CLASS 1

SEMESTER I COURSES

AIT101 Atatürk's Principles and Revolution History I (2-0) 2

The aim of reading Atatürk's Principles and Revolution History course and the concept of revolution, the collapse of the Ottoman Empire and the reasons that prepared the Turkish Revolution; The disintegration of the Ottoman Empire, the Armistice Treaty of Mudros, the situation of the country in the face of invasions and Mustafa Kemal Pasha's landing in Samsun, the first step for the national struggle, organizing through congresses, Kuvayı Milliye and Misak-ı Milli, the opening of the Grand National Assembly of Turkey, the Grand National Assembly of Turkey, taking over the management of the War of Independence, the national struggle until the victory of Sakarya, the Sakarya War and the Great Offensive, from Mudanya to Lausanne, in the field of education and culture, national struggle, national struggle in the social and economic field.

Textbook:

- Ateş, Toktamış. (2001) Turkish Revolution History. Istanbul: Der Publications.
- History of the Republic of Turkey (Editor: Şakir Batmaz, Serdar Sakin)

TRD109 Turkish Language I (2-0) 2

To be able to comprehend that language is the product of human mind, to comprehend the structural features and richness of Turkish language, to comprehend the ways of being 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:

- 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 grammar books
- Literary works of Turkish Literature

SHY101 English I (2 - 0) 2

Grammar: Introductory Comparison of Word Orders; Subject Pronouns; Verb “to be”; Yes-No Questions; Wh-Questions and their Formation; Adjectives; Possessive Adjectives; 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- Possessive with Verb “To Have”; Vocabulary: Imperatives; Colors; Clothes; Parts of a House; Speaking: Meeting and Greeting; Exchanging Basic Information; Identifying People and Objects;

Textbook:

- Mirici, İ.H, Demirel.Ö. Basic English I&2, Ankara, Pegem A Yayıncılık, 2001.

Supplementary Textbooks:

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

SHY103 Mathematics I (4 - 0) 4

- Arithmetic terms and signs
- Multiplication and division methods, fractions/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 School and Technical Education Faculties", Balcı Publications, 2008.
- General Mathematics, M. Balcı, A.Ü. Fen Ed. Fak. Publications
- Calculus, R.A.Adams, Vancouver, Canada , 1994

Supplementary Textbooks:

- Kemal Temizyürek, Nurdan Çolakoğlu, "Applied Mathematics for Vocational Schools", Beta, 2009.
- Solved Mathematical Analysis Problems, M. Balcı, Balcı Publications

SHY105 Physics (4 - 0) 4

- The nature of matter: Chemical elements, structure of atoms, molecules;
- Chemical compositions;
- 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 phenomena, standing waves;
- Basic sound theory. Sound Description Sound measurement,
- Sound in occupational health and safety perspective, Sound speed, sound production.
- Sound level, intensity, pitch and quality, Doppler effect

Textbook:

- Dalgalar Katılar ve Akışkanlar Termodinamik ve Optik ,Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Çevirmen R. Ömür Akyüz, Serdar Nergiz, Galip Tepehan, ERHAN GÜLMEZ, Bekir Karaoğlu, Literatür

Supplementary Textbooks:

- Fizik1, Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Çevirmen R. Ömür Akyüz, Serdar Nergiz, Galip Tepehan, ERHAN GÜLMEZ, Bekir Karaoğlu, Literatür,
- Fizik2 ,Frederick J. Keller | W. Edward Gettys | Malcolm J. Skove Çevirmen R. Ömür Akyüz, Serdar Nergiz, Galip Tepehan, ERHAN GÜLMEZ, Bekir Karaoğlu, Literatür,

SHY107 Technical Drawing 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;

Air Transport Association of America (ATA) Specification 100;

Aviation standards including ISO, AN, MS, NAS and MIL and other applicable standards;

Installation/connection diagrams and schematic diagrams.

- Compliances and Clearances

Drill sizes for bolt holes, compliance classes;

General system for compliance and clearances;

Compliance and clearance program (table) for aircraft and engines;

Bending, torsion and wear limits;

Standard methods for inspection of shafts, bearings and other parts.

Textbook:

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

Supplementary Textbooks:

Technical drawing: basic information and applications, 33rd volume/Seçkin Publishing (publications): Technical Sciences series, Seçkin Publishing. Teknik, Gabil Abdulla

SHY109 Introduction to Civil Aviation (2 - 0) 2

Aviation system and its elements, Aircraft and their 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: DGCA and rules, Turkish civil aviation: airports and air transportation businesses.

Textbook:

- Introduction to Aviation, Anadolu University Press, Mustafa CAVCAR
- General Aviation, Anadolu University Publications, Özlem ŞAHİN

SHY111 Aviation Rules (4-0) 4

- Regulatory Framework of the Role of the International Civil Aviation Organization,

Law No. 2920 on Turkish Civil Aviation,

Organization, Authorities and Responsibilities of the Directorate General of Civil Aviation (Chapter Thirty-one of Presidential Decree No. 4)

Relations with other Civil Aviation Authorities (EASA, FAA, etc.),

Overview of Civil Aviation Legislation, o (Regulations, Instructions, Circulars),

SHY-21, SHY-M, SHY-145, SHY-66, SHY-147, SHT-21, SHT-M, SHT-145, SHT-66, SHT-147, SHTSMS, SHT-Occident, SHY-IPC regulations and their relations.

- Certifying Personnel - Maintenance

SHY-66 and SHT-66 regulations

- Notified Maintenance Organizations

SHY-145, SHT-145 and SHT-M (Part Six - F Maintenance Organization) regulations

- Continuous Airworthiness

Detailed understanding of the provisions of SHY-21 and SHT-21 regarding continuous airworthiness

To have a detailed understanding of SHY-M and SHT-M.

