

# **EAS303e Aerostructures - Properties and Performance**

**Level:** 3

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JAN

**E-Learning:** BLENDED - Learning is done MAINLY online using interactive study materials in Canvas. Students receive guidance and support from online instructors via discussion forums and emails. This is supplemented with SOME face-to-face sessions. If the course has an exam component, this will be administered on-campus.

## **Synopsis:**

The course provides the students with a fundamental understanding of the theoretical and practical aspect of the design, construction and analysis of aircraft structures.

The aim of the course is to equip the students with a strong understanding on the fundamentals essential to perform the role of an aeronautical engineer. The students will be introduced to the types of loadings that the aircraft structures experience during flight and on ground, the different structural analysis methodologies used to determine the stresses in the various structural members of an aircraft, the typical structural failures, structural repairs and modifications, as well as the airworthiness requirements for civil and military aircraft structures.

## **Topics:**

- Design and Construction of Aircraft Structure
- Engineering Mechanics
- Beam Analysis
- Thin Plate Analysis
- Buckling of Column and Thin Sheets
- Joint Analysis

## **Textbooks:**

T.H.G Megson: Aircraft Structures for Engineering Students 6th Edition Butterworth-Heinemann  
ISBN-13: 9780081009147

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ISBN-13: 9780081009147-AA

**Learning Outcome:**

- Verify the design, construction and analysis of aircraft structures, types of loadings that the aircraft structures experience during flight and on ground.
- Apply the different structural analysis methodology used to determine the stresses in the various structural members of an aircraft.
- Appraise typical structural failures, structural repairs and modifications and civil and military aviation requirements for aircraft structures.
- Solve structural analysis for aircraft.
- Appraise the various structural elements of an aircraft and their functions.
- Examine structural analysis for a modification performed on an aircraft, and present it in a manner that is structured and clear.

**Assessment Strategies:**

<b>Continuous Assessment Component</b>	<b>Weightage (%)</b>
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
QUIZ	12
LAB REPORT	12
<b>Sub-Total</b>	<b>30</b>

<b>Examinable Component</b>	<b>Weightage (%)</b>
Written Exam	70
<b>Sub-Total</b>	<b>70</b>

**Weightage Total** **100**