

VIETNAM AVIATION ACADEMY
FACULTY OF AERONAUTICAL ENGINEERING

aeronautical engineering CURRICULUM

Code: 7520120E

Level: Undergraduate

Form: Full - time

Duration: 5 years

Faculty: Aeronautical Engineering

Ho Chi Minh city, 2024

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I. INTRODUCTION

1. Major: aeronautical engineering

2. Code: 7520120E

3. Level: Undergraduate

4. Form: Full - time

5. Duration: 5 years

6. Faculty: Aeronautical Engineering

7. The objectives

7.1. The general objectives

The specialized training program in Aeronautical Engineering aims to equip students with knowledge and skills to operate, maintain and repair aircraft and equipment and systems on board such as: airframe, engines, equipment and systems belonging to the group of mechanics and avionics. After graduation, students can work in factories, aircraft repair and maintenance workshops, airlines, aircraft operating companies, and other related technical fields.

7.2. The detailed objectives

The goal of the Aeronautical Engineering Engineer training program is to equip graduates with:

- Solid professional knowledge to adapt well to different jobs in the general engineering field and at the same time have in-depth knowledge in the specialized field of Aircraft operation, maintenance and repair engineering;
- Professional skills and personal qualities necessary for career success;
- Social skills needed to work effectively in multidisciplinary teams and in an international environment;
- Ability to plan, implement and operate equipment, systems and machines in service of exploitation, repair and maintenance in accordance with economic, social and environmental contexts;
- Political qualities, sense of service to the people, good health, meeting the requirements of national construction and defense;
- Graduates of the Aeronautical Engineering program can work as:
 - + Project management engineer;
 - + Engineer of operation, maintenance and repair;
 - + Testing and evaluation engineer;
 - + Design consultancy, supervision;
 - + Sales engineer, marketing...

8. Expected learning outcome

8.1. Knowledge

8.1.1. General knowledge

- Be aware of the basic principles of Marxism-Leninism; Ho Chi Minh Thought and the Revolutionary Way of the Communist Party of Vietnam;
- Apply basic knowledge of social sciences - humanities; knowledge of mathematics and natural sciences in life and in the field of work;

8.1.2. Basic core courses and Major core courses

A. Basic core courses

- Demonstrate basic knowledge of general engineering and Aeronautical engineering;
- Apply knowledge of electricity, electronics, mechanics, hydraulics, endurance, thermodynamics;
- Analyze load-bearing linkages, control circuits, how to form and maintain lift forces, and operating principles of the engine;
- Analyze simple technical drawings;

B. Major core courses

- Explain in-depth knowledge about aircraft, structure systems, airframe, engines;
- Apply techniques and apply practical experience to solve complex jobs related to aircraft operation, maintenance and repair;
- Implement procedures and methods for dismantling, inspecting, maintaining and repairing damage on aircraft;
- Apply knowledge of law and environmental protection related to the field of Aeronautical Engineering.

8.2. Skills

8.2.1. Hard skills

- Proficient in dismantling, maintaining and repairing damaged equipment in specialized fields;
- Analyze, synthesize, evaluate data and information, synthesize collective opinions and use new achievements in science and technology to solve problems related to ship maintenance and repair aircraft;
- Check the quality of the systems on the aircraft;

8.2.2. Soft skills

- Having the capacity to operate an aircraft maintenance stage;
- Use foreign languages (English) to read and understand specialized technical documents; use foreign languages to express and handle a number of common professional situations; write reports with simple content, present opinions related to professional work.

8.3. Attitude

- Simple modesty, clean and healthy lifestyle. Careful and responsible in work, always have a sense of rising in professional expertise;
- Respect the law, well perform the obligations and responsibilities of citizens;
- Be healthy enough to work in the occupational field;
- Have basic knowledge and skills on military work and defense participation.

9. Graduation conditions

- Up to the time of graduation, he has not been criminally prosecuted or is not in the period of being disciplined at the level of academic suspension;

- Students must accumulate a sufficient number of courses specified in the university training program according to the major they are trained in, and have no debt to study any part; The cumulative GPA of the whole course is 2.00 or higher;
- Having a certificate of National Defense and Security Education, physical education and a certificate of participating in the student week as prescribed by the Department of Personnel Management & Student Management;
- Foreign language proficiency: at least IELTS 6.0 or reconginzed equivalent certificates (not using TOIEC certificate);
- Informatics: Graduates must have enough knowledge of information technology to meet job requirements;

10. Career prospects

- After graduating from the program, learners can work at the following institutions:
 - + Factories, workshops to repair and maintain aircraft;
 - + Airlines, aircraft operating companies;
 - + Can participate in management or directly perform stages in the aircraft maintenance process;
 - + Other related engineering disciplines such as mechanical, hydraulic...
- Ability to research and apply science, technology, services... to become scientific researchers at research institutes, lecturers in universities..., especially in the field domestic airline.

II. STANDARD PROGRAM STRUCTURE FOR THE MAJOR OF aeronautical engineering IN 2023

1. Structure

Total number of credits to be accumulated: 150 credits (excluding physical education, national defense and security education)

In which:

- General knowledge: 25 credits
- Profesional education knowledge: 125 credits

Concrete:

No	Knowledge block	Number of credits	Proportion
1	General knowledge	25	16.7%
2	Profesional education knowledge	125	83.3%
2.1	Fundamental knowledge	49	
2.2	Core knowledge block of the major	76	

2.2.1	General knowledge block of the major	39	
2.2.2	Advanced knowledge block of the major	25	
2.2.3	Internship and graduation thesis	12	

- Training program framework

2. Detail

Số TT	Mã môn học	Môn học	Số tín chỉ						Môn học trước (ghi số thứ tự của môn học)	Ngôn ngữ giảng dạy
			Từ ng môn học	Loại giờ tín chỉ						
				Lên lớp			Th ực hàn h, thí ngh iệm ,điề n dã, stu dio	Tự học, tự nghi ên cứu		
				Lý thu yết	Bà i tập	Th ảo luậ n				
I		Khối kiến thức giáo dục đại cương	25							
I.1		Lý luận chính trị	11							
1	0111000746	Tiết học Mác Lê nin (Philosophy of Marxism and Leninism)	3	30		15		105		Tiếng Việt
2	0111000747	Kinh tế chính trị Mác Lê nin (Political Economics of Marxism and Leninism)	2	20		10		70		
3	0111000244	Chủ nghĩa xã hội khoa học (Scientific Socialism)	2	20		10		70		
4	0111000524	Lịch sử đảng Cộng sản Việt Nam History of Vietnamese Communist party	2	20		10		70		
5	0111000016	Tư tưởng Hồ Chí Minh HoChiMinh Ideology	2	20		10		70		
I.2		Giáo dục quốc phòng – an ninh	8							
I.3		Giáo dục thể chất	5							
6	0111000009	Giáo dục thể chất 1 – Sức nhanh (Physical Education 1)	1							Tiếng Việt