Detailed understanding of SHY-M and SHT-M.

- Applicable National and International Requirements for the following (unless superseded by EU requirements)

Maintenance Programs, Maintenance checks and inspections;

Continuous airworthiness;

Textbook:

Fırat University School of Civil Aviation, Aviation Rules lecture notes

Current SHY-21, SHY-M, SHY-145, SHY-66, SHY-147, SHT-21, SHT-M, SHT-145, SHT-66, SHT-147, SHTSMS, SHT-Occident, SHY-IPC legislations (available at 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

SEMESTER II COURSES

AIT102 Atatürk's Principles and History of Revolution II (2-0) 2

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

Textbook:

- Turkish Revolution History, Ateş, Toktamış, İstanbul: Der Yayınları, (2001).
- History of the Republic of Turkey (Editor: Şakir Batmaz, Serdar Sakin)

Supplementary textbooks:

- History of the Republic of Turkey, Ergün Aybars, Ercan Kitabevi, 2000.
- Turkish Revolution History, Hamza Eroğlu, Savaş Yayınları, 1990.
- Atatürk in terms of Revolution History and Sociology, Emre Kongar, Remzi Kitabevi, 1999.
- Anatolian Revolution, Sebahattin Selek, Kastaç A.Ş. Publications, 1987.
- Mondros'tan Lausanne'a Türkiye Ulusal Kurtuluş Savaşı Tarihi (1918-1923) A.M. Şamsutdinov, Trans:
- Ataol Behramoğlu, Doğan Kitapçılık, 1999.
- Turkish Revolution and its Aftermath, Taner Timur, İmge Kitabevi, 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 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 Publications, 2013.

Supplementary Textbooks:

- Turkish Language with Text-Based Examples 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 Tense; Past Tense; Future Tense; Past Tense Sentences; Phrasal Verbs; Modals of Ability; Modals of Necessity; Modals of Possibility; Modals of Request, Suggestion, Permission, Habitual Past and Preference; Vocabulary: Family Relationships; Fruits and Vegetables; Objects in Classrooms and Homes; Everyday Objects; Talking: Asking Basic Questions; Introducing the Family; Talking about Routines

Textbook:

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

Understanding and Using English Grammar by B.S. Azar The Little Prince by S. Exupery The Old Man

and the Sea, E. Hemingway

Supplementary Textbooks:

Taşdelen, Berna. "Cornerstone for Grammar Practice", Ankara, Bahar Publishing, 2004

English-English Dictionary

SHY104 Mathematics II (4-0) 4

Evaluation of simple algebraic expressions, addition, subtraction, multiplication and division,

Linear/linear equations and their solutions, Linear Equations in One Variable, Linear Equations in Two Variables

Linear Systems of Equations

Linear/linear equations and their solutions, with the Method of Modifying Systems of Equations

Solving, Solving Systems of Equations by Elimination Method Formulas, Functions and Graphics

Mathematical Operations with Logarithms, Calculations with Logarithms, Natural Logarithms

Number Systems, exponents, Mathematical Transformation of Number Systems

Geometry, Simple geometric structures;

Graphics, Graphical representation; properties and uses of graphs, equation/function graphs;

Trigonometry, Simple trigonometry; trigonometric relationships; tables and the use of orthogonal and polar coordinates.

Textbook:

Prof. Dr. Mustafa BALCI, "Basic Mathematics for Vocational School and Technical Education Faculties",

Balcı Publications, 2008.

General Mathematics, M. Balcı, A.Ü. Fen Ed. Fak. Publications

Supplementary textbooks:

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

Advanced Calculus, Schaum's outlines.

Solved Mathematical 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

Distribution of static electricity and electrostatic charges; Laws of electrostatic attraction and repulsion; Charge units,

Coulomb's Law; Electric conduction in solids, liquids, gases and vacuum.

Electrical Terminology

The following terms, their units and the factors affecting these units:

Potential difference, electromotive force, voltage, current, resistance, conductance/conductivity, charge,

conventional current direction, electron flow.

Electricity Generation

Electricity generation by the following methods: Light, heat, friction, pressure, chemical action, magnetism and motion.

DC Electricity Sources

Construction and basic chemical effect of the following: Primary batteries, secondary batteries, lead acid batteries, nickel batteries

cadmium batteries, other alkaline batteries; Batteries connected in series and parallel; Internal resistance and battery

Effect of thermocouples on the structure, materials and operation of thermocouples; Operation of photocells.

DC Circuits

Ohms Law, Kirchoff's Voltage and Current Laws; To find the resistance, voltage and current above

calculations using the laws; the importance of the internal resistance of the current feeder.

Resistance/Resistance

Resistance and influencing factors; Specific resistance; Resistance color code, values and tolerances, preference

values, watt powers; Series and parallel resistors; Series, parallel and series parallel

calculation of total resistance using combinations of potentiometers and

Operation and use of rheostats/adjustable resistors; Operation of the Wheatstone Bridge;

Plus and minus temperature coefficient of conductivity; Fixed resistors, stability, tolerances and limitations, construction

methods; Independent/variable resistors, thermistors, voltage controlled resistors;

Structure of potentiometers and rheostats / tuned resistors; Structure of the Wheatstone Bridge;

Power/Energy

Power, work and energy (kinetic and potential); Energy loss in resistors; Power/Energy formula; Power,

calculations involving operation and energy.

Capacitance/Capacitor

Operation and functioning of capacitor; Factors affecting flange capacitance area, distance between flanges,

Number of flanges, dielectric and dielectric invariant, operating voltage, voltage stress; Capacitor types, structure and function; Capacitor color coding;

Capacitance and voltage calculations in series and parallel circuits; Capacitor overload and discharge, time invariants; Testing capacitors.

