1ST YEAR – 1ST SEMESTER COURSES

AİT101 Atatürk's Principles and Revolution History I (2-0) 2

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

Textbook:

• Ateş, Toktamış.(2001)Turkish Revolution History.Istanbul:Der Publications.

• History of the Republic of Türkiye (Editor: Şakir Batmaz, Serdar Sakin

Supplementary Textbooks:

• Aybars, Ergün.(200)History of the Republic of Turkey.İzmir:Ercan Bookstore.

• Eroğlu, Hamza.(1990)History of the Turkish Revolution.Ankara:Savaş Publications.

• Kongar, Emre.(1999)Atatürk from the Perspective of Revolutionary History and Sociology.İstanbul.Remzi

Bookstore.

• Selek, Sebahattin.(1987)Anatolian Revolution.İstanbul:Kastaç A.Ş.Publications.

• Şamsutdinov, A.M.(1999)History of the Turkish National Liberation War from Mondros to Lausanne

(1918-1923)Translator:Ataol Behramoğlu.İstanbul:Doğan Bookstore.

• Timur, Taner.(1997)Turkish Revolution and After.Ankara:İmge Bookstore

TRD109 Turkish Language I (2-0) 2

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

Textbook:

• Turkish Language Written and Oral Expression for Universities, Erol Öztürk, Selami Alan, Meliha Işık, Oğuz Kandemir, Nurettin Kartallıoğlu, Şahin Bütüner, Hüseyin Taş, Akçağ Publications, 2013.

Supplementary Textbooks:

• Text-Based Example-Practical Turkish Language for Universities, Mualla Murat Nuhoğlu,

Hüseyin Taş, Ertuğrul Karakuş, Nobel Academic Publishing, 2009.

• All books related to Turkish lessons in the university library.

• Turkish Grammar books

• Literary works of Turkish Literature

SHY101 English I (2-0) 2

Grammar: An Introductory Comparison of Word Orders; Subject Pronouns ; The Verb “to be”; Yes-No Questions; Wh-Questions Words and Formation; Adjectives; Possessives; Demonstrative Adjectives and Pronouns; Present Simple; Object Pronouns; Common Prepositions and Prepositional Phrase Formation; Adverbs; Adverbs of Frequency; Comparative and Superlative Adjectives and Adverbs; Articles and Countability of Nouns / Determiners and Quantifiers; There is-There are- Possession with the verb “Have”;

Vocabulary: Imperatives; Colours; Clothes; Parts of a House; Speaking: Meeting and Greetings; Basic Information Exchange; Describing People and Objects;

Textbook:

• Mirici, I.H., Demirel.O. Basic English I&2, Ankara, Pegem A Publishing, 2001.

Supplementary Textbooks:

• Eastw ood, John. Oxford Practice Gramer, Oxford, OUP, 1992

SHY103 Mathematics I (4 - 0) 4

Arithmetic terms and signs; Methods of multiplication and division; Fractions and decimals; Factors and multipliers; Weights, measures and conversion factors; Ratio and proportion; Averages and percentages; Areas and volumes, squares, cubes; Square and cube roots.

Textbook:

• Prof. Dr. Mustafa BALCI, "Basic Mathematics for Vocational Schools and Technical Education Faculties", Balcı Publications, 2008.

• General Mathematics, M. Balcı, A.Ü. Faculty of Science Publications

• Calculus, R.A.Adams, Vancouver, Canada, 1994

Supplementary Textbooks:

• Kemal Temizyürek, Nurdan Çolakoğlu, "Applied Mathematics for Vocational Schools", Beta, 2009.

• olutioned Mathematics Analysis Problems, M. Balcı, Balcı Publications

SHY105 Physics (4 - 0) 4

The nature of matter: Chemical elements, structure of atoms, molecules; Chemical compounds; States of matter: Solid, liquid and gas; Changes between states of matter; Nature of light; Speed of light; OPTICAL LAWS; Laws of reflection and refraction; Reflection on flat surfaces, reflection by spherical mirrors, refraction; Lenses; Fiber optics; Wave motion: WAVE TYPES, Mechanical waves, sinusoidal wave motion, Blocking phenomenon, standing waves; Basic sound theory, Definition of sound, Sound Measurement; Sound in occupational health and safety perspective, Speed of sound, sound production; Sound level, intensity, pitch and quality, Doppler effect.

Textbook:

• Waves Solids and Fluids Thermodynamics and Optics, Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Translator R. Omur Akyuz, Serdar Nergiz, Galip Tepehan, ERHAN GULMEZ, Bekir Karaoglu, Literature.

Supplementary Textbooks:

• Physics1, Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Translator R. Ömür Akyüz, Serdar Nergiz, Galip Tepehan, ERHAN GÜLMEZ, Bekir Karaoğlu, Literature,

• Physics2, Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Translator R. Ömür Akyüz, Serdar Nergiz, Galip Tepehan, ERHAN GÜLMEZ, Bekir Karaoğlu, Literature,

SHY107 Technical Drawings and Standards (2 – 3) 4

Workshop Practices; Dimensions, allowances and tolerances, workmanship standards; Engineering Drawings, Diagrams and Standards; Drawing types and diagrams, symbols, dimensions, tolerances and projections; Identification of name/title block information; Microfilm, microfiche and computerized presentations; Specification 100 of the American Air Transport Association (ATA); Aeronautical standards including ISO, AN, MS, NAS and MIL and other applicable standards; Wiring diagrams and schematic diagrams; Fits and Clearances; Drill sizes for bolt holes, fit classes; General system for fits and clearances; Schedule (table) of fits and clearances for aircraft and engines; Limits for bending, twisting and wear; Standard methods for checking shafts, bearings and other parts.

Textbook:

• Firat University School of Civil Aviation, Technical Drawing and Standards course lecture notes, Yusuf ER

Supplementary Textbooks:

• Technical drawing: basics and applications, volume 33/Seçkin Publishing (publications).: Technical Sciences series, Seçkin Publishing. Technical, Gabil Abdulla

SHY109 Introduction to Civil Aviation (2 – 0) 2

Aviation system and elements, Aircraft and classification, Aviation alphabet, ICAO and IATA codes, Introduction of airports and airport sections, General characteristics of airline companies, Types of airline companies, flag carriers, low-cost carriers, regional carriers, General aviation activities, Air navigation services, Ground services, International civil aviation agreement and ICAO, Other international civil aviation organizations: Eurocontrol, JAA, EASA, Commercial aircraft, Turkish civil aviation: SHGM and rules, Turkish civil aviation: airport and air transport companies.

Textbook:

• Introduction to Aviation, Anadolu University Publications, Mustafa CAVCAR

• General Aviation, Anadolu University Publications, Özlem ŞAHİN

SHY111 Aviation Rules (4-0) 4

Regulatory Framework; Role of the International Civil Aviation Organization, Turkish Civil Aviation Law No. 2920, Organization, Authority and Responsibilities of the General Directorate of Civil Aviation (Section Thirty-one of the Presidential Decree No. 4); Relations with other Civil Aviation Authorities (EASA, FAA, etc.); General Overview of Civil Aviation Legislation; (Regulations, Instructions, Circulars); SHY-21, SHY-M, SHY-145, SHY-66, SHY-147, SHT-21, SHT-M, SHT 145, SHT-66, SHT-147, SHT-SMS, SHT-Olay, SHY-İPC regulations and their relationships;

Certifying Personnel – Maintenance, SHY-66 and SHT-66 regulations; Approved Maintenance Organisations,

SHY-145, SHT-145 and SHT-M (Section Six-F Maintenance Organisation) regulations; Continuing Airworthiness, Detailed understanding of SHY-21 and SHT-21 provisions related to continuing airworthiness, Detailed understanding of SHY-M and SHT-M. National and International Requirements (unless superseded by EU requirements) for the following: Maintenance Programmes, Maintenance checks and inspections; Continuing airworthiness;

Textbook:

• Firat University Civil Aviation School, Aviation Rules course lecture notes

• Current SHY-21, SHY-M, SHY-145, SHY-66, SHY-147, SHT-21, SHT-M, SHT-145, SHT-66, SHT-147, SHT-SMS, SHT-Olay, SHY-İPC regulations (accessible from www.shgm.gov.tr)

Supplementary Textbooks:

• Module 10 - EASA Aviation Legislation for Aircraft Maintenance, Aircraft Technical Book Company, 2016, Jurrien Boer

• Module 10 - Aviation Legislation for EASA Part-66, Turkish Technic Inc. 2016

1ST YEAR – 2ND SEMESTER COURSES

AİT102 Atatürk's Principles and Revolution History II (2-0) 2

Struggle for Independence, Sakarya War, Great Offensive, Republicanism from Mudanya to Lausanne and Caliphate, the period of calm and democracy, nationalism, the principle of secularism, Turkey's agenda.

Textbook:

• Turkish Revolution History, Ateş, Toktamış, Istanbul: Der Publications, (2001).

• History of the Republic of Turkey (Editor: Şakir Batmaz, Serdar Sakin)

Supporting textbooks:

• History of the Republic of Turkey, Ergün Aybars, Ercan Bookstore, 2000.

• History of the Turkish Revolution, Hamza Eroğlu, Savaş Publications, 1990.

