Bachelor of Aeronautical Engineering Program at USTH

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Deputy Director of Department of Aeronautics, USTH

Hanoi, May 23rd 2023

01

About USTH

Milestones

USTH
VIETNAM FRANCE UNIVERSITY

2009

Established under Intergovernmental agreement Vietnam - France

2016

Moved under VAST

2017

Training programs accredited by HCERES

2018

Intergovernmental agreement period II signed

2019

10th Anniversary of USTH

2020

The Prime Minister approved Intergovernmental Agreement for the next 5 years

MISSION AND VISION

Mission

- To train quality human resources in the field of S&T to develop research and promote technology transfer.
- Using its close partnerships with France to anticipate the technological change in Asia and become a university recognized in South-East Asia for its skills in Industry 4.0.

Vision

- Becoming a future world-class university, attracting national and international elite students with training programs, scientific innovation and research activities.
- USTH students to become excellent leaders in their field to support the country and society.

WHY USTH?

- Bologna process (Bachelor – Master – Doctor in 3 -2 -3 years) and ECTS system
- Training language: English
- Supported by USTH Consortium - more than 30 French universities and institutes
- Bachelor and Master training programs accredited by HCERES
- Modern facilities and international standardized labs

8 ACADEMIC DEPARTMENTS

19 BACHELOR PROGRAMS

I

LIFE SCIENCES

Biotechnology – Drug discovery *(*)*
Medical Science and Technology
Food Science and Technology

II

INFORMATION AND COMMUNICATION TECHNOLOGY

Information and Communication Technology *(*)*
Data Science
Cyber Security

III

ENERGY

Automotive Engineering
Electrical Engineering and Renewable Energy
Mechatronics Engineering Technology

IV

FUNDAMENTAL AND APPLIED SCIENCES

Chemistry *(*)*
Applied Mathematics

V

ADVANCED MATERIALS SCIENCE AND NANOTECHNOLOGY

Advanced Materials Science and Nanotechnology
Engineering Physics and Electronics

VI

SPACE AND APPLICATIONS

Space science and Satellite Technology

VII

WATER - ENVIRONMENT - OCEANOGRAPHY

Applied Environmental Sciences

VIII

AERONAUTICS

Aeronautical Engineering

(*) Double degree programs

02

Aeronautics Program at USTH

HISTORY

November 12th, 2009

Intergovermental agreement signed: thematics aeronautics and space

December 15th, 2016

Partnership agreement signed between French Ministry, USTH and AIRBUS to "develop an aeronautical program for USTH students and lecturers"

December 15th, 2017

Cooperation agreement signed between USTH, Vietnam Airlines and VAECO in which partners agreed "to cooperate in the implementation of the aeronautical program at USTH"

May 18th, 2018

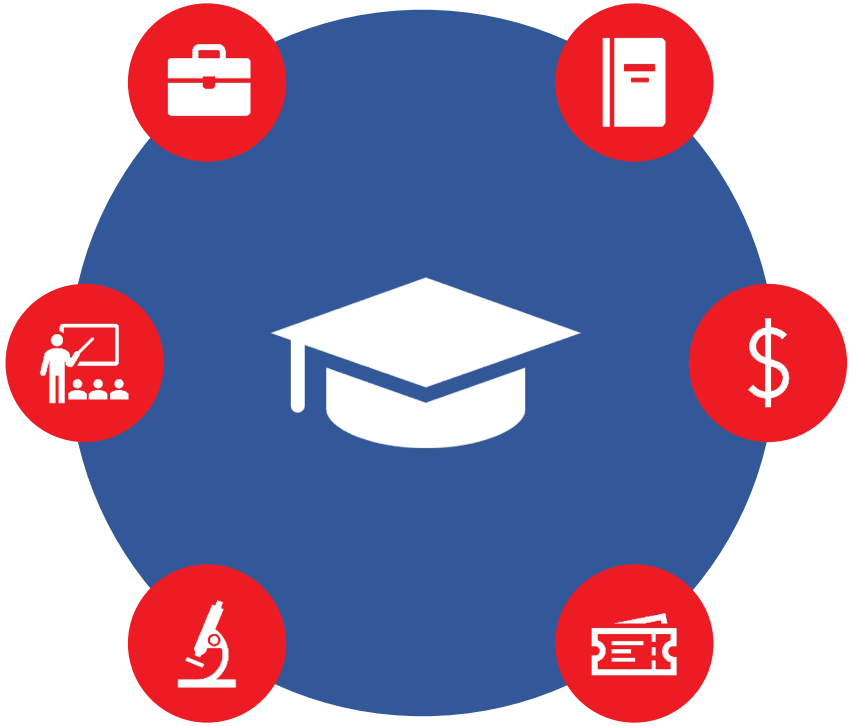
Agreement for the developpment of Aeronautical Education in Vietnam signed between USTH, AIRBUS, Consortium and Institut Aeronautique et Spatial and a collaboration agreement signed between USTH, AIRBUS and Ecole Nationale d'Aviation Civile