Magnetism

Theory of magnetism; Properties of magnet; Motion of a magnet suspended in the Earth's magnetic field;

Magnetization and demagnetization; Magnetic shielding; Various types of magnetic materials;

Structure and working principles of electromagnets; Magnetic field around a current carrying conductor

determining “hand” rules;

Magneto motor force, field strength, magnetic flux density, permeability, hysteresis loop, residual

residual magnet flux density, magnetic resistance to residual demagnetizing force, saturation

point, eddy currents; Precautions for maintenance and storage of magnets.

Inductance/Inductor

Faraday's Law; Induction of 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 conductor windings; Mutual induction; The effect of the rate of change of primary current and the effect of mutual induction on induced voltage; Factors affecting mutual induction; Number of windings in the winding, physical size of the winding, winding permeability, position of 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 joints 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;

Types of connectors, pins, sockets, plugs, insulators, current and voltage ratings, coupling, identification levels.

Textbook:

Fırat University School of Civil Aviation, BASIC ELECTRIC I lecture notes

Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Yayin Dagitim, 2015.

Supplementary textbooks:

Electrical 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 Wiring Internal Connection System (EWIS)

Continuity, insulation and bonding techniques and test procedures;

Use of hand and hydraulically operated bending tools;

Testing of bending connections;

Removing pins from connectors and inserting pins into connectors;

Coaxial cables: Test procedures and installation precautions;

Identification of electrical line types, inspection criteria and damage tolerances.

Protection techniques in power lines: Cable protection braid and braid support, cable

clamps, protective sheathing techniques (including heat shrinkable winding), shield

treatment (shielding);

EWIS installation, inspection, repair, maintenance and cleaning standards

- TASK NO: UEE-3.10 Measurement of Voltage, Current and Resistance Values Using Different Measuring Instruments

Implementation of the Application

- TASK NO: UEE-3.11 Electrical System Continuity and Insulation Tests
- TASK NO: UEE-3.12 Explanation and Demonstration of Visual Inspection Methods
- EXPERIMENT 1a Resistance Measurement
- EXPERIMENT 1b Potentiometer Characteristics
- EXPERIMENT 2a DC Voltage Measurement
- EXPERIMENT 2b DC Current Measurement
- EXPERIMENT 3 Ohm's Law Application
- EXPERIMENT 4 Series-Parallel Network and Kirchhoff's Law

- EXPERIMENT 5 Wheatstone Bridge
- EXPERIMENT 6 Superposition, Thevenin and Norton Theorems
- EXPERIMENT 7a Power in DC Circuit
- EXPERIMENT 7b Maximum Power Transfer Theorem
- EXPERIMENT 8 DC RC Circuit and Transient Events
- EXPERIMENT 9 DC RL Circuit and Transient Events
- 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:

Fırat University School of Civil Aviation, BASIC ELECTRICAL APPLICATIONS I lecture notes

Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Yayin Dagitim, 2015.

Supplementary 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 Aircraft Fundamentals (4- 0) 4

1. Basic Concepts

Introduction

Atmosphere

Newton's Laws of Motion

Airfoil

Continuity and Bernoulli's Principle

Aerostatic and Aerodynamic Adhesion

Four Forces Acting on the Airplane

Stall

2. Flight Control Surfaces

3. Aircraft Elements-Basic Concepts

4. Aircraft Components-Wing and Fuselage

5. Aircraft Components-Landing Gear

6. Aircraft Components - Aircraft Engines

7. Balance, Stability, Cockpit controls and Types of Flight Control Systems in Aircraft

8. High Speed Flight

Textbook:

- Kahvecioğlu, S., Kale, R., Turan, D., Turgut, E., Kaya N. Aircraft Knowledge and Flight Principles, T.C. Anadolu University, Eskişehir, 2016, 192 pp.

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

- Airplanes and Helicopters, Author: Kaya ŞAHİN

Supplementary textbooks:

- Fırat University School of Civil Aviation, Aircraft Fundamentals course lecture notes

- 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

1. General

The need to consider human factors; Incidents attributable to human factors/human errors; Murphy's Law

2. Human Performance and Limitations

Vision; Hearing; Information processing; Attention and perception; Memory; Fear of enclosed spaces and physical access.

3. Social Psychology

Responsibility: Individual and group; Motivation and demotivation; Age pressure; “culture” issues;

Teamwork; management, supervision and leadership.

4. Factors Affecting Performance

Wellness/health; Stress: Family and work-related; Time pressures and pressures related to time to complete work; Workload: Overload and underloading; Sleep and excessive fatigue, shift work; Use of alcohol, drugs and narcotics.

5. Physical Environment

Noise and smoke; Lighting; Climate and temperature; Movement and vibration; Working environment

6. Tasks

Physical work; Repetitive tasks; Visual inspection; Complex systems.

7. Communication

Communication within and between teams; Work writing and record keeping; Keeping up to date and valid; Dissemination/dissemination/sharing of information.

8. Human Error

Error models and theories; Types of errors in maintenance tasks; Consequences of errors (i.e. accidents); Avoidance and management errors.

9. Hazards in the workplace

Recognizing and avoiding hazards; coping with emergencies.

Textbook:

- Fırat University School of Civil Aviation, HUMAN FACTORS lecture note

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

Supplementary textbooks:

- UK Civil Aviation Authority, (2002). Safety Regulatory Group, "CAP 715 Introduction to Human Factors in Aircraft Maintenance Engineering for JAR 66". Civil Aviation Authority: West Sussex.