• Atatürk from the Perspective of Revolutionary History and Sociology, EmreKongar, Remzi Bookstore, 1999.

• Anatolian Revolution, Sebahattin Selek, Kastaç A.Ş. Publications, 1987.

• History of the Turkish National War of Independence from Mondros to Lausanne (1918-1923) A.M.

• Şamsutdinov, Translated by: Ataol Behramoğlu, Doğan Bookstore, 1999.

• Turkish Revolution and After, Taner Timur, İmge Bookstore, 1997.

TRD110 Turkish Language II (2-0) 2

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

Textbook:

• Turkish Language Written and Oral Expression for Universities, Erol Öztürk, Selami Alan, Meliha Işık, Oğuz Kandemir, Nurettin Kartallıoğlu, Şahin Bütüner, Hüseyin Taş, Akçağ Publication, 2013.

Supplementary Textbooks:

• Text-Based Example-Practical Turkish Language for Universities, Mualla Murat Nuhoğlu,

• Hüseyin Taş, Ertuğrul Karakuş, Nobel Academic Publishing,2009.

• All books related to the Turkish course in the university library.

• Turkish Dictionary, Turkish Language Association, Ankara.

• Spelling Guide, Turkish Language Association, Ankara

SHY102 English II (2-0) 2

Grammar: Basic Gerunds and Infinitives; Present Continuous; Past Simple; Future Simple; Past

Continuous; Time Clauses; Phrasal Verbs; Modals for Ability; Modals for Obligation; Modals for

Probability; Modals for Requests, Suggestions, Permission, Habitual Past and Preferences;

Vocabulary: Family Relationships; Fruits and Vegetables; Objects in Classrooms and Houses;

Everyday Objects;

Speaking: Asking Basic Questions; Introducing the Family; Talking about Routines

Textbook:

• Eastwood, John., "Oxford Practice Grammar", Oxford, OUP, 1992

• Undersanding and Using English Grammar by B.S. Azar The Little Prince by S. Exupery

• The Old Man and the Sea by E. Hemingway

Supplementary Textbooks:

• Taşdelen, Berna. "Cornerstone for Grammar Practice", Ankara, Spring Publication, 2004

• English-English Dictionary

SHY104 Mathematics II (4-0) 4

Evaluation of simple algebraic expressions, addition, subtraction, multiplication and division; Linear equations and their solutions, Linear equations with one variable, Linear systems of equations with two variables; Linear equations and their solutions, Solving systems of equations by the method of substitution, Solving systems of equations by the method of elimination; Formulas, functions and graphs; Mathematical operations with logarithms, Calculations with logarithms, natural logarithms; Number systems, exponential numbers, Mathematical transformation of number systems; Geometry, simple geometric structures; Graphs, graphical representation; properties and uses of graphs, equation/function graphs; Trigonometry, Simple trigonometry; trigonometric relations; use of tables and orthogonal and polar coordinates;

Textbook:

• Prof. Dr. Mustafa BALCI, "Basic Mathematics for Vocational Schools and Technical Education Faculties", Balcı Publications, 2008.

• General Mathematics, M. Balcı, A.Ü. Science Ed. Faculty Publications

Supplementary textbooks:

• Calculus, R.A.Adams, Vancouver,Canada , 1994

• Advanced Calculus, Schaum's outlines.

• Solutioned Mathematics Analysis problems, M. Balcı, Balcı Publications Lecture Notes

SHY106 Basic Electricity I (3 – 0) 3

Electron Theory, Distribution and structure of electrical charges in atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators. Static Electricity and Conduction/Transmission, Distribution of static electricity and electrostatic charges; Laws of electrostatic attraction and repulsion; Charge units, Coulomb's Law; Electrical conduction in solids, liquids, gases and in vacuum. Electrical Terminology, The following terms, units of these terms and factors affecting these units: Potential difference, electromotive force, voltage, current, resistance, conductance/ conductivity, charge, conventional current direction, electron flow. Electricity Production; Production of electricity by the following methods: Light, heat, friction, pressure, chemical effect, magnetism and motion. DC Electric Sources, Construction and basic chemical effects of: Primary batteries, secondary batteries, lead acid batteries, nickel cadmium batteries, other alkaline batteries; Batteries connected in series and in parallel; Internal resistance and its effect on the battery; Construction, materials and operation of thermocouples; Operation of photocells. DC Circuits, Ohms' Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Importance of internal resistance of a current feeder. Resistance, Resistance and affecting factors; Specific resistance; Resistance color code, values and tolerances, preferred values, wattages; Series and parallel resistors; Calculation of total resistance using series, parallel and series-parallel combinations; Operation and use of potentiometers and rheostats/variable resistors; Operation of the Wheatstone Bridge; Positive and negative temperature conductivity coefficient; Fixed resistors, stability, tolerances and limitations, construction methods; Independent/variable resistors, thermistors, voltage controlled resistors; Construction of potentiometers and rheostats/ adjustable resistors; Construction of Wheatstone Bridge; Power/Energy, Power, work and energy (kinetic and potential); Resistor energy loss; Power/Energy formula; Calculations involving power, work and energy. Capacitance/Capacitor, Operation and functioning of capacitor; Factors affecting flange capacitance area, distance between flanges, number of flanges, dielectric and dielectric constant, working voltage, voltage voltage; Capacitor types, construction and function;

Capacitor color coding; Calculations of capacitance and voltage in series and parallel circuits; Capacitor exponential charge and discharge, time invariants; Testing of capacitors. Magnetism, Theory of magnetism; Properties of magnets; Motion of a magnet suspended in the Earth's magnetic field; Magnetization and demagnetization; Magnetic shielding; Various types of magnetic materials; Structure and operating principles of electromagnets; "Hand" rules determining the magnetic field around a current-carrying conductor; Magnetomotor force, field intensity, magnetic flux density, permeability, hysteresis loop, residual magnet flux density, magnetic resistance against the demagnetizing force, saturation point, eddy currents; Precautions for the maintenance and storage of magnets. Inductance/Inductor, Faraday's Law; The process of inducing voltage in a conductor moving in a magnetic field; Induction principles; Effects depending on the magnitude of the induced voltage: Magnetic field strength, rate of flux change, number of turns in the conductor; Mutual induction; Effect of rate of change of primary current and effect of mutual induction on induced voltage; Factors affecting mutual induction; Number of turns in the winding, physical size of the winding, winding permeability, position of the windings to each other; Lenz's Law and polarity determination rules; Back/reverse emf, self-induction; Saturation point: Main uses of inductors. Control Cables, Cable types; End splices, tension points and end splice devices; Reels and cable system elements; Spring-encapsulated cables; Aircraft flexible control systems. Electrical Cables and Connectors, Cable types, structures and properties; High voltage and coaxial cables; Crimping; Connector types, pins, sockets, plugs, insulators, current and voltage values, coupling, identification codes.

Textbook:

• Firat University Civil Aviation School, BASIC ELECTRICITY I course lecture notes

• Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Publications, 2015.

Supporting textbooks:

• Electric Circuits, Susan A. Riedel, James W. Nilsson, Palme Publications, 2012.

• Hayt W., Kemmerly J., Durbin S., Engineering Circuit Analysis, McGraw-Hill, 2007.

SHY108 Basic Electrical Laboratory I (0 - 2) 1

Electrical Installation Internal Connection System (EWIS); Continuity, insulation and bonding techniques and testing procedures; Use of hand and hydraulically operated bending tools; Testing bending joints; Pin removal from connectors and pin insertion into connectors; Coaxial cables: Test procedures and installation precautions; Identification of electrical line types, inspection criteria and damage tolerances. Protection techniques in electrical lines: Cable protection braid and braid support, cable clamps, protective sheathing techniques (including heat shrink wrapping), shielding; EWIS assembly, inspection, repair, maintenance and cleaning standards, TASK NO: UEE-3.10 Application of Measurement of Voltage, Current and Resistance Values by Using Different Measuring Instruments; TASK NO: UEE-3.11 Performance of Continuity and Insulation Tests in Electrical Systems; TASK NO: UEE-3.12 Explanation and Demonstration of Visual Control Methods; EXPERIMENT 1a Resistance Measurement; EXPERIMENT 1b Potentiometer Characteristics; EXPERIMENT 2a DC Voltage Measurement; EXPERIMENT 2b DC Current Measurement; EXPERIMENT 3 Application of Ohm's Law; EXPERIMENT 4 Series-Parallel Network and Kirchhoff's Law; EXPERIMENT 5 Wheatstone Bridge; EXPERIMENT 6 Superposition, Thevenin and Norton Theorems; EXPERIMENT 7a Power in a DC Circuit; EXPERIMENT 7b Maximum Power Transfer Theorem; EXPERIMENT 8 DC RC Circuit and Transients; EXPERIMENT 9 DC RL Circuit and Transients; TASK NO: UEE-3.15 Removing and Installing Pins from Electrical Connectors; TASK NO: UEE-3.16 Inspection and Control of Cable Bundles and Bales

Textbook:

• Firat University Civil Aviation School, BASIC ELECTRICAL APPLICATIONS

I course lecture notes

• Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Publications,

2015.