PARTNERSHIP

USTH
VIETNAM FRANCE UNIVERSITY

IMPLEMENTATION OF THE BACHELOR PROGRAM

- Job opportunities at VAECO (30 students/ year)
- VAECO involvement in teaching and hosting internships
- Practical equipments purchased by USTH (~1.0 million USD)



- Know-How transfer designed by IAS/Bricks
- Financial support from Airbus (1.55 millions USD)
- Support from Vietnam Airlines (90 Hanoi – Paris return tickets)

BACHELOR OF AERONAUTICAL ENGINEERING

Two career paths

- Maintenance Engineering
- Operation Engineering

Courses in English

Delivered by USTH lecturers and aviation experts from Vietnam and France

Duration: 3 years

Following Bologna process, with total 180 ECTS

DEPARTMENT OF AERONAUTICS MEMBERS

Assoc. Prof. Ngô Quang Minh
Deputy Head of Department

Dr. Phạm Duy An
Lecturer

Dr. Nguyễn Văn Tăng
Lecturer

Dr. Bùi Văn Tuấn
Lecturer

Dr. Nguyễn Xuân Bách
Lecturer

MSc. Trần Anh Tú
Lecturer

Lê Thanh Hằng
Academic Assistant

INVITED LECTURERS

VAECO

BAMBOO AIRWAYS

ĐẠI HỌC BÁCH KHOA

INSTITUT aéronautique et spatial

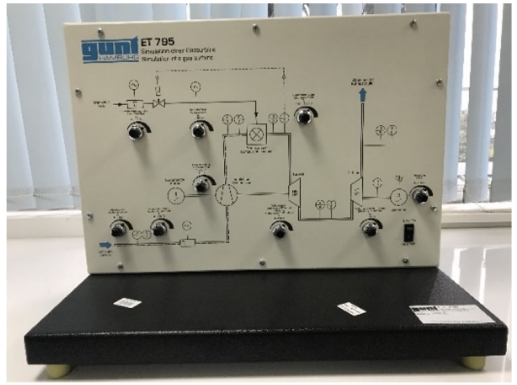
Bricks by aerospace valley
YOUR TRAINING SOLUTIONS ARCHITECT

PRACTICAL LABORATORY

Aeronautics Practical Laboratory at A21 – R210

SOME PRACTICAL EQUIPMENTS

Fluid friction plant



Gas turbine engine simulation

Airflow experimental plant

Corrosion of metals

Machinery diagnostic system

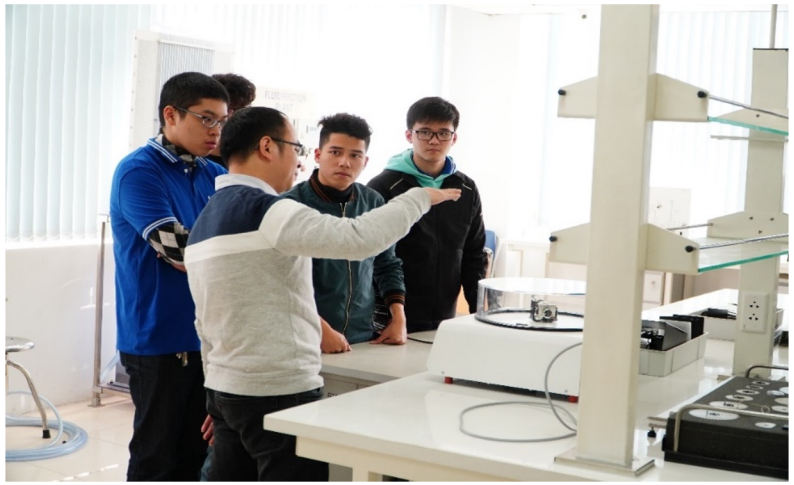
Supporting tools for practical activities