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

2ND CLASS

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 (conduction)
- Volumetric Expansion (Expansion); First and Second Laws of Thermodynamics
- Gases; Ideal gas laws; specific heat at constant volume and constant pressure, gas expansion work done
- Isothermal, adiabatic expansion and compression,
- Engine speeds, Constant volume and constant pressure, refrigerators and heat pumps;
- Latent heat of fusion 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 Kaynakli, Erhan Pulat, Recep Yamankaradeniz, Salih Coÿkun, Dora, 2014.

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

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

SHY203 Mechanics (4 - 0) 4

1. GENERAL PRINCIPLES: Forces, moments and couples, vector representations;

2. FORCE VECTORS: Force vector, work, power, energy (potential, kinetic and total energy), heat, efficiency;

3. BALANCE: Force, rest/inertia,

4. FORCE SYSTEMS:

Mass, Specific gravity and density;

5. CENTER OF GRAVITY OF A OBJECT

AND DISTRIBUTED FORCES: Center of gravity; Distributed forces

6. STRUCTURAL ANALYSIS: Speed ratio, mechanical advantage and efficiency.

7.KINETIC: Momentum, conservation of momentum; Impulse; Gyroscopic principles; Simple vibration, harmonic and resonance theory; 8. FRICTION: Friction: Properties and effects, coefficient of friction (rolling resistance).

9. KINEMATICS: Rotational motion: Uniform circular motion (centrifugal/centripetal forces); Periodic motion: Pendular motion:

10. PRINCIPLE OF VIRTUAL

WORKS: Linear motion: Uniform motion in a straight line, motion under constant acceleration (motion under gravity);

11. HYDROSTATIC: Properties and types of solids, liquids and gases; Pressure and buoyancy in liquids (barometers).

12.HYDRODYNAMICS: Viscosity, fluid resistance, laminar or aerodynamic flow effects; Compressibility effects in fluids; Static, dynamic and total pressure: Bernoulli's Theorem, venturi

13. STRENGTH: Elements of the theory of stress, strain and elasticity; Tension, compression, rupture and torsion;

Textbook:

Firat University School of Civil Aviation, MECHANICS course lecture notes

Classical Mechanics, TW Kibble, Palme Publishing, 1999.

Supplementary 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 PRINTING PUBLISHING, 2003.

SHY205 Basic Electricity II (3 - 0) 3

1. 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.

2. 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;

• True power, apparent power and reactive power calculations.

3. 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.

4. 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 lecture notes

Electrical - Electronic Engineering Fundamentals Alternating Current Circuits Volume - 2, Ugur Arifoglu, Alfa Publishing, 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 Extinguisher Tube Replacement

Textbook:

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

Basic Engineering Circuit Analysis, David Irwin, R. Mark Nelms, Nobel Yayin Dagitim, 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

1. Aircraft materials-Ferrous

1. Characteristics, properties and identification of alloy steels commonly used in aircraft;

2. Heat treatment and application of alloy steels.

2. Aircraft materials-Non-Ferrous

1. Characteristics, properties and identification of non-ferrous materials commonly used in aircraft;

2. Heat treatment and application of non-ferrous materials;

3. Aircraft Materials — Composite and Non-Metallic

1. Composite and non-metallic other than wood and fabric

a) Characteristics, properties and identification of composite and non-metallic materials commonly used in aircraft, other than wood;

b) Sealants and adhesives;

c) Detection of defects/deteriorations in composite and non-metallic materials; Repair of composite and non-metallic materials.

2. Wooden Structures; Construction methods related to wooden body structure; Characteristics and properties of wood and adhesives used in aircraft; Protection and preservation of wooden structure; Types of wooden material and wooden structure defects; Detection of defects in wooden structure; Repair of wooden structure. Types of wooden material and wooden structure defects; Detection of defects in wooden structure; Repair of wooden structure.

3. Fabric coating; Characteristics, properties and types of fabrics used in aircraft; Fabric inspection methods; Types of defects in fabrics; Repair of fabric coatings.

4. Corrosion

a)Chemical principles; Galvanic process process, formation by tension, microbiological formation;

Galvanic process process, formation by tension, microbiological formation;

b) 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

Supplementary Textbooks:

Materials and Hardware II lecture notes

UGM201 Basic Electronics I (4-0) 4

4.1.1 Diodes (a); Diode symbols, Diode characteristics and properties, Series and parallel diodes, Main properties and use of silicon controlled rectifiers (thyristors), light emitting diodes, photoconductive diodes, varistors, rectifier diodes, Main properties and use of silicon controlled rectifiers (thyristors), light emitting diodes, photoconductive diodes, varistors, rectifier diodes, Main properties and use of silicon controlled rectifiers (thyristors), light emitting diodes, photoconductive diodes, varistors, rectifier diodes, Functional testing of diodes.

4.1.2 Transistors (a); Transistor symbols, Component definition and orientation, Transistor characteristics and properties, Transistor symbols, Component definition and orientation, Transistor characteristics and properties

4.1.3 Integrated Circuits (a); Definition and operation of logic circuits and linear circuits/ operational amplifiers, Definition and operation of logic circuits and linear circuits/ operational amplifiers,

4.2 Printed Circuit Boards; Definition and use of printed circuit boards, Definition and use of printed circuit boards

4.3 Servomechanism (a); Understanding of the following terms: Open and closed loop systems, feedback, tracking, analog transducers, Principles of operation and use of the following synchro system components/features: Resolvers, differential, control and torque, transformers, inductance and capacitance transmitters, Understanding of the following terms: Open and closed loop systems, feedback, tracking, analog transducers, Principles of operation and use of the following synchro system components/features: Resolvers, differential, control and torque, transformers, inductance and capacitance transmitters

Textbook:

Basic Electronics I, Lecture Notes, Buğra Yılmaz, SHYO, 2019

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.