Supporting textbooks:

• Electrical Circuits, Susan A. Riedel, James W. Nilsson, Palme Publications,2012.

• Hayt W., Kemmerly J., Durbin S., Engineering Circuit Analysis, McGraw-Hill, 2007.

SHY110 Basic Aircraft Information (4- 0) 4

Basic Concepts: Introduction, Atmosphere, Newton's Laws of Motion, Airfoil, Continuity and Bernoulli's Principle, Aerostatic and Aerodynamic Hold, Four Forces Acting on the Aircraft, Stall; Flight Control Surfaces; Aircraft Elements-Basic Concepts; Aircraft Elements Wing and Body; Aircraft Elements-Landing Gear; Aircraft Elements-Aircraft Engines; Balance, Stability, Cockpit Controls and Types of Flight Control Systems in Aircraft; High Speed Flight.

Textbook:

• Fırat University Civil Aviation College, AIRCRAFT BASIC INFORMATION course notes

• Kahvecioğlu, S., Kale, R., Turan, D., Turgut, E., Kaya N. Aircraft Information and Flight Principles,

Republic of Turkey Anadolu University, Eskişehir, 2016, 192 p.

• Theory of Flight, Mises R. V., (1959), Dover Publications, Smith, Z.,(2005),

• Planes and Helicopters, Author: Kaya ŞAHİN

Supplementary textbooks:

• Understanding Aircraft Composite Construction, Aeronaut Press, Dole, C. E., Lewis, J., E.

(2000),

• Flight Theory and Aerodynamics: A Practical Guide for Operational Safety, Wiley Interscience, Green, W., (1979),

• The Observer's Book of Basic Aircraft, Civil Encore Editions Bent, R.D.& McKinley, J.L.

(1985).

• Aircraft Powerplants, McGraw-Hill Book Company, New York.

SHY112 Human Factors (3 – 0) 3

General: Need to consider human factors; Incidents attributable to human factors/human errors; "Murphy's" Law; Human Performance and Limitations; Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access; Social Psychology; Responsibility: Individual and group; Motivation and demotivation; Age pressure; "Culture" issues; Teamwork; Management, supervision (supervision) and leadership; Factors

Affecting Performance; Fitness/health; Stress: Family and work-related; Time pressure and pressures related to completion of work; Workload: Overload and underload; Sleep and excessive fatigue, shift work; Alcohol, medication and drug use; Physical Environment; Noise and smoke; Lighting; Climate and temperature; Motion and vibration; Work environment; Tasks; Physical work; Repetitive tasks; Visual inspection; Complex systems; Communication; Communication within and between teams; Writing work and keeping records; Keeping them up-to-date and valid; Distribution/dissemination/sharing of information; Human error; Error models and theories; Types of errors in maintenance tasks; Consequences of errors (i.e. accidents); Avoidance and management errors; Hazards in the workplace; Recognizing and avoiding hazards; Being able to deal with emergencies

Textbook:

• Fırat University School of Civil Aviation, AIRPLANE BASIC INFORMATION lecture notes

• Human Factors in Aviation, Second Edition [Paperback] 2006 Eduardo Salas (Editor), Florian Jentsch (Editor), Dan Maurino (Editor)

Supplementary textbooks:

• Civil Aviation Authority of the United Kingdom, (2002). Safety Regulation Group, "CAP 715 "An Introduction to Aircraft Maintenance Engineering Human Factors for JAR 66". civil Aviation Authority: West Sussex.

• Civil Aviation Authority of the United Kingdom, (2003). "CAP 716 Aviation Maintenance Human Factors (EASA /JAR145 Approved Organisations), Guidance Material on the UK CAA Interpretation of Part-145 Human Factors and Error Management Requirements", Civil Aviation Authority: West Sussex

2ND YEAR – 3RD SEMESTER COURSES

SHY201 Thermodynamics (3 -0) 3

Introduction to Thermodynamics: basic definitions and concepts, Temperature: Thermometers and temperature scales, Celsius, Fahrenheit and Kelvin; Definition of Heat; Heat Capacity, Specific Heat; Heat Transfer: transfer (convection), radiation and Conduction; Volumetric Expansion (Expansion); First and Second Laws of Thermodynamics; Gases; Ideal gas laws; specific heat at constant volume and constant pressure, work done with gas expansion; Isothermal, adiabatic/adiabatic expansion and compression, Engine speeds, Constant volume and constant pressure, refrigerators and heat pumps; Latent heat of melting and vaporization, thermal energy, Heat of combustion.

Textbook:

• Firat University School of Civil Aviation, THERMODYNAMICS course lecture notes

• Thermodynamics with an engineering approach, Yunus A. Çengel, İzmir Güven Bookstore, 2012.

Supporting textbooks:

• Fundamentals of Thermodynamics for Engineers - Volume 1, Nurettin Yamankaradeniz, Ömer

Kaynaklı, Erhan Pulat , Recep Yamankaradeniz, Salih Coşkun, Dora, 2014.

• Principles of Classical Thermodynamics, Hafit Yüncü, Pelikan Publications, 2000.

• Thermodynamics for the Curious, Collective, Zambak Publications, 2012.

SHY203 Mechanics (4 - 0) 4

General Principles: Forces, Moments and Couples, Vector Representations; Force Vectors: Force Vector, Work, Power, Energy (Potential, Kinetic and Total Energy), Heat, Efficiency; Balance: Force, Rest/Inertia; Force Systems: Mass, Specific Gravity And Density/Density; Center of Gravity of a Body and Distributed Forces: Center of Gravity; Distributed Forces; Structural Analysis: Speed Ratio, Mechanical Advantage and Efficiency; Kinetics: Momentum, Momentum Conservation; Impulse; Gyroscopic Principles; Simple Vibration, Harmonic and Resonance Theory; Friction: Friction: Properties and Effects, Coefficient of Friction (Rolling Resistance); Kinematics: Rotational Motion: Uniform Circular Motion (Centrifugal Forces);

Periodic Motion: Pendular Motion; Principle of Virtual Works: Linear Motion: Uniform Motion in a Straight Line, Motion at Continuous Acceleration (Motion Under Gravity); Hydrostatics: Properties and Types of Solids, Liquids and Gases; Pressure and Lift Force in Liquids (Barometers); Hydrodynamics: Viscosity, Fluid Resistance, Laminar or Aerodynamic Flow Effects; Compressibility Effects in Fluids; Static, Dynamic and Total Pressure: Bernoulli's Theorem, Venture; Strength: Elements of Stress, Strain and Elasticity Theory; Tension, Compression, Shear and Torsion;

Textbook:

• Firat University Civil Aviation School, MECHANICS course lecture notes

• Classical Mechanics, T W Kibble, Palme Publishing, 1999.

Supporting textbooks:

• Mechanical Statics in Engineering, Sinan Çağdaş, Istanbul Gelişim University, 2014.

• Mechanical Statics and Strength of Materials Solved Problems for Engineers, Prof. Dr. Mehmet

H. Omurtag, BETA BASIM YAYIM, 2003.

SHY205 Basic Electricity II (3 - 0) 3

AC Theory: Sinusoidal waveform, Phase, period, frequency, cycle; Instantaneous, average, square root, peak, peak to peak current values and calculation of these values depending on voltage, current and power; Triangular/Square waves; Single/three phase principles. Resistive (R), Capacitive (C) and Inductive (L) Circuits; Phase relationship of voltage and current in L, C and R circuits, Parallel, series and series parallel L, C and R circuits, Power loss in L, C and R circuits; Impedance, phase angle, power factor and current calculations; Direct power, apparent power and reactive power calculations. Transformers: Structure and operating principles of transformers; Transformer losses and ways to prevent these losses; Behavior of transformers in loaded and unloaded conditions; Power transfer, efficiency polarity markings; Calculation of line and phase voltage and current; Power calculation in a three-phase system; Primary and secondary currents, voltages, winding ratios, power, efficiency; Autotransformers.

Filters: Operation, application and use of low pass, high pass, band pass and band stop filters; Use of low pass, high pass, band pass and band stop filters.

Textbook:

• Firat University Civil Aviation School, BASIC ELECTRICITY II course notes

• Electrical - Electronic Engineering Fundamentals Alternating Current Circuits Volume - 2, Ugur Arifoglu, Alfa Publications, 2012.

Supporting textbooks:

• Basic Engineering Circuit Analysis, David Irwin , R. Mark Nelms, NOBEL PUBLISHING DISTRIBUTION, 2015.

• Engineering Circuit Analysis, Hayt W., Kemmerly J., Durbin S., McGraw-Hill, 2007

SHY207 Basic Electrical Laboratory II (0 – 2) 1

Electrical Power (ATA 24):Installation and Operation of Batteries; DC Power Generation; AC Power Generation; Emergency Power Generation; Voltage Regulation/Adjustment; Power Distribution; Inverters, Transformers, Rectifiers; Circuit Protection; External Power / Ground Power;EXPERIMENT 1-1 AC Voltage Measurement;EXPERIMENT 1-2 AC Current Measurement;EXPERIMENT 2 AC RC Circuit;EXPERIMENT 3-1 AC RL Circuit;EXPERIMENT 3-2 AC RLC Circuit;EXPERIMENT 4 Series Resonant Circuit;EXPERIMENT 5 Parallel Resonant Circuit;EXPERIMENT 6 Power in AC Circuit;TASK NO: UEE-3.14 Implementation of Inspection and Control Procedures to be Performed in Case of Lightning Strike; TASK NO: UEE-3.17 Fire Warning System Control and Functional Test; TASK NO: UEE-3.18 Fire Extinguishing System Control and Functional Test; TASK NO: UEE-3.19 Fire Extinguishing Tube Replacement

Textbook:

• Firat University Civil Aviation School, BASIC ELECTRICAL APPLICATIONS II course lecture notes

• Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Publications, 2015.