AERONAUTICS LABORATORY IN HOA LAC

Gas Turbine Engine simulator

ACTIVITIES

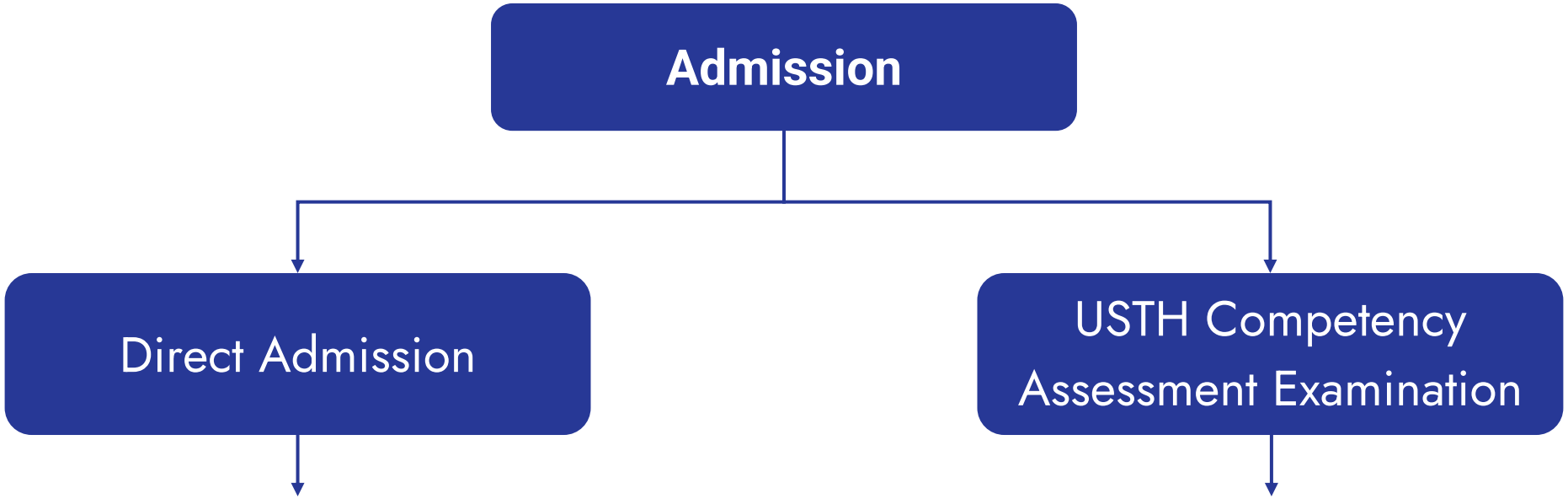
Theoretical class at USTH



Practical session at AE Laboratory

Base maintenance training at VAECO

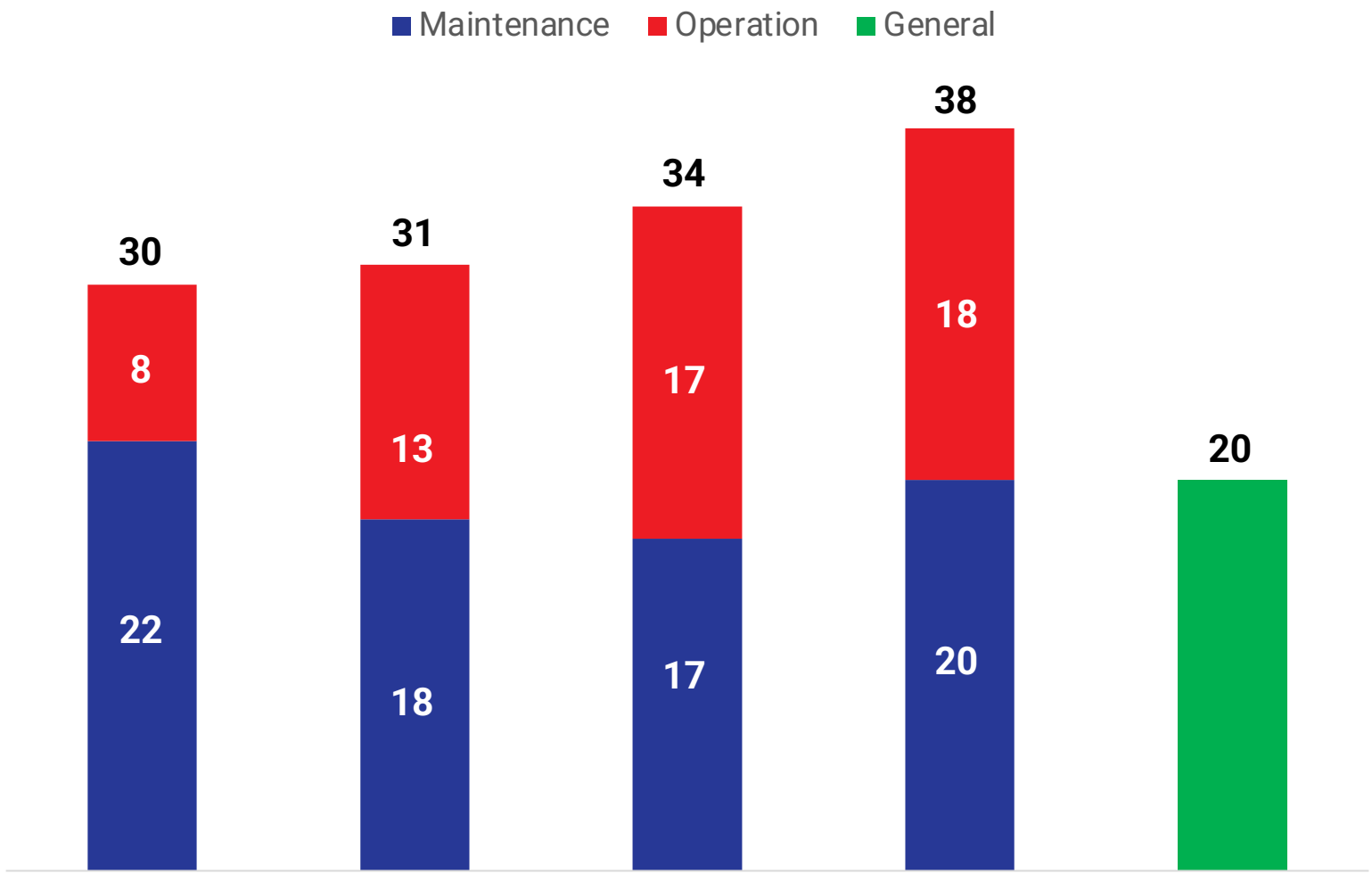
ADMISSION



- Prizes in National/Provincial Exam for Excellent Student in Maths, Physics or Informatics
- Prizes in other science, engineering contests approved by USTH
- Member of International Olympic team or Participate in its selection exam

- Pass the USTH Knowledge Test
- Pass the Interview by USTH Jury

STUDENTS


Maintenance
Operation
General
30
8
22
31
13
18
34
17
17
38
18
20
20
2018 - 2021
2019 - 2022
2020 - 2023