UGM203 Avionic Systems (2-1) 3

Automatic Flight (ATA 22); Autopilot Working Principle, Analysis of Autopilot

Communication (ATA 23)

Location and Route Determination Systems (Navigation) (ATA 34); EFIS (Electronic Flight Instrument

System), Marker Beacon System, ATC (Air Traffic Control), NDB (Non-Directional Beacon),

VOR (Very high frequency omnidirectional range), TACAN (Tactical air navigation), ADF

(Automatic direction finder), ILS (Instrument landing system), DME (Distance measurement

equipment), Doppler Radar, INS (Inertial navigation system), GPS (Global positioning system)

Textbook:

Avionic Systems, Lecture Notes, Mustafa AKIN, FÜ SHYO, 2019

Supplementary textbooks:

Airframe Handbook, (1976), USA: FAA.

Crane, D. (1996) Airframe. Canada: Aviation Maintenance Series.

A&P Technician Airframe Textbook, (1997), USA: Jeppesen Sanderson, Inc.

JAA ATPL Theoretical Knowledge Manual-Aircraft General Knowledge, (2001), 021 01

Third 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.

Textbook:

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

Textbook:

Aviation Fuels with Improved Fire Safety, National Research Council, National Academy Press, 1997.

SHY202 Electronic Instrument Systems (3 - 1) 3

Electronic Instrument Systems; Instruments (Devices) (ATA 31)

Data Buses; Operation of data paths in aircraft systems, including knowledge of ARINC and other specifications.

Fiber Optics; Advantages and disadvantages of fiber optic data transmission over electrical cable propagation, Fiber optic data path, Terms related to fiber optics, Terminals, Couplers, control terminals, remote terminals; Application of fiber optics in aircraft systems.

Electronic Displays; Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes (CRT), Light Emitting Diode (LED), Liquid Crystal Display (LCD).

Electrostatic Sensitive Devices; Special treatment of components sensitive to electrostatic discharges; Awareness of risks and potential damage, component and personnel antistatic protection devices.

Software Management Control; Awareness of software program restrictions, airworthiness requirements, and potential catastrophic consequences of unapproved changes to software programs

Electromagnetic Environment; EMC-Electromagnetic Compatibility, EMI-Electromagnetic Interference, HIRF-High Effective Electromagnetic Field, Lightning/lightning protection.

Typical Electronic/Digital Aircraft Systems; ACARS-ARINC Communications and Addressing and Recording System, EICAS-Engine Indicator and Crew Alerting System, FBW-Electronic Controlled Flight/Electronic Flight Typical Electronic/Digital Aircraft Systems; ACARS-ARINC Communication and Addressing and Recording System, EICAS-Engine Indicator and Crew Alerting System, FBW-electronic flight control/electronic flight control systems (fly-by-wire) FMS-Flight Management System IRS-Inertial Navigation/Reference System, ECAM-Electronic Central Aircraft Monitor EFIS-Electronic Flight Instrument 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

1. ATMOSPHERE PHYSICS: International Standard Atmosphere (ISA), application to aerodynamics

2. INCOMPRESSIBLE FLUID DYNAMICS: Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;

3. COMPRESSIBLE FLUID DYNAMICS: Air flow around an object.

4. 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.

5. RIGID BODY IN AIR FLOW: Generation of lift and drag; Angle of Attack, Lift Coefficient, Drag Coefficient, Thrust, Weight, Aerodynamic Resultant;

6. AERODYNAMIC FORCES AND MOMENTS: Drag coefficient, polar slope, stall;

7. FLOW TYPES: Viscous flow, inviscid flow.

8. CHANGE OF AERODYNAMIC COEFFICIENTS: Profile deposits such as ice, snow and frost.

9. WING PROFILES: NACA, LM, LS wing profiles and geometries.

10. ROTARY WING AERODYNAMICS: Loss in the propeller; Aerodynamic, centrifugal and thrust forces;

11. 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

1. BANK CONTROLS

2. PIKE CONTROL

3. CANARD CONTROL

4. YAW CONTROL

5. ELEVON AND RUDDERVATOR

6. BRAKES

7. WING FENCES

8. STALL AND LEADING EDGES

9. FLATNERS

10. BALANCE PANELS

11. SUPERSONIC FLIGHT

12. MATCH NUMBER AND EFFECTS

13. CRITICAL MATCH NUMBER

Textbook:

Firat University Civil Aviation School, AERODYNAMIC APPLICATIONS course lecture notes

Supplementary 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 working 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, Troubleshooting in Starter Systems, Ignition Systems; Ignition Unit Types, Ignitor 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 Prop; 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 Licance Category B1 Gas Turbine Engine

Auxiliary Textbooks:

Gas Turbine Engine Theory lecture notes

SHY210 Materials and Equipment II (3-0)3

Fasteners, Threads, Bolts, Studs and Screws, Locking devices, Aircraft

rivets, Pipes and Connections, Springs, Bearings, Transmissions. Control Cables; Cable types, End splices, tensioners and end splice devices; Pulleys and cable system elements; Spring encapsulated cables;

Aircraft flexible control systems.

Textbook:

TTS INEGRTED TRAINING SYSTEM Module 6 Licence Category B1 Materials and Hardware

Supplementary Textbooks:

Materials and Hardware II Lecture notes

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 Constant Coefficient

Linear Differential Equations and 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.

UGM202 Aircraft Fuel Systems (1-3) 3

Fuel chemistry; Fuel properties, Fuel specifications, Fuel additives, Safety, Safety measures. Fuel systems; Electronic engine control unit, Electronic engine control unit

Sensors; Operation of fuel metering systems (fadec); Operation of fuel metering systems (fadec); Lambda sensor, Operation of fuel metering systems from the perspective of ideal combustion (fadec);

Closed loop air fuel ratio systems; System layout (closed loop system elements), System layout (closed loop control structures), Air fuel ratio control, Controller components. Air fuel ratio control, Controller components and different control architectures.