Supporting textbooks:

• Electrical Circuits, Susan A. Riedel, James W. Nilsson, Palme Publications,2012.

• Hayt W., Kemmerly J., Durbin S., Engineering Circuit Analysis, McGraw-Hill, 2007.

SHY209 Materials and Equipment I (3-0) 3

Aircraft materials-Ferrous: Characteristics, properties and identification of alloyed steels commonly used in aircraft; Heat treatment and application of alloyed steels. Aircraft materials-Non-ferrous; Characteristics, properties and identification of non-ferrous materials commonly used in aircraft; Heat treatment and application of non-ferrous materials; Aircraft materials — Composite and Non-metallic: Composite and non-metallic other than wood and fabric; Characteristics, properties and identification of composite and non-metallic materials commonly used in aircraft, other than wood; Sealants and adhesives; Detection of defects/deteriorations in composite and non-metallic materials; Repair of composite and non-metallic materials: Timber structures; Construction methods related to wooden body structure; Characteristics and properties of wood and adhesives used in aircraft; Protection and preservation of wood structure; Types of wood material and wood structure defects; Detection of defects in wood structure; Repair of wood structure. Types of wood material and wood structure defects; Detection of defects in wood structure; Repair of wood structure. Fabric coating; Characteristics, properties and types of fabrics used in aircraft; Fabric inspection methods; Types of defects in fabrics; Repair of fabric coatings. Corrosion: Chemical principles; Galvanic process process, formation by tension, microbiological formation; Galvanic process process, formation by tension, microbiological formation; Types of corrosion and their definition; Causes of corrosion; Types of materials prone to corrosion

Textbook:

• Firat University Civil Aviation School, MATERIALS AND HARDWARE I course lecture notes

Supporting textbooks:

• TTS Integrated Training System. Module 6, Materials and hardware for EASA part-66. [Kempston, Bedford] : Total Training Support, 2009

SHY211 Material Inspection Methods (2-2) 3

Hardness testing of Ferro (ferrous) and Non-Ferro (non-ferrous) materials, Tensile strength of Ferro (ferrous) and Non-Ferro (non-ferrous) materials, Fatigue strength of Ferro (ferrous) and Non-Ferro (non-ferrous) materials, Impact resistance testing of Ferro (ferrous) and Non-Ferro (non-ferrous) materials. Non-destructive testing techniques including penetrant dye and magnetic particle testing methods; Non-destructive testing techniques including radiography and eddy current testing methods; Non-destructive testing techniques including ultrasonic testing and borescope methods;

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 6 License Category B1 Materials and Hardware

Supporting Textbooks:

• Materials and Hardware II lecture notes Compiled by: Assoc. Prof. Dr. Hülya KAFDELEN ODABAŞ

UEE201 Electronic Fundamentals I (3-0) 3

Semiconductors Diodes Diode symbols; Diode characteristics and properties; Series and parallel connected diodes; Silicon controlled rectifiers (SCR), light emitting diodes (LED), photoconductive diodes and varistors; Rectifier diodes; Testing of diodes; Materials, electron configuration, electrical properties; P-type and N-type materials: effects of accumulation in conductors, large or small elements, during conduction; PN junction in a semiconductor; potential generation across an unbiased, forward biased and reverse biased PN junction; Diode parameters: peak reverse voltage, maximum forward current, temperature, frequency, leakage current, power consumption; Operation and functions of diodes in circuits: clippers, holdings, half and full wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed study of operation and characteristics of SCRs (thyristors), LEDs, Schottky diodes, photoconductor diodes, varactor diodes, varistors, rectifier diodes and zener diodes; Transistors Transistor symbols; Component definition and orientation; Transistor characteristics and properties.

Textbook:

• Electronic Circuits, Halit Pastacı, Nobel Academic Publishing, 2015.

Supporting textbooks:

• Electronic Devices and Circuit Theory, Louis Nashelsky, Robert L. Boylestad, Palme Publishing, 2010.

• Analysis of Electrical and Electronic Circuits, Uğur Arifoğlu, Alfa Publishing, 2013.

• Electronic Devices and Circuit Theory, Boylestad, R. and Nashelsky L. Prentice Hall International, Inc., 1999

UEE203 Electronics Laboratory I (0-2) 1

Cleaning and pollution control, Assembly and disassembly techniques and applications, Reading and interpretation of electronic schemes and diagrams, Changing various electronic devices and performing their operation tests, PN-Junction Diode Characteristics, Series Clipping Circuits, Parallel Clipping Circuits, Half-Wave Rectifier, Bridge Rectifier, Zener Diode Characteristics

Textbook:

• Electronic Circuits, Halit Pastacı, Nobel Academic Publishing, 2015.

Supporting textbooks:

• Electronic Devices and Circuit Theory, Louis Nashelsky, Robert L. Boylestad, Palme Publishing, 2010.

• Analysis of Electrical and Electronic Circuits, Uğur Arifoğlu, Alfa Publishing, 2013.

• Electronic Devices and Circuit Theory, Boylestad, R. and Nashelsky L. Prentice Hall International, Inc., 1999.

3rd Semester Elective Courses

SHY213 Algorithm and Programming (2-1) 2

What is a computer? Introduction to programming, Algorithms and algorithm development, Basic and simple algorithm structures, Advanced algorithm structures, Introduction to Python programming language, Variables, constants and Python operators, Structured programming and conditional expressions, logical and mathematical expressions, control of program flow, Functions, Arrays, Libraries, File operations in Python.

Textbooks:

• Python Education Book, Volkan Taşçı

Supporting Textbooks:

• Python Programming from Zero to Expertise, Atıl Samancıoğlu

SHY215 Model Aircraft (2-1) 2

Model Aircraft Design development process, From parts determination to detailed design of model aircraft parts. Design improvement with Computer Aided Design tools, Design of parts with geometric modeling and feature-based solid modeling, Manufacturing of parts with 3D printer, Assembly of parts.

Textbook:

• Cad / Cam - Fundamentals of Computer Aided Drawing and Manufacturing, Ahmet Naci Çoklar, Faruk

Ünsaçar, Nobel Academic Publishing

Supporting Textbooks:

• Pro / Engineer Wildfire 2.0 Design, Analysis, Manufacturing (CAD CAE CAM)

• Product Design, Analysis and Manufacturing for Industrial and Engineering Product Designers

• Cevdet Göloğlu, Alparslan Öztürk, Seçkin Publishing - Computer Books

SHY217 Aircraft Fuels (2-1) 2

Fuel used in aircraft, Goods acceptance, Tanker fueling, Fuel and oil handling, Tanker roll over, Fuel withdrawal, Fuel quality control, Instructions, procedures, Tanker fueling, Dispenser fueling, Tanker fueling with dispensers, Static electricity, High risk operations, Periodic tests.

Textbook:

• Aviation Fuels with Improved Fire Safety, National

Academy Press, 1997.

Supporting Textbooks:

• Aircraft Fuel Systems, Roy Langton, Chuck Clark, Martin Hewitt, Lonnie Richards,

Wiley, 2009.

2ND YEAR – 4TH SEMESTER COURSES

SHY202 Electronic Instrument Systems (3 - 1) 3

Electronic Instrument Systems; Instruments (Devices) (ATA 31); Data Buses; Operation of data paths in aircraft systems, including information on ARINC and other specifications; Fiber Optics; Electronic Displays; Electrostatic Sensitive Devices; Software Management Control; Electromagnetic Environment; EMC-Electromagnetic Compatibility, EMI Electromagnetic; Interference, HIRF-High Impact Electromagnetic Field, Lightning/lightning protection; Typical Electronic/Digital Aircraft Systems; ACARS-ARINC Communication and Addressing and Recording System, EICAS-Engine Indicator and Crew Alerting System, FBW-electronic controlled flight/electronic flight control systems (fly-by-wire) FMS-Flight Management System IRS-Inertial Navigation/Reference System, ECAM-Electronic Central Aircraft Monitor EFIS-Electronic Flight Indicator System, GPS-Global Positioning System, TCAS-Traffic Alert and Collision Avoidance System Integrated Modular Avionics; Cabin Systems Information Systems.

Textbook:

• Firat University Civil Aviation School, ELECTRONIC INSTRUMENT SYSTEMS course lecture notes

Supporting textbooks:

• TTS Integrated Training System. Module 5, Digital techniques and electronic instrument for EASA part-66. [Kempston, Bedford] : Total Training Support, 2009.