2021 - 2024
2022 - 2025
Graduated
Graduated

GRADUATED STUDENTS

First Generation (2018 – 2021)

Maintenance

- 15 recruited by VAECO
- 2 took Master in France
- 5 others

Operation

- 6 took Master IATOM at ENAC
- 2 worked at Bamboo Airways

GRADUATED STUDENTS

Second Generation (2019 – 2022)

Maintenance

- Students continue training for B1/B2 Certificate at VAECO

Operation

- 5 took Master IATOM at ENAC
- 3 worked at Bamboo Airways
- 5 others

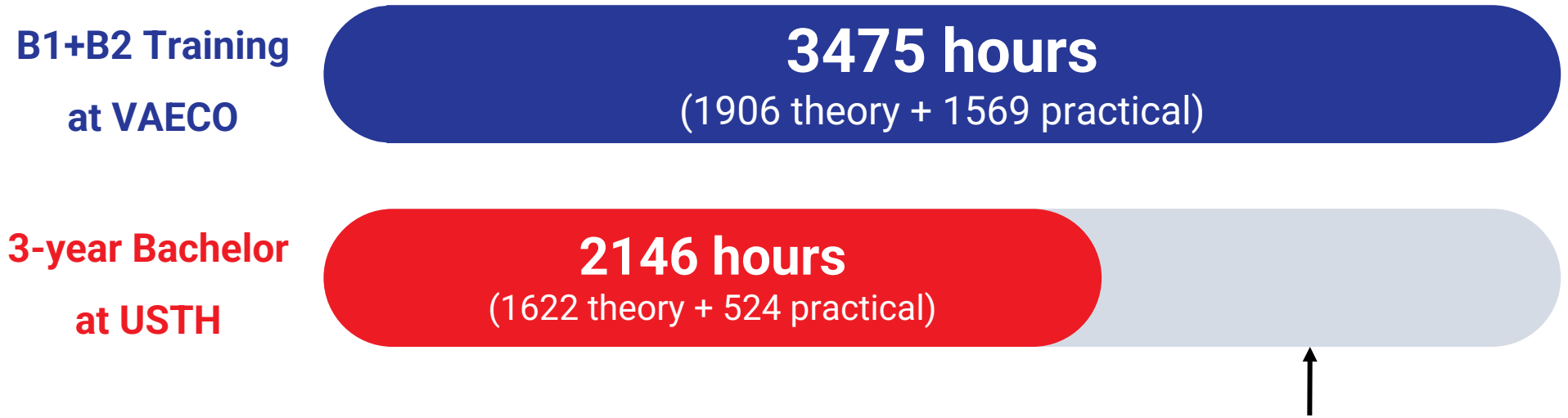
03

The Training Program Associated with Vietnam's Recruitment Demand

THE NEEDS TO UPDATE THE PROGRAM

Currently, the Maintenance Bachelor Program at USTH, qualified by CAAV and VAECO,

