related to aviation |  |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation |  |
| 6 | Having social, scientific and ethical values |  |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 3 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. |  |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 3 |
| 13 | Having information about the propellers in piston engine aircraft. | 5 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Lec. Ersin EROĞLU |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**28.11.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Aerospace Applications | 241414009 |

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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** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The aim of this course is to recognize the problems that students may encounter in their working lives, the current solution methods of these problems, and to present the results by choosing a problem topic and handling the issue as a project. |
| **Short Course Content** | Identifying the problems experienced in the aviation industry, conducting research on the solutions to these problems, selecting a problem as a result of the research and addressing a project, investigating the solution method of the project and presenting the results. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Can make a project plan, | 1,2,3,4,5,6,7,8,9,10,11,  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **2** | Able to present the problem of interest with data, | 1,2,3,4,5,6,7,8,9,10,11,  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **3** | Solve the problem using solution methods used in the literature, | 1,2,3,4,5,6,7,8,9,10,11,  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |
| **4** | Be able to discuss the contribution of the project in terms of entrepreneurship, innovation and sustainable development | 1,2,3,4,5,6,7,8,9,10,11,  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12,15 | A, B, D, E |

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| --- | --- |
| **Main Textbook** | John D. Anderson, 1999, Aircraft Performance and Design, McGraw- Hill, ISBN:978007001971. |
| **Supporting References** | Hale, F.J., 1984, Introduction to Aircraft Performance, Selection and Design, John Wiley & Sons, Inc., ISBN:978047107885. |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Determination of the application area of ​​the subject being studied |
| **2** | Determination of the application location of the subject being studied |
| **3** | Making a project plan |
| **4** | Application problem recognition |
| **5** | Analysis process of the problem |
| **6** | Determination of data collection points |
| **7** | Data collecting |
| **8** | Midterm Exams |
| **9** | Data collecting |
| **10** | Analysis of data |
| **11** | Analysis of data |
| **12** | Interpretation of data |
| **13** | Reviewing the study in line with the recommendations |
| **14** | Turning the report into a presentation |
| **15** | Submission of the report |
| **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 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 5 | 1 | 5 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam | - | - | - |
| Studying for Oral Exam | - | - | - |
| Report (Preparation and presentation time included) | 2 | 40 | 40 |
| Project (Preparation and presentation time included) | - | - | - |
| Presentation (Preparation time included) | 1 | 15 | 15 |
|  | - | - | - |
|  | - | - | - |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 20 | 20 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Total workload** | | 158 |
|  | **Total workload / 30** | | **5.26** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Report | 10 |
| Presentation | 30 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **Final Exam** | 40 |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 5 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 5 |
| 6 | Having social, scientific and ethical values | 5 |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 5 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. | 5 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 5 |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 5 |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 5 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | 5 |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | 5 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Air Traffic Control Services | 241414015 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It aims to inform students about air traffic rules and services. |
| **Short Course Content** | Applicability of Air Rules; National Application of Air Rules; Adaptation of Air Rules; Responsibility for Adaptation of Air Rules; Avoiding Collisions; Proximity; Intersecting Transition; Landing; Lights Turned on by the Aircraft; Flight Plans; Suitability of Flight Plan; Content of the Flight Plan; Filling out the Flight Plan; Signaling; Visual Flight Rules; Instrument Flight Rules; Minimum Flight Levels Altitude; Cancellation of Instrument (IFR) Flight for Visual (VFR) Flight; Interception and Escorting of Civil Aircraft; Unlawful Enterprise. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will be able to define the air traffic system and its place in the airline transportation system. | 1,2,4,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Will be able to explain air traffic flow management and airspace management. | 1,2,4,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Will be able to explain the air traffic services process. | 1,2,4,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to explain air traffic control services and application rules. | 1,2,4,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Be able to classify airspace and define flight requirements | 1,2,4,5,6,7,8,10 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | 'Hava Trafik Kontrol Hizmetleri, Dr. Suat USLU, Anadolu Üniversitesi Yayınları, 2016, ISBN: 978-975-06-1915-1 |
| **Supporting References** | Fundamentals of Air Traffic Control, 2010, ISBN-10: 1435482727 |
| **Necessary Course Material** | Bilgisayar, Office Programları, Python Programı |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Airline Transportation and Air Traffic System |
| **2** | Basic Air Traffic Management |
| **3** | Air Traffic Flow Management |
| **4** | Air Traffic Services |
| **5** | Flight Information Service and Alert Service |
| **6** | Air Traffic Control |
| **7** | Air Rules |
| **8** | Midterm Exams |
| **9** | Flight Plans |
| **10** | Instrument and Visual Flight Rules I |
| **11** | Instrument and Visual Flight Rules II |
| **12** | Determination of Flight Levels and Separations |
| **13** | Airspace Types and Visual Signs |
| **14** | Air Traffic Incidents |
| **15** | Airspace Management |
| **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 | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | **149** |
|  | **Total workload / 30** | | **4,96** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. |  |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. |  |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Flight Performance | 241414003 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | 1.To convey basic concepts about aircraft aerodynamics, thrust systems and equations of motion to students. 2. Students will be able to analytically calculate aircraft performance for all phases of flight. 3. Students will gain written, verbal and graphic communication skills. |
| **Short Course Content** | Forces and subsystems on the aircraft: Atmospheric properties, aerodynamic forces, thrust subsystems. Turbojet aeroplanes: Horizontal flight in the vertical plane, Related equations, horizontal flight, ceiling altitude, range, the longest time in the air. Other flights in the vertical plane include takeoff and landing, climbing flights, and gliding without using power. Turning flight in the horizontal plane: relevant equations, maximum load coefficient, bank angle, turn rate and turn radius. Piston propeller airplanes: Flights in the vertical plane, relevant equations, horizontal flight and ceiling altitude, best range, longest stay in the air. Other flights: Takeoff and landing, climbing flight, return flight, turboprops and turbofans. Mach number, flight and manoeuvre envelopes, effect of wind on performance. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Using basic aerodynamics information for aircraft performance analysis | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | To discuss problem solutions in aircraft performance determination. | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Using auxiliary tools such as Excel and Matlab in aircraft performance calculations. | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | To have enough knowledge about thrust systems to use in aircraft performance analysis | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Creating static stability conditions of the aircraft | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | Developing mathematical models for different flight types | 1,2,3, 4,5,6,7,8,9, 10,12 | 1, 2, 5,10,11,12 | A, B, D |