Textbook:

Aircraft Fuel Systems, Lecture Notes

UGM204 Basic Electronics II (4-0) 4

5.2 Numbering Systems; Numbering systems: Binary, octal and hexadecimal; Exhibition of conversions between decimal and binary, octal and hexadecimal systems and vice versa. Numbering systems: Binary, octal and hexadecimal; Exhibition of conversions between decimal and binary, octal and hexadecimal systems and vice versa.

5.3 Data Conversion; Analog Data, Digital Data; Operation and application of various types of converters, inputs and outputs, limitations from analog to digital and from digital to analog.

5.5 Logic Circuits; (a) Definition of common logic temporary symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. (a) Definition of common logic temporary symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. Definition of common logic temporary symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. Identification of common logic temporary symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. (b) Interpretation of logic diagrams. Interpretation of logic diagrams. Interpretation of logic diagrams.

5.6 Basic Computer Structure; (a) Computer terminology (including bits, bytes, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied to aircraft systems). Computer terminology (including bits, bytes, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied to aircraft systems). (b) Computer-related terminology; Operation, layout and interfacing of major components in a microcomputer, including associated data bus systems; Information contained in single and multiple address instruction words; Memory-related terms; Operation of typical memory devices; Operation, advantages and disadvantages of various data storage systems.

5.7 Microprocessors; Functions performed by a microprocessor and its general operation; Basic operation of each of the following microprocessor elements: Control and processing unit, clock, recorder, arithmetic logic unit.

5.8 Integrated Circuits Operation and use of encoders and decoders; Function of encoder types; Medium, large and very large scale integration uses.

5.9 Multiplexing; Operation, application and determination of logic diagrams of multiplexers and demultiplexers.

Textbook:

Basic Electronics II, Lecture Notes, Assoc. Prof. Dr. Eyyüp Öksüztepe, SHYO, 2019

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

Supporting textbooks:

Thomas L. Floyd, 1999, Digital Fundamentals, Merrill, Ohio-USA, 4th edition.

Engin Tekin, Metin Bereket, 2005, Digital Electronics, Kanyılmaz Printing House, Izmir

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

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

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, instructions, instruction timings, interrupts; Parallel, serial input and output elements (I/O Ports); Programming Techniques.

Textbook:

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

Supplementary 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 GRADE

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

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, DC voltage measurement in the Electrical Training Set, DC voltage measurement on the aircraft, AC power generation, Demonstration of AC power generation in the Aircraft Training Set and operation of the system, AC power generation, AC voltage measurement in the Electrical Training Set, Emergency power generation, Demonstration of AC ESS Buses in the Electrical Training Set and ON-OFF of the Bus connection switch Emergency power generation, Voltage regulation / adjustment, Voltage adjustment in the Electrical Training Set, Power distribution, Starting the engine in the Electrical Training Set and measuring the voltage to show that no voltage is generated without applying excitation current to the generator, Power distribution, Starting the engine in the Electrical Training Set and measuring the voltage to show that no voltage is generated without applying excitation current to the generator, Inverters, transformers, rectifiers, Seeing what happens before and after the inverter starts and measuring the AC voltage in the Electrical Training Set, Circuit protection, Relay disassembly and assembly in the Electrical Training Set, Demonstration of CBs on the Electrical Training Set, External power / Ground power, Powering the Set by connecting the External Power to the Electrical Training Set, Connecting to the External Aircraft

Textbook:

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

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

Supplementary Textbooks:

Aircraft Electrical System Applications lecture notes

SHY305 Aircraft Maintenance Workshop (1-7) 5

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 case of fire or other accidents 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/Assemblies, Commonly used types of hand tools; Commonly used types of power tools; Operation and use of precision measuring instruments; Lubricating equipment and lubrication methods, Aircraft Weight and Balance, Aircraft Handling and Storage, Disassembly and assembly techniques, (a) Types of damage and visual inspection (checking) techniques; Corrosion removal, assessment and protection against corrosion; (b) General repair methods, Structural Repair Handbook; Ageing, fatigue and corrosion control programs; (c) Non-destructive testing techniques including penetrant dye, radiographic, eddy current, ultrasonic and borescope methods; (d) Disassembly and assembly techniques; (e) Troubleshooting techniques

Textbook:

TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintenance Practices

Supplementary Textbooks:

Electrical machinery lecture notes

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 INTEGRATED TRAINING SYSTEM Module 15 License Category B1 Gas Turbine Engine

Supplementary Textbooks:

Gas Turbine Engine Applications lecture notes

SHY309 Aircraft Maintenance Terminology I (3-0) 3

Abbreviations Used in Aviation Terms and Definitions Used in Aviation Aviation Alphabet Tools / Assemblies, 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. Avionic 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. Specification 100 Document of the American Air Transport Association (ATA); Aviation standards including ISO, AN, MS, NAS and MIL and other applicable standards;

Textbook:

TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintance Practices

Aviation Terminology, MEGEP, 2011

Supplementary Textbooks:

Aircraft Maintenance Terminology I lecture notes

UGM301 Propellers (2-2) 3

17.1 Fundamentals; Blade element theory; High/low blade angle, reverse angle, angle of attack, rotational speed; Loss in the propeller; Aerodynamic, centrifugal and thrust forces; Torque; Relative airflow at the blade angle of attack; Vibration and resonance.

17.2 Propeller Construction; Construction methods and materials used in wood, composite and metal propellers; Construction methods and materials used in wood, composite and metal propellers; Blade reference point, blade surface, blade shank, blade back and hub assembly; Fixed pitch, controllable pitch, constant speed propeller; Propeller/spinner installation (assembly).