7	011100008 3	Giáo dục thể chất 2 – Võ cổ truyền VN (Physical Education 2)	1							
8	011100023 3	Giáo dục thể chất 3- Aerobic (Physical Education 3)	1							
9	011100002 2	Giáo dục thể chất 4 – Bóng chuyền (Physical Education 4)	1							
10	011100002 0	Giáo dục thể chất 5 – Bóng rổ (Physical Education 5)	1							
I.4		Ngoại ngữ	12							
11	011100000 8	Tiếng anh 1 (English 1)	3	45	0	0		105		
12	011100001 2	Tiếng anh 2 (English 2)	3	45	0	0		105	11	
13		Tiếng Anh hàng không tổng quát (General Aviation English)	3	45	0	0		105	12	
14	011100191 1	English for Aircraft (English for Aircraft)	3	45	0	0		105	13	
I.5		Kiến thức Khoa học xã hội	2							
15	011100000 3	Pháp luật đại cương (Fundamentals of Law)	2	25		5		70		
II	Khối kiến thức Giáo dục chuyên nghiệp		12 5							
II. 1	Kiến thức cơ sở		49							
		Bắt buộc								
16	011100051 7	Toán cơ sở (Mathematics Fundamentals/ Basic Math)	3	45				105		Tiếng Việt
17	011100008 7	Toán chuyên đề (Specialized mathematics)	3	45				105		Tiếng Việt
18	011100183 7	Vẽ kỹ thuật (Technical Drawing)	2	30				70		Tiếng Anh
19	010800054 8	Tổng quan về HKDD (Fundamentals of air transportation)	3	45				105		Tiếng Việt
20	011100004 9	Nghiên cứu và thuyết trình (Research and Presentation)	3	45				105		Tiếng Việt
21	011100183 9	Kỹ thuật nhiệt	3	30	15			105		Tiếng Anh

		(Thermal Engineering)								
22	0111001841	Cơ học thủy khí (Fluid Mechanics)	3	30	15			105		Tiếng Anh
23	0111000640	Kỹ thuật điện (Electrical Engineering)	3	45				105		Tiếng Việt
24	0111000695	Kỹ thuật điện tử (Electronic Engineering)	3	45				105		Tiếng Việt
25	0111001844	Kỹ thuật số và các thiết bị hiển thị điện tử (Digitals Techniques/Electronic Instrument System)	3	45				105	24	Tiếng Anh
26	0111001846	Cơ học lý thuyết (Theoretical Mechanics)	3	45				105		Tiếng Anh
27	0111001847	Sức bền vật liệu (Strength of Materials)	3	45				105		Tiếng Anh
28	0111001848	Thực tập cơ bản (Workshop Practice)	3	15			60	75		Tiếng Anh
29	0111001849	Truyền động – tự động thủy khí (Hydraulic and Pneumatic Sytem)	3	45				105		Tiếng Anh
30	0111001850	Kỹ thuật lập trình (Computer Programming)	3	45				105		Tiếng Anh
31	0111001851	Trí tuệ nhân tạo (Artificial Intelligence)	2	30				70	30	Tiếng Anh
		Tự chọn	3							
32	0111001852	Cơ sở điều khiển tự động (Automatic Control Systems)	3	45				105		Tiếng Anh
33	0111001853	Chi tiết máy (Machine Elements)	3	45				105		Tiếng Anh
II. 2		Khối kiến thức ngành chính	76							
2.1		Kiến thức chung của ngành chính	39							
		Bắt buộc	36							
34	0111001854	Kết cấu Hàng không 1 (Aircraft Structures 1)	3	30	10	5		105	27	Tiếng Anh
35	0111001856	Thí nghiệm kỹ thuật hàng không 1 (Aerospace Engineering Lab 1)	2	30				70	22	Tiếng Anh

36	011100154 2	Pháp luật Hàng không dân dụng (Aviation Law)	3	45				105		Tiếng Anh
37	011100190 9	Yếu tố con người và An toàn (Human Factors & Safety)	3	30				120		Tiếng Anh
38	011100185 8	Khí động học 1 (Aerodynamics 1)	3	30	10	5		105	22	Tiếng Anh
39	011100186 0	Thí nghiệm kỹ thuật hàng không 2 (Aerospace Engineering Lab 2)	2	30				70		Tiếng Anh
40	011100186 1	Vật liệu Hàng không (AeronauticMaterial)	3	30	10	5		105	27	Tiếng Anh
41	011100186 2	Kết cấu Hàng không 2 (Aircraft Structures 2)	3	45				105	34	Tiếng Anh
42	011100186 3	Cơ học bay 1 (Flight Mechanics 1)	2	30				70	22	Tiếng Anh
43	011100186 4	Cơ học bay 2 (Flight Mechanics 2)	3	30	15			105	38	Tiếng Anh
44	011100186 5	Khí động học 2 (Aerodynamics 2)	3	30	15			105	21, 38	Tiếng Anh
45	011100191 0	Động cơ piston tàu bay và cánh quạt (Piston engines and propeller)	3	30				120	21	Tiếng Anh
46	011100186 6	Quản lý kỹ thuật bảo dưỡng (Engineering and Maintenance Management)	3	45				105		Tiếng Anh
		Tự chọn	3							
47	011100186 7	Đồ án môn học (Engineering Project)	3	15		30		105	18/20/23	Tiếng Anh
48	011100186 8	An toàn lao động và kỹ thuật môi trường (Occupational Safety and Environment Technique)	3	30		15		105		Tiếng Anh
2.2		Kiến thức chuyên sâu của ngành chính	25							
		Bắt buộc								
49	011100186 9	Các hệ thống trên tàu bay 1 (Aircraft Systems 1)	4	45			30	125		Tiếng Anh
50	011100187 0	Các hệ thống trên tàu bay 2 (Aircraft Systems 2)	4	45			30	125	49	Tiếng Anh
51	011100187 1	Điện - điện tử tàu bay	3	30	30			90	23/24	Tiếng Anh

		(Aircraft Electricity & Electronics)								
52	011100187 2	Thiết bị đồng hồ và hệ thống dẫn đường bay (Instruments and Navigation System)	3	45				105		Tiếng Anh
53	011100187 3	Động cơ và lực đẩy (Aircraft Engines & Propulsion)	3	45				105	21, 45	Tiếng Anh
54	011100187 4	Thực hành bảo dưỡng tàu bay 1 (Aircraft Maintenance Practice 1)	3	15			60	75	28	Tiếng Anh
55	011100187 5	Thực hành bảo dưỡng tàu bay 2 (Aircraft Maintenance Practice 2)	5	15			120	115	54	Tiếng Anh
2.3		Khối kiến thức thực tập và tốt nghiệp	12							
56	011100187 6	Thực tập tốt nghiệp (Internship)	3				90	60	55	Tiếng Anh
57	011100187 7	Đồ án tốt nghiệp (Capstone Project)	6				180	120		Tiếng Anh
		Tự chọn	3							
58	011100187 8	Hệ thống quản lý an toàn Hàng không (Safety Management System)	3	30	10	5		105		Tiếng Anh
59	011100181 1	Khai thác và quản lý tàu bay (Aviation Operation & Management)	3	30	10	5		105		Tiếng Anh
	Các học phần thay thế Đồ án tốt nghiệp									
60	011100188 0	Phương pháp số trong cơ học thủy khí (Numerical Methods in Fluid Mechanics)	3	45				105		Tiếng Anh
61	011100188 1	Gia công bồi đắp (Addictive manufacturing)	3	15				135		Tiếng Anh
62	011100188 2	Thiết kế tàu bay (Aircraft design)	3	45				105		Tiếng Anh
63	011100188 3	Máy bay trực thăng (Helicopters)	3	45				105	38	Tiếng Anh
64	011100188 4	An toàn sân đỗ (Ramp Safety)	3	45				105		Tiếng Anh
65	011100188 5	Đo lường và điều khiển bằng máy tính (PC based Control and Measurement)	3	45				105		Tiếng Anh