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| --- | --- |
| **Main Textbook** | John D. Anderson, 1999, Aircraft Performance and Design, McGraw- Hill, ISBN:978007001971. |
| **Supporting References** | Hale, F.J., 1984, Introduction to Aircraft Performance, Selection and Design, John Wiley & Sons, Inc., ISBN:978047107885. |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Introduction: Basic aerodynamics, standard atmosphere, airfoils, wing lift and drag, air speeds |
| **2** | Forces and Subsystems on the Aircraft: Aerodynamic forces and thrust subsystems. |
| **3** | Turbo jets - Horizontal flight in the vertical plane: Equations of motion, horizontal flight, ceiling altitude. |
| **4** | Turbo jets - Horizontal flight in the vertical plane: Equations of motion, horizontal flight, ceiling altitude. |
| **5** | Horizontal flight best range and maximum time in the air. |
| **6** | Takeoff and landing. |
| **7** | Climbing flight. |
| **8** | Midterm Exams |
| **9** | Climbing flights with maximum speed, maximum angle and minimum fuel consumption. |
| **10** | Gliding flight. |
| **11** | Turning flight in the horizontal plane: Equations of motion, maximum load coefficient, bank angle, turn rate and turn radius |
| **12** | Return flights with maximum load coefficient, maximum speed and minimum turning radius. |
| **13** | Flight performance for piston propeller aircraft: Equations of motion, horizontal flight and ceiling altitude characteristics, best range and maximum endurance in the air. Flight and maneuver envelopes. |
| **14** | Flight static stability and control: Angle of attack, sideslip angle, roll, pitch and yaw controls. |
| **15** | Longitudinal fixed and Directional static stability |
| **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,….) | 14 | 1 | 14 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 149 |
|  | **Total workload / 30** | | **4,96** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 4 |
| 4 | Having basic information about aircraft performance | 5 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 5 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 4 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 4 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. |  |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Internship | 241414005 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 0 | 2 | 0 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It is to reinforce the student's theoretical knowledge with a well-planned and supervised work experience applied in relevant industrial, business or government environments. |
| **Short Course Content** | Giving the opportunity to have practical experience in the application of theoretical knowledge in the field of aircraft maintenance. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Students must graduate with professional experience and skills in addition to the theoretical knowledge they have acquired. | 1,2,3,4,5,6,7,8,9,10,11  12,13,14,15,16,17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |

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

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| --- | --- |
| **Course Schedule** | |
| **1** |  |
| **2** |  |
| **3** |  |
| **4** |  |
| **5** |  |
| **6** |  |
| **7** |  |
| **8** | Midterm Exams |
| **9** |  |
| **10** |  |
| **11** |  |
| **12** |  |
| **13** |  |
| **14** |  |
| **15** |  |
| **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) |  |  |  |
| 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) |  |  |  |
| 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** | |  |
|  | **Total workload / 30** | |  |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term |  |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 5 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 5 |
| 6 | Having social, scientific and ethical values | 5 |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 5 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. | 5 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 5 |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 5 |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 5 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | 5 |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | 5 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** |  |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

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**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Optimization in Aviation | 241414013 |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 5 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Introducing students to problems encountered in aviation applications and teaching solution methods |
| **Short Course Content** | Identifying the problems experienced in aviation and expressing them mathematically, examining approaches that provide exact and close solutions with mathematical modeling examples. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Will have knowledge about optimization problems in aviation | 1,2,4,5,6,7,8,9,10,12,14 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Be able to express modeling used in aviation | 1,2,4,5,6,7,8,9,10,12,14 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Will have knowledge about solution methods that provide definitive solutions | 1,2,4,5,6,7,8,9,10,12,14 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Will be able to understand Mathematical Models | 1,2,4,5,6,7,8,9,10,12,14 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Able to use intuitive solution methods | 1,2,4,5,6,7,8,9,10,12,14 | 1, 2, 5,10,11,12 | A, B, D |

|  |  |
| --- | --- |
| **Main Textbook** | Sağır, M., Atlas, M., Aras, N., & Kamışlı Öztürk, Z. (2013). Yöneylem Araştırması-1 ve 2. Anadolu Üniversitesi Açıköğretim Yayınları, Eskişehir.. |
| **Supporting References** | Operations Research: Applications and Algorithms |
| **Necessary Course Material** |  |

|  |  |
| --- | --- |
| **Course Schedule** | |
| **1** | Problems in Aviation: Airline Flight Personnel Assignment I |
| **2** | Problems in Aviation: Airline Flight Personnel Assignment II |
| **3** | Problems in Aviation: Appointment of Airline Maintenance Personnel |
| **4** | Problems in Aviation: Aircraft Parking Position Assignment |
| **5** | Problems in Aviation: Aircraft Sequencing and Scheduling Problem |
| **6** | Linear Programming I |
| **7** | Linear Programming II |
| **8** | Midterm Exams |
| **9** | Mixed Integer Programming I |
| **10** | Mixed Integer Programming II |
| **11** | Multi-Objective Programming I |
| **12** | Multi-Objective Programming I |
| **13** | Genetic Algorithms |
| **14** | Tabu Search Algorithm |
| **15** | Simulated Annealing Algorithm |
| **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 | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 149 |
|  | **Total workload / 30** | | **4,96** |
|  | **Course ECTS Credit** | | **5** |