still lacks many hours compared to the B1+B2 training at VAECO



THE NEEDS TO UPDATE THE PROGRAM

- To cover for the lacking hours, a new 4-year maintenance training program is proposed
- The graduated students will receive **both** Bachelor Degree by USTH and B1+B2 Certificate by VAECO
- These students will also be directly recruited by VAECO

THE NEEDS TO UPDATE THE PROGRAM

- The Operation Engineering program currently lacks 15 – 21 ECTS in the 6th semester according to USTH Regulations

- Needs to update the program in accordance with the Maintenance Program

PROPOSED TRAINING STRUCTURE

Semester	Operation Engineering	Maintenance Engineering (without B1/B2)	Maintenance Engineering (with B1+B2)
1st semester (~30 ECTS)	Fundamental Math, Physics and Engineering Subjects		
2nd semester (~30 ECTS)			
3rd semester (~30 ECTS)	Fundamental Aeronautical Engineering Subjects		
4th semester (~30 ECTS)	Operation Engineering Subjects	Maintenance Engineering Subjects	Maintenance Engineering Subjects and B1+B2 Training
5th semester (~30 ECTS)			
6th semester (~30 ECTS)			
7th semester (~30 ECTS)	**Graduated**	**Graduated**	
8th semester (~30 ECTS)			
Total ECTS	**180**	**180**	**240**

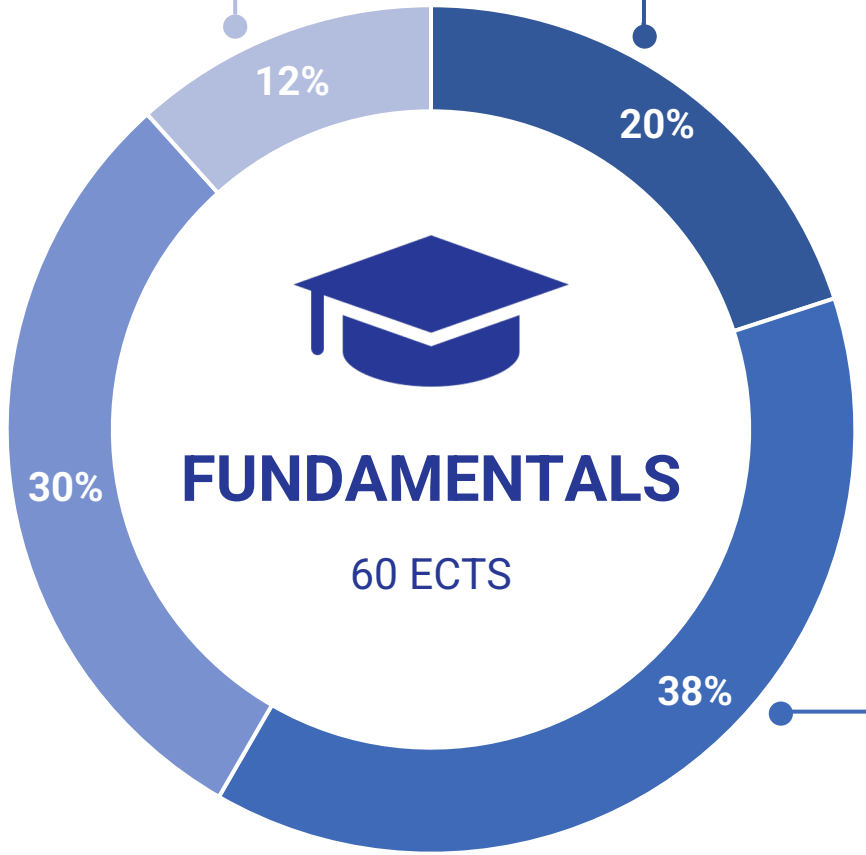
SEMESTER 1 AND 2

English (7 ECTS)

- Academic Writing
- Listening & Note Taking
- Aeronautical English

Maths (12 ECTS)

- Calculus I
- Calculus II
- Linear Algebra
- Probabilities & Statistics



Engineering (18 ECTS)

- Basic Programming
- CATIA V5 Training
- Electronics
- Introduction to Aeronautics I
- Introduction to Aeronautics II

Physics (23 ECTS)

- Mechanics
- Electricity & Electromagnetism
- Fluid Mechanics
- Optics
- Wave & Sound
- Thermodynamics

SEMESTER 3

- French
- Signal & Image Processing
- Automatic Control
- Aerodynamics & Flight Mechanics
- Materials

- Thermal System
- Hydraulics & Pneumatics
- Analog & Digital System
- Instrument Systems, Avionics & Troubleshootings

SEMESTER 4, 5, 6

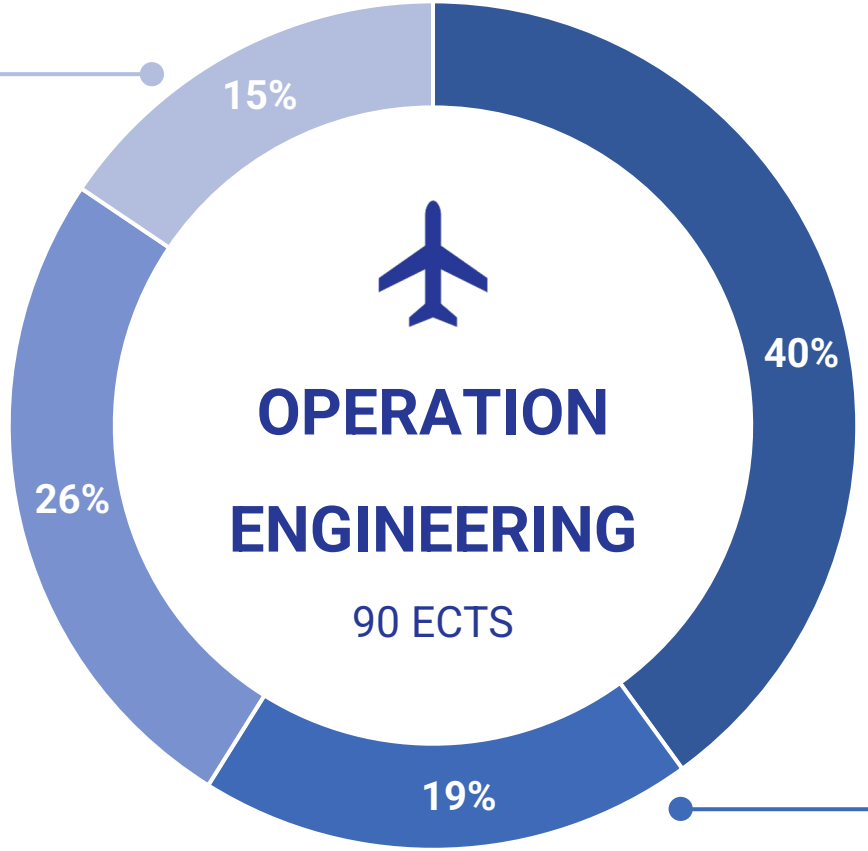
Engineering

(~ 14 ECTS)

Management

(~23 ECTS)

Add new modules



Flight Operations

(~36 ECTS)

Add new modules

Internship & USTH

Courses (~17 ECTS)

Reduce ECTS

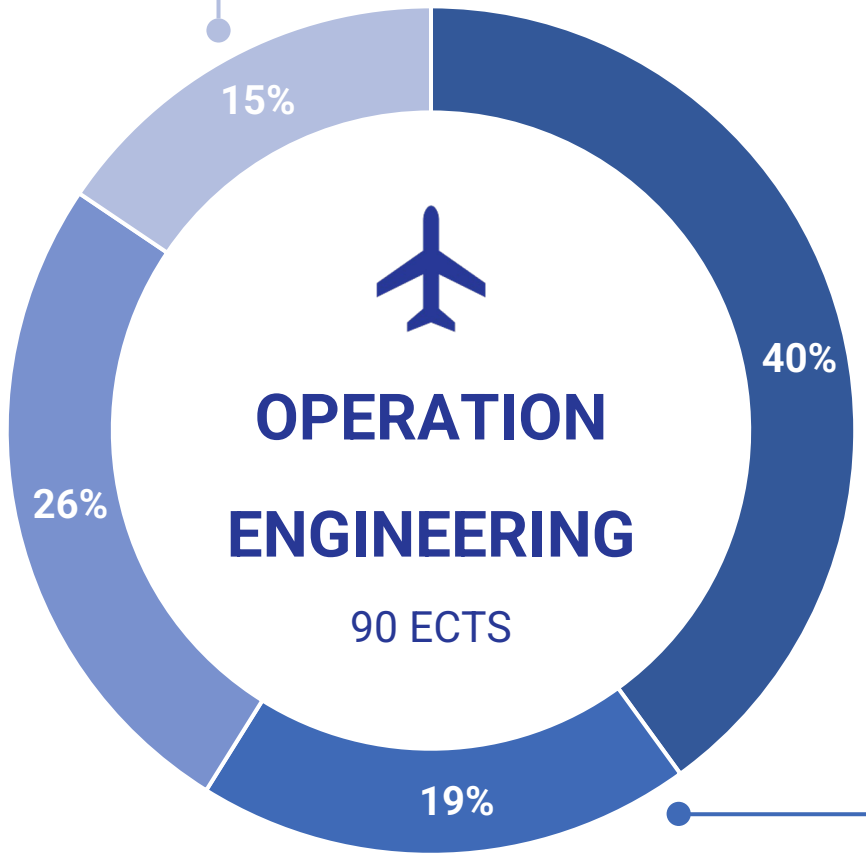
SEMESTER 4, 5, 6

Engineering (~14 ECTS)

- Mechanics of Materials
- Vibrations
- Electrical Power
- Power Electronics
- Gas Turbine Engine

Management (~23 ECTS)

- Airlines Management
- Project Management
- Aviation Indoctrination
- Aviation Regulations
- Accounting & Legal Environment
- Maintenance & Reliability
- Presentation Skills



Flight Operation (~36 ECTS)

- Flight Operations
- Flight Monitoring
- Air Traffic Management
- Mass and Balance Control
- Transport Dangerous Goods by Air
- Navigation & Communication
- Safety & Human Factor
- Security

Internship & USTH Courses (~17 ECTS)

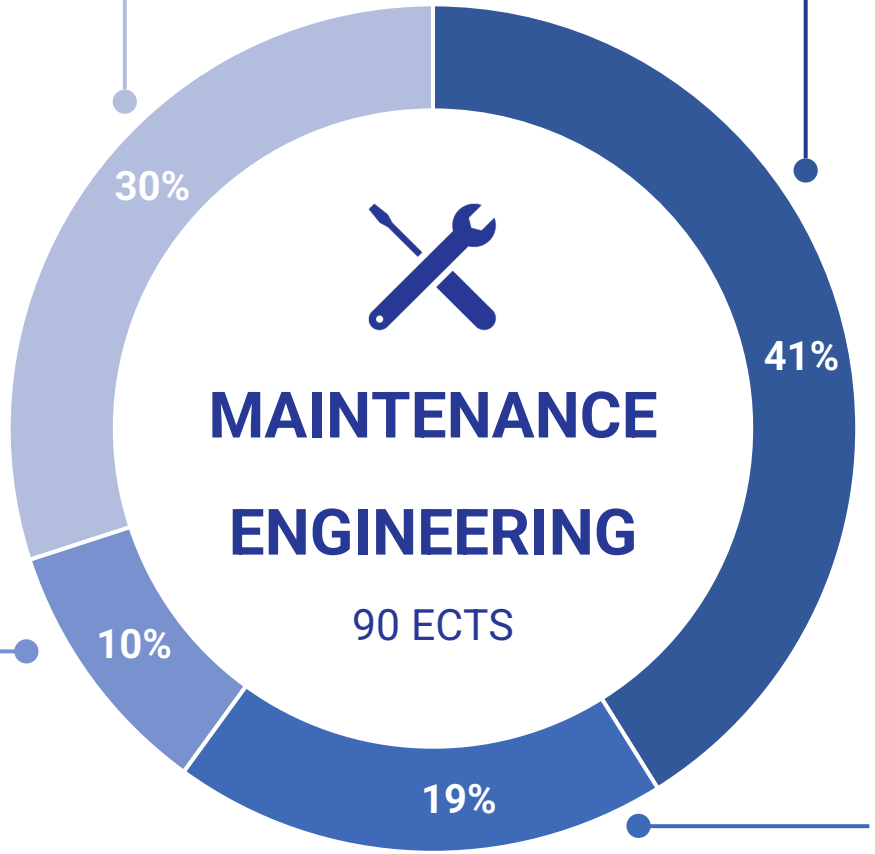
SEMESTER 4, 5, 6

Electrical/Electronics (~27 ECTS)

- Electrical Power
- Aeronautical Electrical Engineering
- Electronics Oriented for Maintenance Engineering
- Digital Techniques for Maintenance Engineering

Mechanics & Engines (~37 ECTS)

- Mechanics of Materials
- Materials and Hardware
- Maintenance Practice
- Airplane Aerodynamics Structures & System
- Gas Turbine Engine
- Propulsion
- Propeller



Others (~9 ECTS)

- Engineering Physics
- Aviation Regulations
- Safety & Human Factors

Internship & USTH Courses (~17 ECTS)

SEMESTER 7, 8

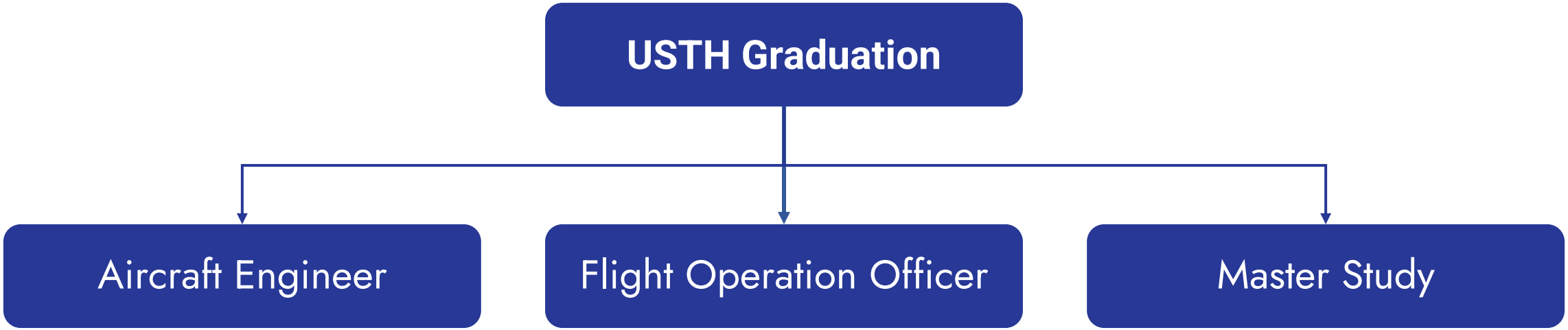
- Turbine Aeroplane Aerodynamics, Structure and System
- Aircraft Aerodynamics, Structure and System (Advanced)
- Maintenance Practices (Advanced)

- Aviation Legislation
- Gas Turbine Engine (Advanced)
- Aeroplane Structure (Advanced)
- Propulsion (Advanced)
- Propeller (Advanced)

INTERNSHIP OPPORTUNITIES

VAECO	BAMBOO AIRWAYS	AESC	HAI AU AVIATION
Year 2, 3	Year 3	Year 2	Year 2

OPPORTUNITIES AFTER GRADUATION



- Line & Base Maintenance
- Repair & Overhaul of engines and components
- Cabin & Avionics Modification
- Maintenance Documentation
- Reliability Analysis

- Flight Planning & Operation
- Airlines Management
- Safety/Airworthiness Officer
- Logistics Support

- Master IATOM at ENAC
- Master at ISAE-Supaero

SIGNING CONTRACT CEREMONY AT VAECO

MASTER IATOM AT ENAC

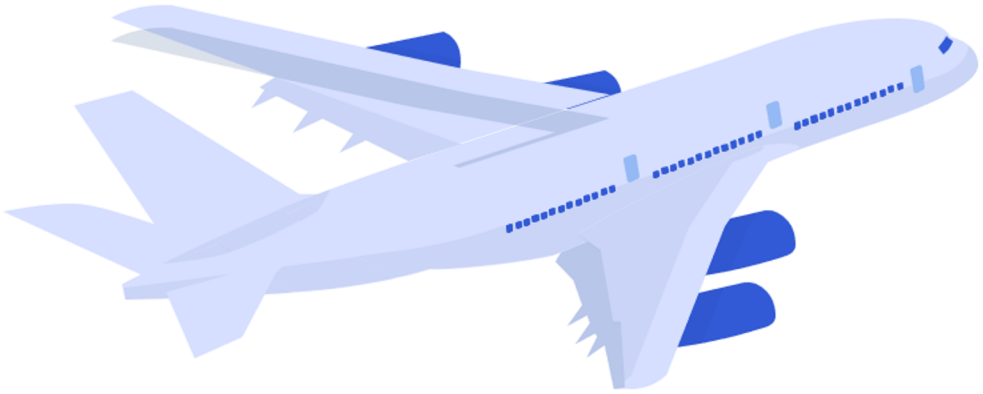
MASTER

- Master of Science in Aerospace - International Air Transport Operations Management (MSc IATOM)
- Start: 9/2019
- Structure:
  - 1 semester in Hanoi (Local lecturers)
  - 2 semester in Toulouse – France
  - 1 internship semester
  - Total admitted: 18 students

MASTER IATOM AT ENAC

Vũ Duy Hiếu (Gen 10)

Nguyễn Cảnh Khôi (Gen 9)



THANK YOU FOR YOUR ATTENTION!