

Helicopters and other aircrafts

Academic Year: (2020 / 2021)

Review date: 11-07-2020

Department assigned to the subject: Bioengineering and Aerospace Engineering Department

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.

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. Introduction to Vibrations and Aeroelasticity in Helicopters
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).

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

BASIC BIBLIOGRAPHY

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