|  |  |
| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft |  |
| 4 | Having basic information about aircraft performance | 4 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 4 |
| 6 | Having social, scientific and ethical values | 4 |
| 7 | Being able to conduct research, prepare reports and make presentations | 3 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 3 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. |  |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. |  |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 5 |
| 15 | Having information about the basic issues related to aircraft manufacturing. |  |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. |  |
| 17 | Ability to evaluate and solve fault situations in aircraft. |  |
| 18 | Having information about the location and working principles of aircraft cockpit displays. |  |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. |  |

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| --- | --- | --- | --- | --- |
| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Vocational Training in Business | 241414016 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 5 | 10 | 10 | 15 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 15 |  |  |  |

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

|  |  |
| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | It reinforces the student's theoretical knowledge with a well-planned and supervised work experience that is applied in relevant industrial, business, or government environments. |
| **Short Course Content** | Giving the opportunity to have practical experience in the application of theoretical knowledge in the field of aircraft maintenance. |

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| --- | --- | --- | --- | --- |
| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Students must graduate with professional experience and skills in addition to the theoretical knowledge they have acquired. | 1,2,3,4,5,6,7,8,9,10,11,12,  13,14,15,16, 17,18,19 | 1, 2, 5,10,11,12 | A, B, D |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| **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) |  |  |  |
| 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** | |  |
|  | **Total workload / 30** | |  |
|  | **Course ECTS Credit** | | **15** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term |  |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **Final Exam** | 100 |
| **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 | Knowing, understanding and applying basic principles, rules and laws related to aviation | 5 |
| 2 | Knowing, interpreting and using basic scientific issues when necessary | 5 |
| 3 | Having information about basic issues related to materials used in aircraft | 5 |
| 4 | Having basic information about aircraft performance | 5 |
| 5 | Being able to use computer software and information-communication technologies at the required level to make basic calculations related to aviation | 5 |
| 6 | Having social, scientific and ethical values | 5 |
| 7 | Being able to conduct research, prepare reports and make presentations | 5 |
| 8 | Ability to work individually or as a team and take responsibility in business life | 5 |
| 9 | Understanding the working principles of aircraft mechanical and electrical systems. | 5 |
| 10 | Having information about the characteristics of the atmosphere and their effects on aircraft. | 5 |
| 11 | Having information about the basic issues related to aircraft maintenance, repair and navigation and recognizing the necessary documents. | 5 |
| 12 | Understanding the formation of lift force in aircraft and flight theory. | 5 |
| 13 | Having information about the propellers in piston engine aircraft. | 5 |
| 14 | Having information about the maintenance of gas turbine and piston engine aircraft. | 5 |
| 15 | Having information about the basic issues related to aircraft manufacturing. | 5 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 5 |
| 17 | Ability to evaluate and solve fault situations in aircraft. | 5 |
| 18 | Having information about the location and working principles of aircraft cockpit displays. | 5 |
| 19 | Having information about aircraft-to-aircraft, aircraft-to-ground communication systems. | 5 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Doç. Dr. Ramazan Kürşat ÇEÇEN |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **Course Name** | **Course Code** |
| Unmanned Aerial Vehicles |  |

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| --- | --- | --- | --- | --- |
| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 3 |  |  |  |