SHY204 Aerodynamics (4 - 0) 4

Atmospheric Physics: International Standard Atmosphere (Isa), Application to Aerodynamics; Incompressible Fluid Dynamics: Boundary Layer, Laminar and Turbulent Flow, Free Stream Flow, Relative Air Flow, Upwash and Downwash, Vortices, Stagnation; Compressible Fluid Dynamics: Air Flow Around a Body. Aerodynamic Terms: Inclination, Chord, Mean Aerodynamic Chord, Profile (Parasite) Drag, Induced Drag, Center of Pressure, Angle of Attack, Roughness Ratio, Smoothness Ratio, Wing Shape and Aspect Ratio. Solid Body in Air Flow: Generation of Lift and Drag; Angle of Attack, Lift Coefficient, Drag Coefficient, Thrust, Weight, Aerodynamic Resultant; Aerodynamic Forces and Moments: Drag Coefficient, Polar Gradient, Stall; Flow Types: Viscous Flow, Inviscid Flow. Changes in Aerodynamic Coefficients: Profile Deposits such as Ice, Snow and Frost. Wing Profiles: Naca, Lm, Ls Wing Profiles and Their Geometries. Rotary Wing Aerodynamics: Loss in Propeller; Aerodynamic, Centrifugal and Thrust Forces; Flight Stability: Longitudinal, Lateral and Directional Stability (Active and Passive)

Textbook:

• Firat University Civil Aviation School, AERODYNAMICS course lecture notes

Supporting textbooks:

• TTS Integrated Training System. Module 8. Aerodynamics for EASA Part-66. [Kempston, Bedford] : Total Training Support, [2014].

SHY206 Aerodynamics Laboratory (0 - 2) 1

Roll Controls; Pitch Control; Canard Control; Yaw Control; Elevon and Ruddervator; Brakes; Wing Fenders; Stall and Leading Edges; Fleetners; Balance Panels; Supersonic Flight; Match Number and Effects; Critical Match Number

Textbook:

• Firat University Civil Aviation School, Aerodynamics Applications course lecture notes

Supporting textbooks:

• TTS Integrated Training System. Module 8. Aerodynamics for EASA Part-66. [Kempston, Bedford] : Total Training Support, [2014].

SHY208 Gas Turbine Engine Theory (4-0) 4

Basic Principles; Potential energy, Kinetic energy; Thermodynamic Laws, Gas Laws; Working Cycles and Principles; Bratyon cycle, Force, work, power, energy, acceleration, speed; Turbojet, Turbofan, Turboshaft and Turboprop; Structural adjustments and operating principles; Fuel Systems; Function of a Fuel System; Control of a Fuel System; Manual and Automatic Fuel Control, Pressure Control; Pressure control of turboprop engines, Pressure control in turbojet engines; Flow Control; Proportional flow control system; Combined Acceleration and Speed Control, Electronic Engine Control, Fuel Pumps, Fuel Heaters; Fuel Injection Nozzles; FADEC control ;Structure of FADEC system, Parts of FADEC, Starting and Ignition Systems; Starting Procedure; Starting Methods, Use of Starting Systems, Starting Air System, Fault Detection in Starter Systems, Ignition Systems; Ignition Unit Types, Ignitor Spark Plugs, 15.14 Engine Indicator Systems; Typical Engine Monitoring Instruments, Pressure Measurement, Temperature Measurement; Exhaust Gas Temperature; Speed Measurement; Speed Measurement System with a Generator; Speed Measurement System with a Tacho Probe; Quantity Measurement; Fuel Flow Indicator Systems, Independent Fuel Flow Meter, Fuel Quantity Indicator Systems; Engine Vibration Monitoring and Indicator System; Working Principle; Auxiliary Engine Indicator Systems.

Textbook:

• Tts Inegrted Training System Module 15 License Category B1 Gas Turbine Engine

Supporting Textbooks:

• Gas Turbine Engine Theory Lecture Notes Compiled by: Dr. Lecturer Burak Tanyeri

SHY210 Materials and Hardware II (3-0)3

Fastening/Connectors, Threads, Bolts, Studs and Screws, Locking devices, Aircraft rivets, Pipes and Fittings, Springs, Bearings, Transmissions.

Textbook:

• Tts Inegrted Training System Module 6 Licence Category B1 Materials And Hardware

Supplementary Textbooks:

• Materials and Hardware II lecture notes Compiled by: Dr. Lecturer Yusuf ER

SHY212 Differential Equations (2 - 0) 2

Concept of Differential Equation: Solutions of differential equations; First Order and First Degree Differential Equations: Differential equations that can be separated into variables, Homogeneous differential equations, Linear differential equations, Exact differential equations; Higher Order Linear Differential Equations with Constant Coefficients and Their Applications: Homogeneous equations, Non-homogeneous equations.

Textbook:

• Differential Equations, Richard Bronson, Translator: Hilmi Hacısalihoğlu, Nobel Academic Publishing, 2013.

Supporting textbooks:

• Differential Equations with Theory and Solved Problems, Aladdin Şamilov, Nobel Academic Publishing, 2012.

• Differential Equations with Solved Problems, Metin Başarır, Değiş Publishing, 2003

UEE202 Electronic Fundamentals II (3-0) 3

Transistors Structure and operation of PNP and NPN transistors; Base, collector and emitter configurations; Transistor tests; General evaluation and usage areas of other transistor types; Applications of transistors: amplifier classes (A, B, C); Simple circuits including bias, decoupling, feedback and stabilization; Multi-stage circuit principles: cascade, push-pull, oscillators, multi-vibrators, flip-flop circuits. Integrated Circuits Operation and use of encoders and decoders; Functions of encoders; Use of medium, large, very large scale integrations; Multiplexing; Multiplexer and demultiplexer concepts, their operation, applications and definitions in logic diagrams; Definition and operation of logic and linear circuits; Introduction to the operation and functions of an operational amplifier: introduction to the operation and functions of an operational amplifier used as an integrator, differentiator, voltage follower, comparator; Operation of amplifier stages and methods of combining: resistive, capacitive, inductive (transformer), inductive, resistive (IR), direct; Advantages and disadvantages of positive and negative feedback. Printed Circuit Boards (PCB).

Textbook:

• Electronic Devices and Circuit Theory, Boylestad, R. and Nashelsky L. (), Prentice Hall International, Inc., 1999.

Supplementary textbooks:

• Electrical Circuits and Systems - An Introduction for Engineers and Physical Scientists, A.M. Howatson.

• Fundamentals of Electric Circuit Analysis, C.Paul. Microelectronic Circuits, A.S. sedra & K.C. Smith.

• The Analysis and Design of Linear Circuits, R.E. Thomas & A. J. Rosa.

UEE204 Electronics Laboratory II (0-2) 1

Cleaning and contamination control, Assembly and disassembly techniques and their applications, Basic transistor characteristics; Transistor characteristic curves; Testing of transistors; Switching circuit; Common Emitter Amplifier; Common Base Amplifier; Common Collector Amplifier; Monostable multivibrators; Crystal oscillators; Differentiator circuit; Integrator circuit; Voltage follower; Comparators.

Textbook:

• Electronic Devices and Circuit Theory, Boylestad, R. and Nashelsky L. (), Prentice Hall International, Inc., 1999.

Supplementary textbooks:

• Electrical Circuits and Systems - An Introduction for Engineers and Physical Scientists, A.M. Howatson.

• Fundamentals of Electric Circuit Analysis, C.Paul. Microelectronic Circuits, A.S. sedra & K.C. Smith.

• The Analysis and Design of Linear Circuits, R.E. Thomas & A J. Rosa.

IV. Semester Elective Courses

SHY214 Computer Aided Design (2-1) 2

Design development process covers the stages from problem identification to detailed design and evaluation. The role of Computer Aided Design tools in product development. Geometric modeling and Feature-based solid modeling.

Textbook:

• Cad / Cam - Fundamentals of Computer Aided Drawing and Manufacturing, Ahmet Naci Çoklar, Faruk Ünsaçar, Nobel Academic Publishing

Supplementary Textbooks:

• Pro / Engineer Wildfire 2.0 Design, Analysis, Manufacturing (CAD CAE CAM)

• Product Design, Analysis and Manufacturing for Industrial and Engineering Product Designers

• Cevdet Göloğlu, Alparslan Öztürk, Seçkin Publishing - Computer Books

SHY216 Microprocessors (2-1) 2

General reminders about logic circuits: Number systems, decimal, binary and hexadecimal number conversions; Processor terms: Bit, Byte, Hardware, CPU and various memory circuits such as RAM, ROM, PROM, Processor technology; Register: memory elements; Introduction to microprocessors: Basic processor structure, memory types, ALU, Data path structures, memory addressing and decoding techniques; 8085 Microprocessor: structure, processor registers, commands, command timings, interrupts; Parallel, serial input output elements (I/O Ports); Programming Techniques.

Textbook:

• 8080 / 8085 Microprocessors and Peripherals, Assoc. Prof. Doğan İbrahim, Kaan Uyar, Bileşim Publications, 2007.

Supporting Textbooks:

• Microprocessors and Assembly Language, Nurettin Topaloğlu, 2015

• Microprocessors, İlhan Tarımer, Nobel Academic Publishing, 2007.

• Microprocessors, M. Kaya Yazgan, Nobel Academic Publishing, 2015.