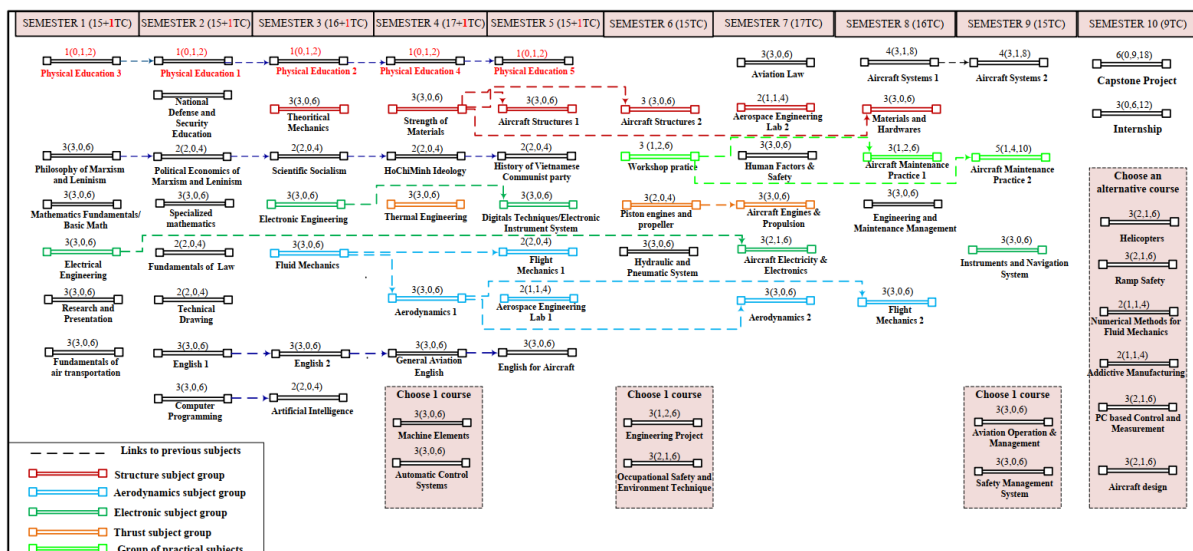
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3. Training process

TRAINING PROCEDURES FOR AERONAUTICAL ENGINEERING

(150 credits / 10 semesters)

Semester 1 – Semester 10



III. BRIEF DESCRIPTION OF THE COURSES

III.1. THE COURSES OF GENERAL KNOWLEDGE

1. Philosophy of Marxism and Leninism (0111000746)

It is a required course, taught first in political theory courses. The module provides dialectical materialistic views on nature, society and thinking of Marxism-Leninism. On that basis, the worldview, scientific methodology, beliefs and revolutionary ideals are built for learners.

2. Political Economics of Marxism and Leninism (0111000747)

It is one of the three constituent parts of Marxism-Leninism, contributing to the formation of students' scientific worldview and revolutionary outlook on life in awareness and practical activities.

The content consists of 6 chapters, of which chapter 1 discusses the object, method and function of Marxism-Leninism political economics. Chapters 2 to 6 discuss the core theoretical contents of Marxism-Leninism political economics in a new context. Specifically, they include: Commodities, markets and the role of market participants; Surplus value in the market economy; Competition and monopoly in the market

economy; Socialist-oriented market economics and economic interest relations in Viet Nam; Industrialization, modernization and international economic integration of Viet Nam.

3. Scientific Socialism (0111000244)

The module belongs to the section of general education knowledge in the courses of political theory. It provides students with basic knowledge about scientific socialism (objects, research methods, the meaning of scientific socialism's study); about the historical mission of working class; about socialism and the transition to socialism; about socialist democracy and the socialist state; about the structure of society - class and the alliance of classes in the transition to socialism; about the issues of nation and religion during the transition to socialism.

This course has a direct relationship with stance education and thought for students, as well as provides in-depth knowledge for students in socio-political issues.

4. Ho Chi Minh Ideology (0111000016)

The module provides basic knowledge about objects, research methods and the learning meanings of Ho Chi Minh ideology; about the basis, the process of formation and development of Ho Chi Minh ideology; about national independence and socialism; about the Communist Party and the State of the people, by the people, for the people; about great national and international solidarity; about culture, ethics and human.

5. History of Vietnamese Communist Party (0111000524)

The module provides basic knowledge about the history of Vietnamese Communist Party, specifically about the birth of the Party; about the leadership role of the Party in two resistance wars for national liberation and national reunification; about the process of leading country in the transition to socialism and the current reform.

6. English 1 (0111000008)

This module aims to provide knowledge about English grammar, vocabulary, and phonetics through diverse learning materials and teaching techniques, which

integrates skills and language with each topic and necessary using purpose in order to communicate in daily conversation.

Besides, the module helps learners practice the 4 skills of listening, speaking, reading and writing in English through topics and situations using common language that arouse learners' interest as well as through the activities of communication, role-playing, discussion, presentation, and games. Thanks to knowledge and skills gained, learners could easily use English in real-life communication.

7. English 2 (0111000012)

With the same purpose as the module English 1, the module English 2 provides learning contents with the similar structure, but at an advanced level, to help learners use and speak English more frequently.

8. English 3 (0111000085)

Students who complete the English 3 module will achieve an intermediate level equivalent to B1 according to the Common European Framework of Reference for Languages (CEFR).

9. English 4 (0111000089)

The level of students after completing the English course 4 will be equivalent to the intermediate level B1 and pre-B2 according to the European reference framework CEFR.

10. Fundamental of Law (0111000003)

a) Course description:

This module presents basic knowledge about the state and law, the origin and nature of the state and law; about Vietnamese legal system and some certain branches of law; and about anti-corruption, helping students clearly understand the law to apply in real life.

The module also helps students improve analysis, evaluation, synthesis and problem-solving skills; independence and teamwork skills.

b) Course content:

Chapter 1: Basic issues of the State;

Chapter 2: State of the Socialist Republic of Vietnam;

Chapter 3: Basic legal issues;

Chapter 4: Legal form;

Chapter 5: Law system;

Chapter 6: Anti-corruption in Viet Nam today.

11. Physical Education 1 - Athletics (0111000009)

a) Course description:

This module provides basic knowledge about the sprint with the short distance of 100 meters in Athletics (includes: physiological characteristics in running, technical principles, prevention and treatment of injuries, and the way of competition organization).

b) Course content:

Chapter 1: Introduction to athletics – distance 100 meters;

Chapter 2: Physiological characteristics of fast-paced sports;

Chapter 3: Technical principles of sprint with distance 100 meters;

Chapter 4: Prevention and treatment of injuries;

Chapter 5: Organizing the competition.

12. Physical Education 2 – Martial arts (0111000083)

a) Course description:

This course covers martial arts knowledge, including the basic system of martial arts, techniques of attack and defense by hand, kicking techniques, falling techniques (front break-fall, back break-fall, front roll, backwards roll), self-defense. Also, the module helps students know how to organize a martial arts competition, to prevent and treat injuries in sports activities.

b) Course content:

Chapter 1: Introduction to martial arts in Viet Nam and in the world;

Chapter 2: Basic technical system of martial arts;

Chapter 3: Basic self-defense moves in martial arts;

Chapter 4: Prevention and treatment of injuries;

Chapter 5: Organizing the competition.

13. Physical Education 3 – Aerobic (0111000233)

a) Course description:

Aerobics is a form of physical exercise with gymnastics movements performed to music. It includes rhythmic aerobic exercise with stretching and strength training routines, performed with high intensity.

Through the teaching method, integrated theory with practice, it helps learners gain the basic techniques of aerobics, practice their physical strength, and get a certain knowledge about sports training, teamwork, the organization of sports competition and the methods of injury prevention and treatment.

b) Course content:

Chapter 1: Introduction to aerobic;

Chapter 2: Basic 7-step movement techniques without hands and with hands;

Chapter 3: Movements of 4 difficulty groups A, B, C, D;

Chapter 4: Prevention and treatment of injuries;

Chapter 5: Organizing the competition.

14. Physical Education 4 - Volleyball (0111000022)

a) Course description:

Volleyball is an indirect team sport. Thus, in addition to educating learners about competition skills through developing physical strength (especially the strength and the speed), basic techniques (bump, set, serve, spike and block) and some simple tactics, players are also trained in solidarity, cooperation and determination to complete the task.

Acquiring knowledge of volleyball rules, students are able to compete and organize volleyball competitions in accordance with current rules; and know the prevention and treatment measures of sports injuries.

b) Course content:

Chapter 1: Introduction to volleyball;

Chapter 2: Techniques of passing and setting;

Chapter 3: Techniques of underhand serving and overhand serving;

Chapter 4: Prevention and treatment of injuries;

Chapter 5: Organizing the competition.

15. Physical Education 5 - Basketball (0111000020)

a) Course description:

Basketball is a direct antagonistic team sport. Thus, in addition to educating learners about playing skills through developing physical strength (especially the strength and the speed), basic techniques (dribbling, passing, shooting and moving) and some simple tactics, players are also trained in solidarity, cooperation and determination to complete the task.

Acquiring knowledge of basketball rules, students are able to compete and organize basketball competitions in accordance with current rules; and know the prevention and treatment measures of sports injuries.

b) Course content:

Chapter 1: Introduction to basketball;

Chapter 2: Techniques of dribbling and passing the ball;

Chapter 3: Shooting technique;

Chapter 4: Prevention and treatment of injuries;

Chapter 5: Organizing the competition.

III.2. . BASIC CORE COURSES

16. Mathematics Fundamentals/ Basic Math (0111000517)

a) Course description:

This module provides students with basic knowledge about integral calculus of functions of one variable, derivatives and differentials, extreme values, maximum and minimum values of functions of two variables, double integrals, Line integrals of functions of two variables and differential equations. This is the necessary knowledge to study specialized subjects and apply them to specialized problems in practice. The module trains students in logical thinking and analytical skills accumulation and prize decided question topic in real international. Born pellets Have possible power do job poison create and work for group.

b) Course content:

Chapter 1: Differential integration of functions of one variable;

Chapter 2: Differential calculus of functions of two variables;

Chapter 3: Double integral;

Chapter 4: Line integral;

Chapter 5: Differential equation.

17. Specialized mathematics (0111000087)

a) Course description:

Engineering Mathematics course provides basic knowledge about complex numbers, complex variable functions, Laplace transformation, using Laplace transformation to solve equations, systems of differential equations, forward and reverse Z transformation, vector space. The course also provides some basic concepts of probability, random variables and some commonly used probability distributions.

b) Course content:

Chapter 1: Probability;

Chapter 2: Complex number – Complex equations;

Chapter 3: Laplace transformation;

Chapter 4: Z transformation;

Chapter 5: Vector space.

18. Technical Drawing (0111000673)

a) Course description

After completing this course, students will have the basic knowledge of the discipline and be able to: - Solve graphic problems – technical drawing in practice. - Being trained in teamwork skills, self-research, presentation and working style, etc. in the process of studying and making essays.

b) Course content

Chapter 1: Projections;

Chapter 2: Points, lines, planes;

Chapter 3: Polyhedron –Curved Face;

Chapter 4: Basic standards for drawing up;

Chapter 5: Drawing geometry;

Chapter 6: Object Performance.

19. Introduction to Civil Aviation (01110000548).

a) Course description:

This module covers the basic knowledge of civil aviation such as: The overview of civil aviation industry; The state management of civil aviation; Aircraft and Aviation industry; Airports and Aerodromes; Air navigation Services; Air transport, general aviation, flight operations assurance and environmental protection of aviation operations.

b) Course content:

Chapter 1: Overview of civil aviation industry;

Chapter 2 State management of civil aviation;

Chapter 3: Aircraft and aviation industry;

Chapter 4: Airports and aerodromes;

Chapter 5: Flight management and operation;

Chapter 6: Air transport and general aviation;

Chapter 7: Aviation services;

Chapter 8: Aviation security;

Chapter 9: Aviation employees;

Chapter 10: Environmental protection in civil aviation activities.

20. Research and Presentation (0111000049)

a) Course description:

This module presents general knowledge about concepts in scientific research, scientific research method, and how to present a presentation according to the scientific method. Besides, it helps learners to gain research and presentation skills, public speaking skills, as well as teamwork and communication skills through the preparing process of the research, which is the basis for joining the society later.

This course also trains students to have ability to work independently, defend their personal views, have a positive attitude in learning, realize the importance of the subject and its true values needed, and have a right career standpoint.

b) Course content:

Chapter 1: General concept;

Chapter 2: Scientific research methods;

Chapter 3: A scientific research topic;

Chapter 4: Presentation skills;

Chapter 5: Implementation and presentation of a research topic.

21. Thermal Engineering (0111000641)

a) Course description:

This module provides systematic knowledge of thermal equipment, internal combustion engines, refrigeration, ventilation and air regulation, thermodynamic processes of gases and the gas cycle. In addition, this module provides knowledge about heat transfer methods and temperature and energy changes of the system

b) Course content:

Chapter 1: The basic concepts

Chapter 2: Equation of state, gas mixture, specific heat

Chapter 3: First law of thermodynamics and thermodynamic processes of gases

Chapter 4: Gas cycle

Chapter 5: Heat conductivity

Chapter 6: Exothermic convection

Chapter 7: Radiant heat exchanger

Chapter 8: Heat transfer and heat exchanger calculation

22. Fluid Mechanics (0111000620)

a) Course description:

Fluid properties. Fluid statics: basic differential equations, hydrostatic forces on flat and curved surfaces. Relative statistics. The basis for establishing the basic equations of the flow of motion (continuity, momentum and energy). Dimensional analysis method based on Pi-Buckingham law and Dynamic similarity criteria according to Reynolds, Froude, Mach models. Overview of lift and drag forces on moving bodies

b) Course content:

Lesson 1: The basic concepts;

Lesson 2: Fluid statics;

Lesson 3: Fluid kinematics;

Lesson 4: Fluid dynamics;

Lesson 5: Dimensional and similarity analysis;

Lesson 6: Lift and drag force.