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

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| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | The student will be able to explain UAV legislation, Air Law and Responsibilities, Aircraft, Flight Dynamics and Flight Principles, avionics and propulsion systems. It is aimed to have knowledge and experience about UAV structures, malfunctions and software in his professional life. |
| **Short Course Content** | Within the scope of this course, the student learns the regulations regarding UAVs and acquires basic technical and structural information. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | International UAV regulations can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | National UAV regulations can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | Air Law and Responsibilities can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | Aircraft, Flight Dynamics and Flight Principles of Unmanned Aerial Vehicles can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Aviation Meteorology and its importance in UAV use can be defined | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | UAV Navigation and Operation systems can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | Controllable Systems | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | Avionics Systems can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Propulsion Systems can be explained | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Maintenance and Repair procedures for Unmanned Aerial Vehicles are mastered | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Designing Unmanned Aircraft Systems Hardcover – October 9, 2014  English Edition Jay Gundlach ISBN: 978-1624102615 Publisher: American Institute of Aeronautics & Astronautics |
| **Supporting References** | General Directorate of Civil Aviation-SHT-UAV Instruction |
| **Necessary Course Material** | Projection, Computer |

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| **Course Schedule** | |
| **1** | UAV Introduction |
| **2** | UAV Introduction |
| **3** | Air Law and Responsibilities |
| **4** | Air Law and Responsibilities |
| **5** | Aircraft, Flight Dynamics and Flight Principles |
| **6** | Aircraft, Flight Dynamics and Flight Principles |
| **7** | Software, Hardware and Components |
| **8** | Midterm Exams |
| **9** | Meteorology |
| **10** | Navigation and Operation |
| **11** | Navigation and Operation |
| **12** | Controllable Systems |
| **13** | Propulsion Systems |
| **14** | Avionic Systems |
| **15** | Maintenance and Repair of UAVs |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,7** |
|  | **Course ECTS Credit** | | **5** |

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| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024

**ESOGU**

**MOTOR VEHICLES AND TRANSPORTATION**

**TECHNOLOGY DEPARTMENT AIRCRAFT TECHNOLOGY PROGRAM**

**COURSE INFORMATION FORM**

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| --- | --- |
| **Course Name** | **Course Code** |
| Piston Engines |  |

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| **Semester** | **Number of Course Hours per Week** | | **Credit** | **ECTS** |
| **Theory** | **Practice** |
| 4 | 3 | 0 | 3 | 5 |

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| --- | --- | --- | --- | --- |
| **Course Category (Credit)** | | | | |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | 3 |  |  |  |

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

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| --- | --- |
| **Prerequisite(s) if any** |  |
| **Objectives of the Course** | Within the scope of this course, it is aimed to understand the functions of the basic parts that make up the piston engine and their importance in the engine operating principle, to examine the efficiency calculations of engines and to make mathematical / thermodynamic calculations, the advantages of the cycles used and their improvements over time, and to make engine efficiency calculations as applications. |
| **Short Course Content** | Definition and history of piston engines, Piston engine parts, Piston engine operating principles, Cycles used in piston engines, Areas of use of cycles in piston engines, Examination of strokes in piston engines, Operation of Otto-diesel cycles, Thermodynamic explanation of cycles, Definition of units and formulas used in cycles, Thermodynamics of cycles advantages and weaknesses, Efficiency calculation in piston engines, Application of efficiency calculation, sample question solutions, Future of engine technology and comparison of efficiencies. |

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| **Learning Outcomes of the Course** | | **Contributed PO(s)** | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | The history and basic principles of piston engines can be expressed | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **2** | Subcomponents that make up piston engines can be identified | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **3** | The working principle of piston engines is expressed | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **4** | The fuels used in piston engines and the importance of chemical reactions in the combustion process can be expressed. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **5** | Can analyze the thermodynamic principles underlying the working principle of piston engines and the differences between engine types. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **6** | In piston engines, the effects of strokes, crank-connecting rod mechanisms, number of piston-cylinders and their placement on performance can be determined. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **7** | The principles of the Otto cycle can be determined | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **8** | The principles of the diesel cycle can be determined | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **9** | Differences between Ideal Otto and Diesel cycles and Real Otto and Diesel cycles can be identified. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |
| **10** | Can express the efficiency calculation in piston engines in practice. | 1,2,3,6,7,8 | 1, 2, 5,10,11,12 | A, B, D |