17.3 Propeller Pitch Control; Speed control and pitch changing methods, mechanical and electrical/electronic; Feathering and reverse pitch; Overspeed protection.

17. 4 Propeller Synchronization; Synchronization and synchrophasing equipment.

17.5 Propeller Ice Protection; Fluid and electrical de-icing equipment.

17.6 Propeller Maintenance; Static and dynamic balancing; Blade tracking; Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller operation/repair schemes; Propeller engine operation.

17.7 Propeller Storage and Preservation; Propeller preservation and unpreservation.

Textbook:

Propellers, Lecture Notes

Total Training Support (TTS) Study Notes Module 7FAA Aircraft Maintenance Technician Handbook

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 RegulationsAeronautics 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, Selection of Body and Tail Configurations, Selection of Landing Gear and Propeller Configurations, 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.

VI. SEMESTER COURSES

SHY302 Aircraft Systems I (4-0)4

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 Systems I lecture notes,

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

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

Supplementary Textbooks:

Aircraft Maintenance Terminology I lecture notes

SHY308 Electrical Maintenance Workshop (1-7) 5

Operation, functions and usage of electrical general test equipment. Avionic General Test Equipment, Electrical Installation Internal Connection System (EWIS), Soldering methods, control of soldered connections, Unusual Events (a) Controls to be made after lightning strike and exposure to high radiation field (HIRF);

Textbook:

TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintenance Practices

Supplementary Textbooks:

Electrical Maintenance Practices lecture notes,

UGM302 Propulsion Workshop (1-7) 5

15.16 Turboprop Engines; Turbo-Prop Engines with Gas Coupled and Free Turbines; Definition of Turbo-Prop Engines; Turbo-Prop Engines with Gear Coupled Turbines; Reduction Gears in Turbo Prop Engines, Combined Engine and Propeller Controls; Overspeed Safety Devices; Purpose of using the propeller; Blade geometry; Classification of propellers according to their pitches; Propeller control mechanisms, Overspeed safety devices; Power Turbine Speed and Torque Sensor, Overspeed system; Overspeed safety device; DECU (Digital Engine Control Unit)

15.17. Turbo-Shaft Engines; Operation of Turbo-Shaft Engines; Main Parts of Turbo-Shaft Engines; Air inlet, Compressor, Combustion chamber; Exhaust section; Diffuser, Reduction Gears of Turbo-Shaft Engines; Gearboxes Main and Tail Rotor; From Main Gearbox to Tail Rotor, Turboshaft engine couplings; Functions of the main power transmission system; Main gear box; MGB connections and hanger boxes; Rotor brake, Turboshaft engine control systems; Torque meter system; Air intake guide vanes; Air discharge band system, Internal cooling system, Ignition system, Electrical system, Exhaust system; Fuel system,

15.18. Auxiliary Power unit; APU location, Definition of a typical APU, Operation of APU providing pneumatic power, APU loads; Shaft loads, Discharge air loads, Overtemperature protection, Power plant; Engine control; Operating order

15.19. Power system installation; External connections of the engine, Construction of fire walls, Engine covers, Engine bearings, Cowlings, Acoustic panels, Anti vibration mount, Auxiliary elements used in the system; Pipes and hoses, Feeders, Electrical cables, Control cables, Lifting and lowering places of aircraft engines; Boot strap method, Crane supported suspension method, Uplift loader method

15.21 Engine Monitoring and Ground Operation; Engine Monitoring; Compressor Housing Air Leakage Failures, Compressor Fouling; Mechanical Failures, Combustion Chamber, Turbine Failures, Vibration Monitoring; Instrumentation Failures

15.22 Storage and protection of engines; Protection, Engines and equipment, Long-term storage,; General storage procedure; Fuel system, Lubrication system, Internal system; Equipment protection,; Storage in containers, Packing in wooden containers; Periodic inspections, Engine opening; Equipment, Necessary tools.

Textbook:

Propulsion applications, Lecture Notes

Karakoç H.K., Turgut E.T., Gas Turbine Engine Systems, Anadolu University Publications, ISBN 978-975-06-0534-5, 01/07/2008 Systems of commercial turbofan engines

5th 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”

Agah Uğuz, “Introduction to Fracture Mechanics”

SHY316 Creep and Fatigue (2-0) 2

Introduction, Cyclic Loading, S-N Curves, Short-Life Fatigue, Structural Properties of Fatigue, Fatigue Crack Propagation, Fatigue Crack Propagation, Factors Affecting Fatigue Properties, Problems Seen in Materials at High Temperatures, Creep Testing, Structural Changes Occurring During Creep, Creep

Mechanisms, Case Studies.

Textbook:

The Practical Use of Fracture Mecanics, David Broek, Kluwer Academic Publishers.

Supplementary Textbooks:

Elementary Engineering Fracture Mecanics, David Broek, Martinus Nijhoff Publishers.

SHY316 Creep and Fatigue (2-0) 2

Introduction, Cyclic Loading, S-N Curves, Short-Life Fatigue, Structural Properties of Fatigue, Fatigue Crack Propagation, Fatigue Crack Propagation, Factors Affecting Fatigue Properties, Problems Seen in Materials at High Temperatures, Creep Testing, Structural Changes Occurring During Creep, Creep

Mechanisms, Case Studies.

Textbook:

The Practical Use of Fracture Mecanics, David Broek, Kluwer Academic Publishers.

Supplementary Textbooks:

Elementary Engineering Fracture Mecanics, David Broek, Martinus Nijhoff Publishers.