23. Electrical Engineering (0111000640)

a) Course description:

This module presents and explains the structure, working principle, parameters on the label of electric machine; electromagnetic relations occurring in electrical machines, equivalent diagrams of electrical machines; start the machine, adjust the speed and build the working characteristics of the electric motor; application of basic electrical machines: transformers, DC machines, asynchronous machines, synchronous machines and some special machines; survey the working mode at asymmetric load of transformers and synchronous generators. This module also

trains students to evaluate and solve problems in the field of industrial electricity; work independently, work in a team, and defend very high personal views.

b) Course content:

Chapter 1: Some basic electrical laws

Chapter 2: Single phase transformer

Chapter 3: Rotary machines-asynchronous electric motors

Chapter 4: Synchronous machine

Chapter 5: DC generator

Chapter 6: Common small power motors

24. Electronic Engineering (0111000695)

a) Course description:

This course covers the following topics: Overview and explanation of semiconductor components. Calculation and design of various electronic circuits, including diode circuits, bipolar junction transistor circuits, field-effect transistor circuits, low-frequency small-signal amplification circuits, intermediate-frequency amplification circuits, and algorithm amplification circuits. Analysis and design of electronic circuits such as power supply circuits, voltage regulators, control circuits, low-frequency amplification circuits, and algorithm amplification circuits. Development of students' skills in evaluating and solving problems related to electronic circuits in aircraft applications. Development of students' ability to work independently and collaboratively in a team.

b) Course content:

Chapter 1: Diode (Cont.);

Chapter 2: Transistor (cont.);

Chapter 3: Operational Amplifier (Op-Amp) (continued);

Chapter 4: Power Components and Applications;

Chapter 5: Common Electronic Circuits.

25. Digital Techniques/Electronic Instrument System (0111000650)

a) Course description:

The course focuses on solving new problems and technologies within the field of

fundamental digital electronics and instrument systems. This course provides a foundation in digital electronics and develops first level skills in the application, selection, and design of digital logic circuits and systems.

- Identify the areas of application for digital circuits;
- Design and develop circuits using logic gates;
- Recognise how various logic circuit families are
- Implemented and interconnected;
- Design and develop sequential logic circuits, combinational logic circuits;
- Recognise how the instrument systems work.

b) Course content:

Chapter 1: Numbering Systems and Types of Codes;

Chapter 2: Boolean Algebra and Logic Gates;

Chapter 3: Combinational Logic Circuits;

Chapter 4: Logic Gate Circuits;

Chapter 5: FLIP- FLOP;

Chapter 6: Counting Circuits And shift register Circuits;

Chapter 7: Electronic Display Devices.

26. Mechanics (0111000696)

a) Course description:

The course provides knowledge of statics and kinematics. Statics is the study of the equilibrium of an absolute solid under the action of forces. Two problems are raised: reducing the force system to its simplest form and establishing the equilibrium condition of the force system. Kinematics studies the mechanical motion of an object in terms of geometry, regardless of what causes the motion or changes it. The course also provides quantities specific to the action of forces and quantities specific to the motion of an object. This course forms the basis for the dynamics of many-body systems and many other disciplines in mechanics.

b) Course content:

Chapter 1: Basic concepts - Static axioms;

Chapter 2: Planar force system;

Chapter 3: Space Force System;
Chapter 4: Kinetics of Points;
Chapter 5: Basic motions of solids;
Chapter 6: Synthesis of point motion;
Chapter 7: Synthesize the motion of a solid body;
Chapter 8: Concepts and laws of motivation;
Chapter 9: General theorems of dynamics.

27. Strength of Materials (0111000619)

a) Course description:

This module provides basic knowledge about internal force analysis, stress state, deformation of objects, structural components; method for calculating the structural strength when subjected to external forces.

b) Course content:

Chapter 1: Basic concepts;
Chapter 2: Mechanical properties of materials;
Chapter 3: Theory of internal form;
Chapter 4: Direct legal application. design problems;
Chapter 5: Distribution of internal force in the beam;
Chapter 6: Geological characteristics of the cross-shocket;
Chapter 7: Strength in beam. design problems.

28. Workshop Practice (0111000651)

a) Course description:

This course is the foundation course in the training program of aircraft maintenance engineering. The course aims to equip students with the basic knowledge of practical mechanical engineering and electrical engineering. Contact and use measuring tools such as calipers, micrometers and mechanical tools, electrical measuring devices

b) Course content:

Lesson 1: Using the Visor and Hammer;
Lesson 2: Practice measuring-marking and punching sheet metal;
Lesson 3: Drilling holes - Riveting;

Lesson 4: The technique of hitting insurance;

Lesson 5: Basic sharpening and honing techniques;

Lesson 6: Check the status of the equipment in the transmission system;

Lesson 7: Using an electric tester;

Lesson 8: Techniques for making electrical plugs;

Lesson 9: Installation and repair of electrical wires.

29. Fluid Dynamics and Fluid Machinery (0111000732)

a) Course description:

The course provides basic knowledge about hydraulic machines, basic types of valves and hydraulic elements classified (names, symbols, conventions of functions, principles of operation, classification, fields of use), basic parameters and working characteristics; general knowledge of industrial compressed air; the differences and specificities and advantages and disadvantages; industrial pneumatic valves and elements (names, symbols conventions, functions, operating principles, fields of use). The course also provides general knowledge about industrial hydraulic and pneumatic transmission systems: definition, classification, field of use; basic components; principle diagram; methods of speed regulation of hydraulic actuators; summary of hydraulic powertrains on aircraft; transmission-automatic and transmission-automatic hydraulic system working in cycles; state chart; control logic diagram; the problem of synthesizing and analyzing the operation of hydraulic and automatic transmission systems; and methods of controlling the operation of hydraulic and automatic transmission systems (by position, by pressure, by time, by combination)

b) Course content:

Chapter 1: Hydraulic transmission components and systems;

Chapter 2: Pneumatic actuators and components;

Chapter 3: Industrial hydraulic automatic transmission systems.

30. Computer Programming (0111000095)

a) Course description:

This module presents and explains the mechanism and operation principle of components such as data structures, controls, loops, functions, recursion, strings, pointers and object-oriented programming principles. The module trains students to evaluate and give algorithms to solve problems in programming; Work independently, work in groups.

b) Course content:

Chapter 1: Programming languages and programming methods

Chapter 2: Elements in C . language

Chapter 3: Conditional branching structure

Chapter 4: Loop structure

Chapter 5: Functions and Recursion

Chapter 6: Arrays and Strings

Chapter 7: Pointer

31. Artificial Intelligence (0111001173)

a) Course description:

This course is the foundation course of the training program in aircraft maintenance engineering. The course aims to equip students with the basic knowledge of machine learning so that students can conduct research and approach the application of artificial intelligence in the aircraft maintenance industry.

b) Course content:

Chapter 1: Fundamental mathematics for machine learning;

Chapter 2: Overview the machine learning;

Chapter 3: Basic algorithms for machine learning;

Chapter 4: Neural Networks;

Chapter 5: Dimensionality reduction;

Chapter 6: Convex Optimization;

Chapter 7: Support vector machine;

Chapter 8: Machine learning applications for aircraft maintenance problems.

32. Automatic Control Systems (0111000148)

a) Course description:

This course delves into the presentation and explanation of the composition, operating principles, and fundamental aspects of automatic control theory. It focuses on analyzing and designing continuous linear control systems, discrete and nonlinear systems within the context of production processes, technological procedures, and industrial control entities. Additionally, the course utilizes various software tools, with an emphasis on MATLAB/SIMULINK, to facilitate the analysis and design of automatic control systems.

The course aims to cultivate students' skills in evaluating and resolving issues related to automatic control. It fosters the ability to work independently, collaborate effectively within a team, and possess a highly developed capacity to defend personal perspectives within the field.

b) Course content:

Chapter 1: The fundamentals of control systems;

Chapter 2: Mathematical description of continuous control systems;

Chapter 3: Dynamic characteristics of systems;

Chapter 4: Stability analysis of systems;

Chapter 5: Evaluation of control system quality;

Chapter 6: Design of continuous control systems.

33. Machine Elements (0111000702)

a) Course description:

The course provides the basic concepts of machine elements. The course also equips the theoretical basis and methods of calculating and designing machine parts and machine elements present in most modern machines, provides basic knowledge about working principle and structure of machine elements.

b) Course content:

Chapter 1: Calculation basis for machine element design

Chapter 2: Reliability, technological and economic criteria in machine parts

Chapter 3: Belt transmission

Chapter 4: Chain transmission

Chapter 5: Gear transmission

Chapter 6: Axis

Chapter 7: Bearings

Chapter 8: Springs

III.3. MAJOR CORE COURSES

34. Aircraft Structures 1 (0111001054)

a) Course description:

- Provides background knowledge on General State of Stress and Strain (3 dimensions); Stress-strain relationship;
- Provides basic and advanced knowledge on: Analysis of stress fields, deformation fields, behavior relationships in different structural cases (bar, beam, plate structures) subjected to moments and forces (general impact); Analysis of the structure of thin-walled beams and thin plates;
- Basic numerical simulation (FEM) application to clarify concepts and applications.

b) Course content:

Chapter 1: Stress, Strain

Chapter 2: 2D Elasticity Problem (2D)

Chapter 3: Torsion deformation

Chapter 4: Energy method

Chapter 5: Numerical methods in structural analysis (basic)

Chapter 6: Thin plate theory

Chapter 7: Structural instability

35. Aerospace Engineering Lab 1 (0111001396)

a) Course description:

The aim of this course is to help students to familiarize with experimental approach in solving technical problems or considering the results developed through analytical approach/ theory which are related to Fluid Mechanics, hydraulic systems, combustion. Aerospace Engineering Lab 1 provides students with practice and knowledge in the following subjects: measurement of wind speed by pitot tube, performance characteristics of gear pump and centrifugal fan.

b) Course content:

Chapter 1: Introduce course's objectives;

Chapter 2: Measure hydrostatic force on flat plane;

Chapter 3: Measure the velocity with a Pitot tube;

Chapter 4: Investigate the characteristics of centrifugal fan;

Chapter 5: Measurement of lift and drag on three wings with different aspect ratio.

36. Aviation Law (0111000013)

a) Course description:

This module provides basic knowledge about International Civil Aviation Law and Viet Nam Civil Aviation Law, including: history, contents, basic principles and the sources of aviation law. Plus, the module presents the legal regulations of aircraft and airspace as well as the legal regulations for air traffic operations, civil air transports and civil aviation support services.

Through this subject, students could gain analysis, evaluation, synthesis and problem-solving skills; and be able to work independently or in teams.

b) Course content:

Chapter 1: General introduction to civil aviation law;

Chapter 2: Legal regulations on air traffic operations;

Chapter 3: Legal regulations on aircraft;

Chapter 4: Legal regulations on air transportation;

Chapter 5: Legal regulations on air transport support services.

37. Human Factors & Safety (0111001178)

a) Course description:

Analyze the limitations of human capacity in the working environment. The effects of psychology on work performance and safety. Provide methods and regulations to avoid errors caused by human factors in the process of exploiting and using Aviation techniques.

b) Course content:

Chapter 1: Overview;

Chapter 2: Human capacity and limitations;
Chapter 3: Social psychology;
Chapter 4: Factors affecting human capacity;
Chapter 5: Physical environment;
Chapter 6: Duties;
Chapter 7: Communication;
Chapter 8: Human error.

38. Aerodynamics 1 (0111001055)

a) Course description:

This module presents the basic concepts of aerodynamics, the aerodynamic configurations of the aircraft and the principles for the formation of lift and drag in the aircraft. Through the subject, learners could distinguish between the concepts of aircraft and airplane or altitude, height and flight level; understand the characteristic factors of the atmosphere affecting the ability to generate lift for an aircraft; understand the corresponding aerodynamic phenomena on the aircraft such as: wing tip vortex, ground effect, and so on.

The course trains students to understand the influence of geometrical parameters on the formation of lift and drag forces on the wings; to explain the actual phenomena that occur in flight operations to ensure aircraft's separation; to calculate basic altitude, height, flight level, lift and drag values. Students could practice the ability to work independently, work in groups and defend their personal views; have a positive attitude in learning, realize the importance of the subject and its true values needed; also, have the right career standpoint.

b) Course content:

Chapter 1: Basic concepts of aerodynamics;
Chapter 2: General introduction to aerodynamics;
Chapter 3: Non-viscous and incompressible flow;
Chapter 4: Limited incompressible, frictionless flow around wings.

39. Aerospace Engineering Lab 2 (0111001326)

a) Course description:

Aerospace Engineering Lab 2 provides students with practice and knowledge in the following subjects: wing profile and basis theories to calculate the thrust, calculation the drag and evaluation the factors affecting the drag, truss structure, mechanical properties of materials.

b) Course content:

Chapter 1: Introduce course's objectives;

Chapter 2: Observation of flow over bodies (cylinder, sphere, airfoil ..);

Chapter 3: Measurement of lift/drag on non streamline bodies: sphere, semi-sphere, plate, teardrop shape;

Chapter 4: Determine the bending strain of truss structure;

Chapter 5: Investigate mechanical properties of materials.

40. Materials and Hardware (0111000346)

a) Course description:

This course provides fundamental knowledge regarding the characteristics of materials:

- Heat treatments;
- Properties and applications of ferrous alloys;
- Properties and applications of aluminum alloys, copper alloys, titanium alloys;
- Properties and application of polymers;
- Fundamental properties of composites;
- Properties and applications of elastomers.

b) Course content:

Chapter 1: Fundamental properties of materials;

Chapter 2: Ferrous alloys;

Chapter 3: Non-ferrous alloys;

Chapter 4: Polymers and elastomers;

Chapter 5: Composites;

Chapter 6: Corrosion.