SHY218 Computer Applications in Aviation (2-1) 2

Using Aerospace toolbox in Matlab, Coordinate system transformations, Flight parameters, Environmental models, Atmosphere, Gravity and magnetic fields, Wind, Flight instruments, Flight simulator interface.

Textbook:

• Aircraft Dynamics: From Modelling to Simulation, Marcello Napolitano, John Wiley&Sons, 2012.

3RD YEAR – 5TH SEMESTER COURSES

SHY301 Aircraft Electrical Systems (4-0)4

Installation and Operation of Batteries, DC Power Generation, DC Power Generation, AC Power Generation, AC Power Generation, Emergency Power Generation, Emergency Power Generation, Voltage Regulation / Adjustment, Power Distribution, Power Distribution, Inverters, Transformers, Rectifiers, Circuit Protection, External Power / Ground Power

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine Aeroplane Aerodynamics, Structures and Systems

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft Electrical Systems lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY303 Aircraft Electrical Systems Laboratory (0-4) 2

Installation and Operation of Batteries, Removal and Installation of Battery in Electrical Training Set, Removal and Installation of Battery on Aircraft, DC power generation, Demonstration of DC power generation in Aircraft Training Set and operation of the system, DC power generation, Measurement of DC voltage in Electrical Training Set, Measurement of DC voltage on Aircraft, AC power generation, Demonstration of AC power generation in Aircraft Training Set and operation of the system, AC power generation, Measurement of AC voltage in Electrical Training Set, Emergency power generation, Demonstration of AC ESS Buses in Electrical Training Set and ON-OFF of Bus connection switch Emergency power generation, Voltage regulation / adjustment, Voltage adjustment in Electrical Training Set, Power distribution, Starting of Engine in Electrical Training Set and Voltage generation without giving Excitation current to Generator Measurement, Power distribution, Starting the Motor in the Electrical Training Set and Measuring the Voltage to Show That No Voltage Occurs Without Giving Excitation Current to the Generator, Inverters, Transformers, Rectifiers, Seeing What Happens When the Inverter Is Working and When It Is Working in the Electrical Training Set and Making AC Voltage Measurement, Circuit Protection, Relay Disassembly and Assembly in the Electrical Training Set, Demonstration of CBs in the Electrical Training Set,

External Power / Ground Power, Connecting the External Power to the Electrical Training Set and Powering the Set, Connecting to the External Aircraft.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine Aeroplane Aerodynamics, Structures and Systems

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft Aerodynamics, Structures and Systems

Supporting Textbooks:

• Aircraft Electrical System Applications lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY305 Aircraft Maintenance Workshop (1-7) 4

Safety Precautions-Aircraft and Workshop; Phases of safe work practices including safety precautions to be taken when working with electricity, gases especially oxygen, oils and chemicals. Also, instructions on remedial actions to be taken in the event of a fire or other accident that may occur with one or more of these hazards, including information on extinguishing agents. Workshop Practices, Maintenance of tools, control of tools, use of workshop materials; Calibration of tools and equipment, calibration standards, Tools / Kits, Commonly used types of hand tools; Commonly used types of power tools; Operation and use of precision measuring instruments; Lubrication equipment and lubrication methods, Aircraft Weight and Balance, Aircraft Handling and Storage, Disassembly and assembly techniques, Troubleshooting techniques.

Textbook:

• TTS İNTEGRATED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Supporting Textbooks:

• Electrical Machines Lecture Notes Compiled by: Dr. Lecturer Yusuf ER

SHY307 Gas Turbine Engine Shop (0-4) 2

15.11 Fuel Systems, Operation of engine control and fuel metering systems including electronic engine control (FADEC); Layout and components of systems, Starting/Starting and Ignition Systems, Operation of engine starting system and components, Maintenance safety requirements, Ignition systems and components; 15.14 Engine Indicating Systems, Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indicator: Engine Pressure Ratio, engine turbine discharge pressure or jet (exhaust) pipe pressure systems; Engine Thrust Indicator: Engine Pressure Ratio, engine turbine discharge pressure or jet (exhaust) pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow; Engine speed; Vibration measurement and indication; Torque; Power.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 15 License Category B1 Gas Turbine Engine

Supporting Textbooks:

• Gas Turbine Engine Applications lecture notes Compiled by: Dr. Lecturer Burak TANYERi

SHY309 Aircraft Maintenance Terminology I (3-0) 3

Tools / Kits, Commonly used hand tool types; Commonly used power tool types; Operation and use of precision measuring instruments; Lubrication equipment and lubrication methods. Operation, functions and use of electrical general test equipment. Avionics General Test Equipment, Operation, functions and use of general avionics test equipment. Engineering Drawings, Diagrams and Standards, Drawing types and diagrams, symbols, dimensions, tolerances and projections; Wiring diagrams and schematic diagrams. tolerances and projections; Wiring diagrams and schematic diagrams.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Supporting Textbooks:

• Aircraft Maintenance Terminology I lecture notes, Compiled by: Dr. Lecturer Zehra URAL BAYRAK

UEE301 Digital Electronics I (3-0) 3

5.2 Numbering Systems Numbering systems: 5.3 Data Conversion Binary, octal and hexadecimal; Demonstration of decimal and binary, octal and hexadecimal systems and mutual conversions. Analog Data, Digital Data; Application of various types of converters, inputs and outputs, limitations from analog to digital and from digital to analog. 5.5 Logic Circuits (a) Dissemination of common logic temporary symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. (b) Interpretation of logic diagrams. 5.6 Basic Computer Structure (a) Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (aircraft systems as they are operated). (b) Terminology related to computers; Operation, layout, and interfacing of major components in a microcomputer, including associated data bus systems; Information contained in single- and multiple-address instruction words; Terms related to memory; Operation of typical memory devices; Operation, advantages, and disadvantages of various data storage systems

Textbook:

• M. Morris Mano, 2002, Digital Design, Prentice Hall, New Jersey-USA, 3rd edition.

Supporting textbooks:

• Digital Fundamentals,Thomas L. Floyd, Merrill, Ohio-USA, 1999,

• Digital Electronics, Engin Tekin, Metin Bereket, Kanyılmaz Printing House, 2005.

UEE303 Digital Electronics Laboratory I (0-2) 2

Cleaning and pollution control, Assembly and Disassembly techniques and applications, 13.4 Communication/Navigation (ATA 23/24) Principles of radio wave propagation, antennas, transmission lines, communication, receivers and transmitters; Working principles of the following systems: Very High Frequency (VHF) communication; High Frequency (HF) communication; Audio, Emergency Location Transmitters, Cockpit Voice Recorder, Very

High Frequency omnidirectional air navigation direction device (VOR), Automatic Direction Finding (ADF), Instrument Landing System (ILS), Microwave Landing System (MLS), Flight Distance Measuring Equipment (DME), Very Low Frequency and hyperbolic navigation (VLF/Omega), Doppler navigation, Area navigation, RNAV systems, Flight Management Systems, Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS), Inertial Navigation System, Air Traffic Control transceiver, secondary surveillance radar, Traffic Alert and Collision Avoidance System (TCAS), Air avoidance radar Radio altimeter, ARINC communication and reporting.; Logic Gate Circuits; Threshold Voltage Measurement; Voltage/Current Measurement; Characteristics of Basic Logic Gates, Interface Between Logic Gates; OR NOT Gate Circuit; AND NOT Gate Circuit;

EXCLUSIVE OR Gate Circuit; AND-OR NOT (AOI) Gate Circuits; Comparator Circuits; Half and Full Adders; Half and Full Subtractors; Arithmetic Logic Unit Circuit; Parity Generator Circuit; Encoder Circuits; Decoder Circuits; Multiplexer Circuits; Demultiplexer Circuits; Analog Multiplexer/Demultiplexer Circuits

Textbook:

• M. Morris Mano, 2002, Digital Design, Prentice Hall, New Jersey-USA, 3rd edition.

Supporting textbooks:

• Digital Fundamentals,Thomas L. Floyd, Merrill, Ohio-USA, 1999,

• Digital Electronics, Engin Tekin, Metin Bereket, Kanyılmaz Printing House, 2005.

5th Semester Elective Courses

SHY311 Advanced English I (2-0) 2

Grammar: Passives; Past Perfect; If-Wish Conditionals; Noun Clauses and Reported Speech; Vocabulary: Common Verbs; Electronics; Time Telling; Directions;Cooking and Recipes; Geography Speaking: Comparing Things; Talking about the Possessed;Giving and Asking for Directions; Describing a Scene

Textbook:

• Eastwood, John., “Oxford Practice Grammar”, Oxford, OUP, 1992

• Undersanding and Using English Grammar by B.S. Azar The Little Prince by S. Exupery The Old Man and the Sea by E. Hemingway

Supplementary Textbooks:

• Taşdelen, Berna. “Cornerstone for Gramer Practice”, Ankara, Spring Publication, 2004

• English-English Dictionary

SHY313 Aircraft Design (2-0) 2

Reaction propulsion. Structure and Loads. Weights. Stability, control and handling quality. Performance and flight mechanics. Cost Analysis. Flight Safety and Certification (General Airworthiness Certification, Safety, Hydromechanics, Flight Performance, Human Factors)

Textbook:

• Raymer D. P, 2006, Aircraft Design: A Conceptual Approach, Fourth Edition, AIAA Education Series, New York, NY, ISBN:1-56347-829.

