

## Helicopters and other aircrafts

Academic Year: ( 2021 / 2022 )

Review date: 22-06-2021

Department assigned to the subject: Department of Bioengineering and Aerospace Engineering

Coordinating teacher: CAVALLARO , RAUNO

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Aerodynamics; Mechanics of Flight; Stability and Integrity of Aerospace Structures;

**OBJECTIVES**

The goal of this course is to introduce student to the concepts of rotary wing aerodynamics and aeromechanics; helicopter flight mechanics; helicopter operations; and helicopter design. Additionally the description of other types of aircrafts will be addressed and an introduction to the main aspects of helicopters technology.

Link to document

**DESCRIPTION OF CONTENTS: PROGRAMME**

1. Introduction to V/STOL Aircrafts
2. Introduction Momentum Theory and Blade Element Theory
3. Axial Flight
4. Forward Flight
5. Helicopter Performances
6. Stability and Control
7. Blade aero-mechanics
8. Helicopter Design

**LEARNING ACTIVITIES AND METHODOLOGY**

Theory sessions.

Problems and Projects based learning.

**ASSESSMENT SYSTEM**

In order to pass the subject, two requirements need to be met:

- 1) to have a MINIMUM mark of 4.0/10 in the end-of-term exam;
- 2) to have a minimum overall mark of 5.0/10 (weighing 60% the end-of-term exam mark and 40% the mark of the continuous evaluation).

<b>% end-of-term-examination:</b>	60
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<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	40
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**BASIC BIBLIOGRAPHY**

- J. Gordon Leishman Principles of Helicopter Aerodynamics, Cambridge University Press, 2002

**ADDITIONAL BIBLIOGRAPHY**

- A.R.S. Bramwell George Done David Balmford Bramwell's Helicopter Dynamics, Butterworth-Heinemann, 2001