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| **Main Textbook** | Engine Technology – Authors: Muzaffer Hakan Yardim 2. Internal Combustion engines – Authors: Alaettin Sabancı 3. Internal Combustion engines – Authors: Prof. Dr. Orhan Deniz |
| **Supporting References** | Oxsford Module 16 - Aircraft Piston Engines  Total Training Support (TTS) Module 16 Piston Engine, 2016  Sabancı, A. 2012. Internal Combustion Engines. Nobel Publications. Istanbul. ISBN: 978-605-133-191-1 |
| **Necessary Course Material** | Projection, Computer |

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| --- | --- |
| **Course Schedule** | |
| **1** | Description and history of piston engines |
| **2** | Piston engine parts |
| **3** | Piston engine operating principles |
| **4** | Cycles used in piston engines |
| **5** | Usage areas of cycles in piston engines |
| **6** | Examination of strokes in piston engines |
| **7** | Operation of Otto-diesel cycles |
| **8** | Midterm Exams |
| **9** | Engine Fuel Systems: Fuel Injection Systems; Types, structure and operating principles |
| **10** | Thermodynamic explanation of cycles |
| **11** | Definition of units and formulas used in conversions |
| **12** | Thermodynamic advantages and disadvantages of cycles |
| **13** | Efficiency calculation in piston engines |
| **14** | Application of yield calculation, sample question solutions |
| **15** | The future of engine technology and comparison of efficiencies |
| **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,….) | 5 | 1 | 5 |
| Homework | 3 | 5 | 15 |
| Quiz Exam | 4 | 1 | 4 |
| Studying for Quiz Exam | 4 | 3 | 12 |
| 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 | 30 | 30 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 30 | 30 |
|  | **Total workload** | | 140 |
|  | **Total workload / 30** | | **4,7** |
|  | **Course ECTS Credit** | | **5** |

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| --- | --- |
| **Evaluation** | |
| **Activity Type** | **%** |
| Mid-term | 20 |
| Quiz | 10 |
| Homework | 20 |
| Bir öğe seçin. |  |
| Bir öğe seçin. | 50 |
| **Final Exam** | 100 |
| **Total** | 20 |

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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 | Knowing, understanding and applying the basic principles, rules and laws related to aviation. | 2 |
| 2 | Knowing basic scientific subjects, being able to interpret them and using them when necessary. | 5 |
| 3 | Knowing the basic issues regarding the materials used in aircraft. | 2 |
| 4 | Having basic knowledge about the performance of aircraft. | 2 |
| 5 | Ability to use computer software and information-communication technologies at the level required to perform basic aviation-related calculations. | 4 |
| 6 | Having social, scientific and ethical values. | 4 |
| 7 | Ability to do research, prepare reports and make presentations. | 4 |
| 8 | The ability to work individually or as a team and take responsibility in business life. | 4 |
| 9 | Understanding the operating principles of aircraft mechanical and electrical systems. | 2 |
| 10 | Knowing atmospheric properties and their effects on aircraft. | 2 |
| 11 | Knowing the basic issues regarding aircraft maintenance, repair and navigation and familiarizing with the necessary documents. | 2 |
| 12 | Understanding the formation of lift force in airplanes and flight theory. | 2 |
| 13 | To have knowledge about the propellers in piston engine aircraft. | 2 |
| 14 | To have knowledge about the maintenance of gas turbine and piston engine aircraft. | 2 |
| 15 | Knowing the basic issues related to aircraft manufacturing. | 2 |
| 16 | Understanding human factors and error prevention methods in aircraft maintenance. | 2 |
| 17 | Ability to evaluate and resolve malfunction situations in aircraft. | 2 |
| 18 | Knowing the layout and working principles of aircraft cockpit indicators. | 2 |
| 19 | Knowing aircraft-aircraft and aircraft-ground communication systems. | 2 |

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| **LECTUTER(S)** | | | | |
| **Prepared by** | Assoc. Prof. Dr. H. Yalcin Akdeniz |  |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**06.06.2024