4TH GRADE

VIITH SEMESTER COURSES

SHY401 Aircraft Instrument 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 Data Recording System, Electronic Flight Instrument System, Indicator Warning Systems, Primary Warning Systems and Central Warning Panels, Stall Loss Warning System, Angle of Attack Indicator System.

Textbook:

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

Supporting Textbooks:

Aircraft Instrument Systems I lecture notes

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

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

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, Interface to aircraft operation, Maintenance Inspection (Control)/ Quality Control/ Quality Assurance, Additional maintenance procedures, Control of life parts.

Textbook:

TTS INEGRTED TRAINING SYSTEM Module 7 License Category B1 Maintenance Practices

Supporting Textbooks:

Maintenance Procedures and Applications lecture notes

UGM401 Mechanical Maintenance Workshop (1-7) 5

Riveting; Riveted joints/connections, rivet clearance/spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints/connections

Pipes and Hoses; Bending and belling/flaring of aircraft pipes; Inspection and testing of aircraft pipes and hoses; Assembly and

connection/clamping of pipes. Springs; Inspection and testing of springs. Bearings; Testing, cleaning and inspection of bearings; Lubrication requirements for bearings; Defects in bearings and their causes. Transmissions; Control Cables

Processing of Materials; Sheet Metal Composite and Non-Metallic (b) Welding and coating methods; Inspection of welded and coated joints; Bonding methods and inspection of glued joints.

Abnormal Events; Hard landing and turbulence

Textbook:

Mechanical Maintenance practices

Total Training Support (TTS) Study Notes Module 7FAA Aircraft Maintenance Technician Handbook

UGM403 Gas Turbine Engine Systems I (2-4) 4

15.2 Engine Performance; Gross thrust, net thrust, conical nozzle thrust, thrust distribution, resulting thrust, thrust horsepower, equivalent condition horsepower, specific fuel consumption; Engine efficiencies; By-pass ratio and engine pressure ratio; Gas flow pressure, temperature and speed; Engine ratings, static thrust, speed-altitude- effects of hot climate, flat rating limitations.

15.3 Inlet; Compressor inlet ducts, Effect of various inlet configurations; Ice protection

15.4 Compressors; Axial and centrifugal types; Structural features, operating principles and applications; Fan balancing; Operation: Compressor stall and surge, causes and effects; Air flow control

methods: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades; Compressor

ratio.

15.5 Combustion Section; Structural features and operating principles; Operation and characteristics of various turbine blade types; Blade disk connection; Nozzle guide vanes (turbine guide/director fixed blades); Turbine blade stress and creep causes and effects.

15.6 Turbine Section: Operation and characteristics of various turbine blade types; Blade disk connection; Nozzle guide vanes (turbine guide/director fixed blades); Turbine blade stress and creep causes and effects.

15.7 Exhaust; Structural features and operating principles; Convergent, divergent and variable pitch nozzles; Reduction of engine noise; Thrust reversers.

Textbook:

Gas Turbine Engine Systems I

Karakoç H.K., Turgut E.T., Gas Turbine Engine Systems, Anadolu University Publications, ISBN 978-975-

06-0534-5, 01/07/2008 Systems of commercial turbofan engines

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

Supporting Textbooks:

Aircraft Display Systems I lecture notes

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

TTS INEGRTED TRAINING SYSTEM Module 3 Licence 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 Drive, AC drive, Alternators

Textbook:

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

Supplementary textbooks:

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

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

UGM402 Gas Turbine Engine Systems II (2-4) 4

15.10 Lubrication Systems; System operation/layout and components. Components of the system, System layout

15.12 Air Systems; Operation of engine air distribution and anti-icing control systems, including internal cooling, sealing and external air services. Operation of engine air distribution and anti-icing control systems, including internal cooling, sealing and external air services. Operation of engine air distribution and anti-icing control systems, including internal cooling, sealing and external air services.

15.15 Combustion Section; Structural features, Structural features, Working Principle 15.20 Fire Protection Systems; Operation of fire detection and extinguishing systems.

Textbook:

Gas Turbine Engine Systems II

Karakoç H.K., Turgut E.T., Gas Turbine Engine Systems, Anadolu University Publications, ISBN 978-975-

06-0534-5, 01/07/2008 Systems of commercial turbofan engines

UGM404 Aircraft Systems III (4-1) 4

1. Body Structure; Body Structural Elements, Body Skin Protection Methods, Empenange (Tail Section) Body Symmetry Adjustment Methods and Symmetry Controls,

2. Body (ATA 52/53/56), Structure and pressure sealing; Wing, elevator, pylon, and landing gear connections; Seat placement and cargo loading system; Doors and emergency exits: Structures, mechanisms, operation (motion) and safety devices; Structures and mechanisms of windows and glass

4. Wings (ATA 57); Structure: Fuel storage; Landing gear, pylon, control surfaces and high lift/drag connections

5. Stabilizers (ATA 55); Structure: Control surface connection.

6. Flight Control Surfaces (ATA 55/57); Structure and connection; Balancing - mass and aerodynamics.

7. Nacelles/Pylons (ATA 54) ; Nacelles/Pylons: — Structure, — Fire walls, — Engine mounts

Textbook:

Aircraft Systems, Lecture Notes, Mustafa AKIN, FÜ SHYO, 2019

Supporting textbooks:

Airframe Handbook, (1976), USA: FAA.

Crane, D. (1996) Airframe. Canada: Aviation Maintenance Series.

A&P Technician Airframe Textbook, (1997), USA: Jeppesen Sanderson, Inc.

JAA ATPL Theoretical Knowledge Manuel-Aircraft General Knowledge, (2001), 021 01

Airframes and Systems. Germany: Jeppesen Sanderson, Inc.

UGM406 Graduation Project (0-2) 1

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

Course Book:

Supplementary course books: