

International Air Force Semester 2020-1-EL01-KA203-079068

Aeronautics Modules

Major Luís Félix Portuguese Air Force Academy





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Content

01 Objective
02 Modules Selection
03 Modules Description





1st Multiplier Event



To develop a studies program on aeronautical sciences that is:

- adequate for Basic Air Force Officer Education level;
- Common to all partners;
- Able to be integrated in the 2nd year 1st semester;
- An introduction to aeronautical topics.





02 Modules Selection

1st Multiplier Event



Modules Selection

-	Module Name	ECTS
1	Flight and Ground Safety	2
2	Avionics Systems	4
3	Propulsion Systems	2





03 Modules Description

1st Multiplier Event



Flight and Ground Safety (1/4)

- Goals
 - To provide students with the tools to understand and develop and use flight and ground safety management systems;
 - To understand the role of human factors in flight and ground safety;
 - To enable students to understand, comply and compel others to a safety based culture;
 - To enhance the students awareness to the importance of workplace safety and best practices in aviation.





Flight and Ground Safety (3/4)

• Verification of learning outcomes

Final exam

Group assignment related to specific flight and ground safety topics

Open discussion of the real life examples



Flight and Ground Safety (4/4)

Workload distribution
 Total WH: 50h;



- E-learning
- FGS Concepts
- FGS tools
- FGS Management systems
- Aircraft maintenance safety
- Human factors in FGS
- Evaluation
- Self-study



Avionics Systems (1/4)

- Goals
 - To present the concept of avionics systems architecture in modern aircraft;
 - To present the operating principles of the main avionics systems, namely Communications, Navigation and Surveillance, including military's exclusive use systems;
 - To present the principles of automatic flight control, flight deck displays and air traffic management;
 - To present specific topics on electronic.





Avionics Systems (3/4)

• Verification of learning outcomes

Two written tests



Avionics Systems (4/4)

Workload distribution
 Total WH: 100h;



- Avionics Technology and Architectures
- Communications Systems
- Navigations Aids
- Radar Systems
- sensors
- Flight Control Systems
- Navigation Systems
- Display Systems
- Electronic Warfare
- Evaluation
- Self-study



Propulsion Systems (1/4)

- Goals
 - To broaden the knowledge on Propulsion Systems for Aircraft, especially for Air Breathing Internal Combustion and Gas Turbine Engines
 - To gain sufficient insight to comprehend the working principles of the engine types mostly used in aviation
 - To acquire knowledge and understand the thermodynamic principles of air breading combustion engines
 - To identify different types of engines, engine components, accessories used in aviation
 - To engage in a multi-national course where all students are expected to bring their knowledge and contribution to the lectures and teaching sessions.





Propulsion Systems (3/4)

• Verification of learning outcomes

Final exam

Group assignment related to specific propulsion systems topics

In-class continuous assessment



Propulsion Systems (4/4)

Workload distribution Total WH: 55h;



- IC Introduction and Thermodynamic Principles
- IC Engine Lubrication, Cooling and Ignition
- IC Fuel, Mixture, Carburettors, Icing, Fuel Injection
- IC Performance, Supercharge and propellers
- GTE Introduction, Principles and types of engines
- GTE Inlets and Compressors
- GTE Combustion Chambers and Turbine Assembly
- GTE Exhaust and Lubrication
- GTE Thrust, Reverse and Gearboxes
- Evaluation
- Self-study

1st Multiplier Event

22 June 2021



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