41. Aircraft Structures 2 (0111001056)

a) Course description:

This module provides knowledge about the general structure of aircraft; component structures (fuselage, wings, tail, doors, engine mounts, ..) of the aircraft. Provides advanced aeronautical structural modeling and analysis methods.

b) Course content:

Chapter 1: General structure of the aircraft

Chapter 2: Aircraft hull structure

Chapter 3: Structures and structures of windcreens and windows

Chapter 4: Aircraft wing structure

Chapter 5: Engine mount structure and engine cover

Chapter 6: Aircraft stern structure

42. Flight Mechanics 1 (0111001057)

a) Course description:

The course provides the knowledge to explain how an aircraft can be lifted off the ground and how the features work during a flight. The following topics will be discussed in the module: standard atmospheres, basic aerodynamics, aircraft geometry, propulsion, stability concepts and flight control. Students will be able to preliminary design an aircraft based on knowledge of aircraft performance in this module.

b) Course content:

Chapter 1: Introduction to flight mechanics

Chapter 2: Basic aerodynamics

Chapter 3: Force and Moment acting on the plane

Chapter 4: Thrust engine

Chapter 5: Airplane performance curve according to thrust and engine power

Chapter 6: Take-off, landing and circling

Chapter 7: Overview of stability and control

Chapter 8: Aircraft design

43. Flight Mechanics 2 (0111001059)

a) Course description:

This module introduces air-plane diagrams, equations of motion, flight modes, flight performance, aircraft curves and stability characteristics.

b) Course content:

Chapter 1: Introduction

Chapter 2: Theory of stability and control

Chapter 3: The system of equations of motion of the

44. Aerodynamics 2 (0111001058)

a) Course description:

This module introduces the negative transient current through the profile, the above negative current through the profile, the ultrasonic flow through the profile, the characteristic line method, some solutions to the Navier - Stockes equations.

b) Course content:

Chapter 1: Negative transient flow through the profile: Linear theory

Chapter 2: Flow over negative: Linear theory of flow over negative

Chapter 3: The characteristic line method

Chapter 4: Ultrasonic flow

Chapter 5: Solution to the Navier - Stokes equation

45. Piston engines and propeller (0111000654)

a) Course description:

The aircraft piston engine and propeller course is one of the specialized courses that equip students of aeronautical engineering with knowledge about aircraft piston engines and propellers. Completing this course, students will be equipped with theoretical knowledge and practical knowledge, capable of analyzing working principles, calculating parameters, choosing working parameters according to their characteristics. Operation of the engine and propeller, maintenance skills, and repair of common damages. How to solve and handle damaged piston engines in general and especially for aircraft piston engines.

b) Course content:

Chapter 1: Introduction to aircraft propulsion system;
Chapter 2: Aircraft piston engine principles;
Chapter 3: Aircraft Piston Engine Construction;
Chapter 4: Aircraft Piston Engine Systems;
Chapter 5: Maintenance, operation, troubleshooting and repair of Aircraft Piston Engines;
Chapter 6: Aircraft propellers.

46. Engineering and Maintenance Management (0111001176)

a) Course description:

The course provides students with an understanding of technical service, maintenance concepts, and responsibilities of the maintenance engineering department, maintenance operations and related departments. The module provides students with the concepts of maintenance management, maintenance structure, issues related to maintenance management of an airline.

b) Course content:

Chapter 1: Overview of aircraft maintenance and technical management;
Chapter 2: Aircraft maintenance management;
Chapter 3: External maintenance;
Chapter 4: Internal Maintenance;
Chapter 5: Technical Management;
Chapter 6: Material Support;
Chapter 7: Supervision of technical activities of aircraft.

47. Engineering Project (0111000733)

a) Course description:

The module provides computational knowledge related to aerodynamic and control characteristics of aircraft; structure and durability of the airframe; characteristics, capacity, efficiency... of aircraft engines. The module also guides students in numerical simulations and experiments related to aerodynamic and control

characteristics of aircraft; structure and durability of the airframe; characteristics, capacity, efficiency... of the main components of the aircraft.

b) Course content:

Students carry out elective projects

48. Occupational Safety and Environment Technique (0111000708)

a) Course description:

Presenting causes of occupational accidents, causes of fire and explosion in labor and production; Measures to prevent pollution and preserve environmental hygiene; Fire prevention, occupational disease prevention, safety techniques in using machinery.

b) Course content:

Chapter 1: Basics;

Chapter 2: Working environment and hygiene;

Chapter 3: Safety Technique.

III.4. CONCENTRATION COURSES

49. Aircraft Systems 1 (0111000706)

a) Course description:

This course is a specialized module in the training program of aircraft maintenance engineering. The course aims to equip students with basic knowledge about the uses, functions, operating principles, main details and assemblies in air-conditioning, flight control, fuel, hydraulic systems, etc. landing gear and oxygen on the aircraft.

b) Course content:

Chapter 1: Guest room air conditioning and turbocharging (ATA 21)

Chapter 2: Passenger cabin equipment (ATA 25)

Chapter 3: Fire alarm system – fire extinguishing (ATA-26)

Chapter 4: Aircraft Control Systems (ATA 27)

Chapter 5: Fuel system (ATA 28).

Chapter 6: Hydraulic System (ATA 29)

50. Aircraft Systems 2 (0111000707)

a) Course description:

This course is a specialized module in the training program of aircraft maintenance engineering. The course aims to equip students with basic knowledge about the uses, functions, operating principles, main details and assemblies in anti-freeze systems, landing gear, oxygen systems, pneumatic system on aircraft.

b) Course content:

Chapter 1: Ice and Rain Protection System (ATA-30)

Chapter 2: Landing system (ATA 32)

Chapter 3: Oxygen System (ATA 35)

Chapter 4: Pneumatic/Vacuum Systems (ATA 36)

Chapter 5: Clean Water and Waste Systems (ATA 38)

51. Aircraft Electricity & Electronics (0111000718)

a) Course description:

This course is a specialized module in the training program of aircraft maintenance engineering. The course aims to equip students with basic knowledge about the uses, functions, operating principles, details and main assemblies in aircraft electrical and electronic systems.

b) Course content:

Chapter 1: Introduction Of Aircraft Electrical Power Supply;

Chapter 2: Main AC power distribution system;

Chapter 3: Main Dc, Essential & Emergency Power Distribution;

Chapter 4: Distribution Components;

Chapter 5: AC Generation;

Chapter 6: DC Generation;

Chapter 7: Ground Power;

Chapter 8: Aircraft Communication System;

Chapter 9: Autopilot System.

52. Instruments and Navigation System (0111000715)

a) Course description:

This course is a specialized module in the training program of aircraft maintenance engineering. The course aims to teach students with basic knowledge about uses, functions, operating principles, main details and assemblies in aircraft navigation and instrument systems

b) Course content:

Chapter 1: Air Data Instruments;
Chapter 2: Pitot Static System;
Chapter 3: Air Data Computer;
Chapter 4: Warning And Recording Systems;
Chapter 5: Gyroscopes;
Chapter 6: Attitude Reference System;
Chapter 7: Heading Reference System;
Chapter 8: Electronic Flight Instrument System;
Chapter 9: Central Warning System;
Chapter 10: Aircraft Navigation Systems.

53. Aircraft Engines & Propulsion (0111001180)

a) Course description:

This module introduces the basic structure of a gas turbine engine. Functions, detailed structures and basic operating principles of systems to ensure engine operation such as: Basic gas turbine engine; Engine fuel system; Engine starting and ignition system; Engine air control system. The module trains students to recognize engine components; Calculation and design skills for engine thrust calculation.

b) Course content:

Chapter 1: Basic knowledge
Chapter 2: Intake
Chapter 3: Compressor
Chapter 4: Combustion chamber
Chapter 5: Turbines
Chapter 6: Exhaust pipe
Chapter 7: Engine thrust calculation

Chapter 8: Calculation of engine heat

Chapter 9: Fuel system

54. Aircraft Maintenance Practice 1 (0111000711)

a) Course description:

This module is an intensive module in aircraft maintenance engineering training program. The course aims to equip students with basic knowledge about aircraft operation and maintenance. Proficient in using the system of aircraft maintenance documents and equipment to check the system status.

b) Course content:

Chapter 1: Maintenance workshop safety regulations;

Chapter 2: Maintenance tools and equipment for ground service;

Chapter 3: Maintenance Documents;

Chapter 4: Technique of disassembly, inspection and replacement of equipment;

Chapter 5: Maintenance and Handling of Aircraft.

55. Aircraft Maintenance Practice 2 (0111000712)

a) Course description:

This module is an intensive module in aircraft maintenance engineering training program. The course aims to train students with basic knowledge about the preparation before the flight day, mid-flight, routine maintenance activities in aircraft operation and maintenance activities. Proficient in using the system of aircraft maintenance documents and equipment to check the status of the system according to the instructions.

b) Course content:

Chapter 1: Balance measurement and aircraft center of gravity calculation;

Chapter 2: Performing a 50-hour, 100-hour periodic inspection (check 2A, 4A);

Chapter 3: An Abnormal Test;

Chapter 4: Simulation of maintenance workshop operation according to Part-145 standard.

56. Safety Management System (0111000698)

a) Course description:

This module examines the basics of ICAO's National Aviation Safety Program (SSP), Aviation Safety Management System (SMS), and the practical application of these management tools to Vietnam's aviation industry.

b) Course content:

Chapter 1: Overview of ICAO's National Safety Programme (SSP);

Chapter 2: ICAO Safety Management System;

Chapter 3: Safety Policies and Objectives;

Chapter 4: Safety Risk Management;

Chapter 5: Staying Safe;

Chapter 6: Promoting Safety;

Chapter 7: Implementation of the Safety Management System,

57. Aviation Operation & Management (0111000713)

a) Course description:

b) Course content:

Chapter 1: Home organization operation of civil aircraft;

Chapter 2: System of documents for aircraft operation;

Chapter 3: Flight Operation System;

Chapter 4: Operating system for ground and goods exploitation;

Chapter 5: Operator Training and Training System;

Chapter 6: Training system, requirements for human participants in the flight operation system;

Chapter 7: Control system, quality assurance, safety;

Chapter 8: Security in Aircraft Operations.

III.5. INTERNSHIP – THESIS AND ALTERNATIVE COURSES

58. Thematic 1 (0111000545)

a) Course description:

The course focuses on solving new problems and technologies within the field of aviation engineering. The given knowledge is updated every semester so students can learn and plan their upcoming professional careers. The course offers students

chances to improve their skills in relation to calculation, design, performance, independent work, group work, and defending their opinions.

b) Course content:

New knowledge within the field of aviation engineering (According to the selected course)

59. Thematic 2 (0111000546)

a) Course description:

The course focuses on solving new problems and technologies within the field of aviation engineering. The given knowledge is updated every semester so students can learn and plan their upcoming professional careers. The course offers students chances to improve their skills in relation to calculation, design, performance, independent work, group work, and defending their opinions.

b) Course content:

New knowledge within the field of aviation engineering (According to the selected course)

60. Internship (0111000671)

a) Course description:

This course provides students with the knowledge, skills, autonomy and responsibility

b) Course content:

Chapter 1: Overview of the internship company;

Chapter 2: Working Status maintenance at the company;

Chapter 3: Topics;

Chapter 4: Internship Report graduate.

61. Capstone Project (0111000438)

a) Course description:

This course is for students who completed all the required specialized subjects, met the academic score requirements of the Faculty, and had a wish to register for the graduation thesis.

The subject requires students to make a topic in the form of a project or a large assignment, with the content related to the specialized knowledge of the course. When starting the thesis, students can propose or be assigned a topic and be guided by a lecturer. After a prescribed time, students will submit their thesis report and the completed products, solutions or software in order to be tested and evaluated.

The implementation of the graduation thesis must comply with the Faculty's regulations in terms of timeline, thesis report form and other regulations relating to thesis defense

b) Course content:

Listen to instructions on how to make a graduation project; Guide to making plans, making graduation projects; Self learning.

62. Aircraft design (0111001177) - Alternative Courses

a) Course description:

An aircraft design process will be introduced. Students will perform a team-based aircraft design project. Application of knowledge acquired and skill developed in the aerospace curriculum are required. Students will perform a full aircraft sizing process for their project.

b) Course content:

Session 1: Course introduction

Session 2: Technical Design

Session 3: Identify the problem and needs of the aircraft

Session 4: Building aircraft configurations

Session 5: Selecting aircraft configuration

Session 6: Preliminary design

Session 7: Design evaluation

Session 8: Design optimization

63. Helicopters (0111000055) - Alternative Courses

a) Course description:

This module provides knowledge about the construction and working principle, classification of helicopters; structure and main geometrical parameters of the

propeller; air flow modes when the propeller is in operation. The module also provides the ability to solve the propeller drag force equations; formulas for determining the component powers of the propeller bearing in different operating modes; Dynamic parameters of the coaxial propeller system and stability conditions of the helicopter.

b) Course content:

Chapter 1: Principle of the Helicopter;

Chapter 2: Basic Features of Helicopters;

Chapter 3: The characteristics of the pinwheel;

Chapter 4: Flight modes;

Chapter 5: Balance, stability and controllability.

64. Ramp Safety (0111000604) - Alternative Courses

a) Course description:

Overview of the safety of the parking lot: functions and roles of managing the safety of the parking lot, the process of developing the safety of the parking lot;

Safety regulations in the apron area: Regulations to ensure the safety of aircraft, Regulations on safety for people operating on the apron, Regulations on safety of equipment operation, Regulations on operation in bad weather, Regulations on painting signal guys on the apron, Regulations on FOD control, Regulations on reporting/ investigating incident accidents, Regulations on marking aircraft signals, Process of developing apron safety.

Hazard factors in the parking lot area: Vehicles circulating on the parking lot. Push the plane. The aircraft's engines are working. Propeller engines, helicopter hovercraft. Aircraft equipment Equipment for aviation ground services. Refuel the aircraft. Night work

Human factors in yard safety: An overview of the factors that govern people at work; Means and equipment for the parking lot: Define the types of equipment for the parking lot.

b) Course content:

Chapter 1: Parkway Safety Overview;

Chapter 2: The Human Factor;

Chapter 3: Dangerous Factors in the Parking Area;

Chapter 4: The Human Factor in Yard Safety;

Chapter 5: Facilities and equipment for the parking lot.

65. PC based Control and Measurement (0111000170) - Alternative Courses

a) Course description:

This module presents the concepts of measuring physical quantities through sensor systems, transforming electrical signals sent to computers to control objects and actuators; Analyzing, designing and programming computerized measurement and control systems using programmable languages; The module trains students in assessing and solving problems related to measurement and control systems; Designing and programming measurement and control systems using LabView, VB6 graphic languages, etc.; Building a green environment; Students are self-study, self-study, independent work and teamwork.

b) Course content:

Chapter 1. Measurement and control overview;

Chapter 2. PC to Peripheral Pairing;

Chapter 3. Measurement of non-electrical physical quantities;

Chapter 4. Interface design using VB6 - LabView;

Chapter 5 RS485 Pairing;

Chapter 6. Closed-loop control algorithms.