Supplementary Textbooks:

• Roskam J., 2003, Airplane Design, parts: 1-8, Design, Analysis and Research Corporation

(DARcorporation), ISBN:1-884885-42-.

• National Archives and Records Administration, 2009, E. Code ofFederal Regulations Aeronautics and Space T. 14.

SHY315 Unmanned Aerial Vehicles (2-0) 2

Unmanned Aircraft System, Historical Development Process, Unmanned Aircraft Legislation of Countries, Material Selection, Aircraft Initial Weight Estimations and Initial Sizing, Estimation of Critical Performance Parameters, Wing Loading, Weight/Thrust Ratio, Configuration Plan, Body and Tail Configurations Selection, Landing Gear and Propeller Configurations Selection, Performance Analysis, Flight Stability, Longitudinal and Lateral Stability, Cost Analysis, Flight Safety and Flight Suitability Documents.

Textbook:

• A. Kule, Unmanned Aircraft Systems, Beta Publications, Istanbul, 2015.

Supporting Textbooks:

• Designing Unmanned Aircraft Systems: A Comprehensive Approach, AIAA education series, Jay Gundlach, American Institute of Aeronautics & Astronautics, 2014.

3RD YEAR – 6TH SEMESTER COURSES

SHY302 Aircraft Systems I (4-0)4

General Concepts of Body Structure, General Concepts of Body Structure, Air Resources, Air Conditioning, Pressurization, Pressurization, Safety and Warning Devices, Oxygen, Pneumatic and Vacuum, Cabin Systems

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine Aeroplane Aerodynamics, Structures and Systems

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft Systems I lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY304 Aircraft Systems Laboratory I (0-4) 2 Frame Structure General Concepts, Body Structure General Concepts, Air Resources, Air

Conditioning, Pressurization, Pressurization, Safety and Warning Devices, Oxygen, Pneumatic and Vacuum, Cabin Systems.

SHY304 Aircraft Systems Laboratory I (0-4) 2

Frame Structure General Concepts, Body Structure General Concepts, Air Resources, Air Conditioning, Pressurization, Pressurization, Safety and Warning Devices, Oxygen, Pneumatic and Vacuum, Cabin Systems.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine Aeroplane Aerodynamics, Structures and Systems

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft System Applications I lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY306 Aircraft Maintenance Terminology II (3-0) 3

Aircraft engines, Flight control surfaces, Aircraft systems, Use of maintenance manuals.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Supporting Textbooks:

• Aircraft Maintenance Terminology I lecture notes, Compiled by: Dr. Lecturer Zehra URAL BAYRAK

SHY308 Electrical Maintenance Workshop (1-7) 5

Avionic General Test Equipment, Electrical Installation Internal Connection System (EWIS), Soldering methods, control of soldered connections, Unusual Events

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Supporting Textbooks:

• Electrical Maintenance Practices lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

UEE302 Digital Electronics II (3-0) 3

Flip-Flop Circuits Flip-Flop Structure, Properties, Types. R-S Flip Flop, Triggered R-S Flip Flop, J-K, D and T type Flip-Flops, Asynchronous Forward and Backward Counter Circuits, Synchronous Forward and Backward

Counter Circuits, Synchronous Forward and Backward Counter Circuits, Register Circuits, Serial Input-Serial Output Registers, Serial Input-Parallel Output Registers, Parallel Input-Serial Output Registers, Parallel Input-Parallel Output Registers, Integrated Circuits, Operation and use of encoders and decoders, Function of encoder types, Use of medium, large and very large scale integrations. Multiplexing, Operation, application of multiplexers and demultiplexers and determination of logic diagrams. Microprocessors, Functions performed by microprocessors and their general operation, Registers, Basic operation of each of the following microprocessor elements: Control and processing unit, clock, recorder, arithmetic logic unit.

Textbook:

• M. Morris Mano, 2002, Digital Design, Prentice Hall, New Jersey-USA, 3rd edition.

Supporting textbooks:

• Digital Fundamentals,Thomas L. Floyd, Merrill, Ohio-USA, 1999,

• Digital Electronics, Engin Tekin, Metin Bereket, Kanyılmaz Printing House, 2005.

UEE304 Digital Electronics Laboratory II (0-2) 1

Cleaning and contamination control, Assembly and Disassembly techniques and applications, Changing various electronic devices and performing their operation tests. Implementing R-S Flip-Flop with Logic Gates Implementing D Flip-Flop with R-S Flip-Flop; Implementing J-K Flip-Flop with R-S Flip-Flop; Implementing Synchronous Counter with J-K Flip-Flops; Synchronous Counter Circuit Design; Implementing Shift Register with D Flip-Flops; Applications of reading integrated catalogs and their connections with each other; Applications related to multiplexers; Microprocessor commands; Microprocessor program applications

Textbook:

• M. Morris Mano, 2002, Digital Design, Prentice Hall, New Jersey-USA, 3rd edition.

Supporting textbooks:

• Digital Fundamentals,Thomas L. Floyd, Merrill, Ohio-USA, 1999,

• Digital Electronics, Engin Tekin, Metin Bereket, Kanyılmaz Press, 2005.

6th Semester Elective Courses

SHY310 Advanced English II (2-0) 2

Grammar: Relative Clauses; Conjunctions and Transitions; Tag Questions Vocabulary: Furnitures; Snacks; Vehicles; Common Buildings; Countries and Nationalities; Speaking: Story-Telling; Talking about experiences; Talking about Future Plans; Talking about Hypothetical Situations

Textbook:

• Eastwood, John., "Oxford Practice Grammar", Oxford, OUP, 1992

• Undersanding and Using English Grammar by B.S. Azar The Little Prince by S. Exupery

The Old Man and the Sea by E. Hemingway

Supplementary Textbooks:

• Taşdelen, Berna. "Cornerstone for Grammar Practice", Ankara, Spring Publication, 2004

• English-English Dictionary

SHY312 Fracture Mechanics (2-0) 2

Fundamentals of Fracture Mechanics, Material Defects, Basic Principles, Development of Fracture Mechanics, Elasto Plastic Fracture, Fatigue Fracture, Fracture Mechanics Applications, Fracture Mechanics Problems.

Textbook:

• Introduction to Fracture Mechanics Lecture Notes, Assoc. Prof. Dr. M. Evren TOYGAR, Dokuz Eylül University.

• Anderson, "Fracture Mechanics Fundamentals and Applications."

• Richard W.Hertzberg, "Deformation and Fracture Mechanics Of Engineering Materials."

Supplementary Textbooks:

• Dowling, "Mechanical Behavior of Materials"

• Broek, "Elementary Engineering Fracture Mechanics"

• Ağah Uğuz, "Introduction to Fracture Mechanics"

SHY314 Power Electronics (2-0) 2

Basic principles of power electronics and basic elements of power electronics. Snubber circuit design. Drive circuits. AC chopper circuits. Operation of single-phase and three-phase controlled/uncontrolled rectifier circuits under various load conditions. DC chopper circuits. Single-phase inverters. Inverter analysis and methods for frequency/voltage control. Harmonic analysis for inverter and modulation index and frequency ratio. Commercial PWM production.

Textbook:

• Power Electronics, Mohan,Undeland, Robbins, Translation: Nejat Tuncay, Metin Gökaşan, Seta

Boğosyan, Literatür Publications, 1st Edition September 2003.

Supplementary Textbooks:

• Modern Power Electronics and Drivers, Bimal K. Bose, Prentice Hall PTR.

• Power Electronics, Assoc.Prof.Dr. Osman Gurdal, Nobel Publishing Distribution, 2nd Edition 2000.

• Power Electronic Control of AC Motors, JMD Murphy&FG Turnbull, Pergamon Pres, 1988.

4TH GRADE – VII. SEMESTER COURSES

SHY401 Aircraft Display Systems I (3-2) 4

Pitot Static System, Air Data Computer, Instrument Pneumatic System, Direct Reading Pressure and Temperature Indicators, Heat Indicator Systems, Fuel Quantity Indicators, Gyroscopic Instruments, Ground Proximity Warning System (GPWS), Compass System, Flight Information Recording System, Electronic Flight Indicator System, Indicator Warning Systems, Main Warning Systems and Central Warning Panels, Loss of Stamina Warning System, Angle of Attack Indicator System.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft Display Systems I lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY403 Aircraft Systems II (4-0) 4

Equipment and Furnishings, Fire Protection, Fuel Systems, Hydraulic Power, Ice and Rain Protection, Landing Gear, Lights, Water/Waste, Integrated Modular Avionics.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine Aeroplane Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft Systems II lecture notes, Compiled by: Dr. Lecturer Ömer Osman DURSUN

SHY405 Aircraft Systems Laboratory II (0-4)2

Equipment and Furnishings, Fire Protection, Fuel Systems, Hydraulic Power, Ice and Rain Protection, Landing Gear, Lights, Water/Waste, Integrated Modular Avionics.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 11 License Category B1 Turbine

Aeroplane Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft System Applications II lecture notes, Compiled by: Dr. Lecturer Ömer Osman

DURSUN

SHY407 Maintenance Procedures (3-1) 4

Maintenance planning, SHT – M Maintenance Program, Maintenance Procedures at BKEK (SHT-145), Modification, procedures, Depot procedures, Certification/maintenance release procedures, Aircraft operation interface, Maintenance Inspection (Control)/ Quality Control/ Quality Assurance, Additional maintenance procedures, Control of life parts.

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Supporting Textbooks:

• Maintenance Procedures and Applications lecture notes, Compiled by: Assoc. Prof. Dr. Hülya KAFDELEN ODABAŞI

UEE401 Maintenance Practices (1-7) 5

7.15.a Welding, Coating, Soldering and Bonding; 7.16.a Aircraft Weight and Balance; 7.17 Aircraft Handling and Storage; 7.18.a Disassembly, Assembly, Repair and Inspection Techniques.

Textbook:

• Maintenance Practices for EASA Part 66, Module 7, Total Training Support, 2008.

Subsidiary textbooks:

• Basic Maintenance Training Manual, Module 7, JAR66.

• Standard Aviation Maintenance Handbook, Jeppesen Maintenance, 2003.

• Module 7 Maintenance Practice, Aviotrace Swiss SA, 2015.

UEE403 Automatic Control (3-0) 3

Basic Principles of Control Systems; Open and Closed Loop, Laplace Transform, Solution of Differential Equations. Tracking and Disturbance Rejection Performances, Servomechanisms, Regulators. Structure and Operation of Synchronous System Components/Features. Analog, Power Converter, Reset, Damping, Feedback, Resolvers, Differential Receivers. Actuators, Capacitance Transducers, Synchronous Transducers, Closed Loop System Architectures, Routh Hurwitz Stability Criteria, Dead Band; Transient Response Characteristics, Fault Detection, Servomechanism Defects. Reverse Connection of Synchronous Legs, P Control, P Control and Torque, Pi Control and Torque, Pid Control and Torque,

Textbook:

• Fundamentals of Automatic Control, Prof. Dr. Nimet Özdaş, Prof. Dr. Talha Dinibütün, Prof. Dr. Ahmet Kuzucu (1998), Birsen Publishing House.

Supporting textbooks:

• Modern Control Engineering, Katsuhıko Ogata, Prentice-Hall Inc., 1970.

• Automatic Control, İbrahim Yüksel, Nobel Academic Publishing, 2012.

• Automatic Control Systems, Mehmet Önder Efe, Seçkin Publishing, 2014.

4TH GRADE – VIII. SEMESTER COURSES

SHY402 Aircraft Display Systems II (3-3) 5

Central Maintenance Computer System (CMCS), Data Loading System, Multi-Purpose Control and Display Unit (MCDU), Examination of CMCS Operating Modes via MCDU, ACARS and ARINC System Printing Process, Cabin Information System, Passenger Entertainment System, Video and Audio, Electronic Equipment Compartment

Textbook:

• TTS INEGRTED TRAINING SYSTEM Module 13 License Category B1 Aircraft

Aerodynamics, Structures and Systems

Supplementary Textbooks:

• Aircraft Display Systems I lecture notes, Compiled by: Lecturer Mustafa AKIN

SHY404 Electrical Machines (4-0) 4

DC Motor/Generator Theory; Basic motor and generator theory; Structure and purpose of components in DC generator; Operation of current output and current flow direction in DC generators and factors affecting them; Operation of output power, torque, speed and rotation direction of DC motors and factors affecting them; Series wound, parallel wound and compound motors; Starter Generator structure. AC Generators; Loop/circuit rotation in magnetic field and generated waveform; Operation and structure of rotating armature and rotating field type AC generators; Single-phase, two-phase and three-phase alternators; Advantages and uses of three-phase star and delta connection; Permanent/Natural Magnet Generators. AC Motors; Structure and operating principles of both single-phase and polyphase AC synchronous and induction motors; Speed control and rotation direction methods; Speed control and rotation direction methods; Rotating field generation methods: capacitor, inductor, shaded or split pole.

Textbook:

• Electric Motors and Drivers, Ali Özdemir, Seçkin,2014.

Supporting Textbooks:

• Electrical Machines Lecture Notes Compiled by: Assoc. Prof. Dr. Eyyüp ÖKSÜZTEPE

• TTS INEGRTED TRAINING SYSTEM Module 3 License Category B1 Electrical Fundamentals

SHY406 Electrical Machinery Laboratory (0-3) 2

Discussion of cleaning and pollution control, generator power control, voltage adjustment, assembly and disassembly techniques and applications, functional testing of fuel quantity indicator system, 1-phase Transformers, 3-phase Transformers, DC Motors, Asynchronous motors, Servo motors, DC Driver, AC driver, Alternators

Textbook:

• Electric Motors and Drivers, Ali Özdemir, Seçkin, 2014.

Supporting textbooks:

• Electric Machinery, Fitzgerald, A.E., Kingsley, Charles., Umans, Stephen D, Mc Graw Hill, 2003.

• Electric Motors and Drivers, ADEM ALTUNSAÇLI, Author, 2008.

• Electric Motors and Drivers Pocket Book / Newnes, Austin Hughes, Bileşim Publishing, 2004.

UEE402 Automatic Flight Systems (2-4) 4

Automatic Flight and Flight Controls, Autopilot System Basics, Autopilot System Operating Modes, Yaw Dampers, Yaw Damper Connection Switch and Connection Light, Yaw Damper Indicator, . Yaw Dampers, Stall Management Yaw, Damper (SMYD), Solenoid Valve, Stability Augmentation System in Helicopters, Dual Autopilot Control, Typical Flight Profile, Autopilot Sensors and External Signal Sources, Stability Augmentation System in Helicopters, Autopilot Control Panels, Sikorsky Control Panels, SAS Mode, Stability Augmentation System in

Helicopters, Attitude Protection Mode, Pilot Control, Automatic Flight Control System, Stability Augmentation System in Helicopters, AFCS Hierarchy, Common Parts of Automatic Flight System, Helicopter Flight Suitability Criteria for Instrument Flight, Automatic Trim Control, Autopilot Navigation Systems, Automatic Throttle System, Automatic Landing System

Textbook:

• Aircraft Structures and Systems, Module 13, SRT.

Supplementary textbooks:

• Aircraft Aerodynamics, Structures and Systems for EASA Part-66, Module 13.

• Module 13 LBP.

• Module 13 Aircraft Structures and Systems, Aviotrace Swiss SA, 2015

UEE404 Communication and Navigation Systems (4-0) 4

I. Fundamentals of Radio Wave Broadcasts; A. Electromagnetic Wave; B. Radio Waves; C. Sound Waves (SD) and Radio Waves (RD); Ç. Modulation; D. Refraction, Reflection, Diffraction and Absorption Properties of Radio Waves; E. Antennas; F. Transmission Lines; G. Receivers and Transmitters; II. Communication Systems A. VHF Communication; B. HF Communication; C. Audio Systems; Ç. Emergency Locator Transmitter System (ELT) D. Cockpit Voice RecorderSystem (CVR); III. Navigation Systems; A. VOR System (Very High Frequency Omnidirectional Radio Range); B. Automatic Direction Finding (ADF); C. Instrument Landing System (ILS); Ç. Microwave Landing System (MLS); D. Flight Data Recorder (FDR); E. Distance Measuring Equipment (DME); F. VLF/Omega System; G. Doppler VOR (DVOR); Ğ. Regional Navigation (RNAV Systems); H.Flight Management Systems (FMS); I. Global Positioning System (GPS); İ. Global Navigation Satellite Systems (GNSS); J. Inertial Navigation System; K. Air Traffic Control Transponder; L. Auxiliary Surveillance Radar; M. Air Protection Radar; N. Radio Altimeter; O. ARINC Communication Notification.

Textbook:

• Aircraft Structures and Systems, Module 13,TTS.

Supplementary textbooks:

• Aircraft Aerodynamics, Structures and Systems for EASA Part-66, Module 13.

• Module 13 Aircraft Structures and Systems, LBP.

• Module 13 Aircraft Structures and Systems, Aviotrace Swiss SA, 2015

UEE406 Communication and Navigation Systems Laboratory (0-4) 2

Replacement of various antennas; Replacement of various antennas; Unit change in HF communication system and testing of communication system; Unit change in VHF communication system and testing of communication system; Control of VHF Radio; Radio Frequency adjustment and wave measurement and tests

Textbook:

• Aircraft Structures and Systems, Module 13,TTS.

Supplementary textbooks:

• Aircraft Aerodynamics, Structures and Systems for EASA Part-66, Module 13.

• Module 13 Aircraft Structures and Systems, LBP.

• Module 13 Aircraft Structures and Systems, Aviotrace Swiss SA, 2015

UEE408 Graduation Project (0-2) 1

A graduation project is carried out experimentally or theoretically, which will be the application of the courses that our students are responsible for during their education, on the research topics announced by the faculty members and staff in the department, and its evaluation is done by a committee consisting of faculty members.

Textbook:

Supplementary textbooks: