

EAS105 Introduction to Aerospace Engineering

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY REGULAR SEMESTER

Synopsis:

The first part of the course provides introductions to flight fundamentals, aerostructures and propulsion systems together with the important classes of materials used in airframes and aeroengines. In the second half of the course, an understanding of some fundamental aspects of aircraft dynamics and performance is taught, to introduce the idea of flight control systems. Examples of radar, avionics and other associated sensor and servo systems will also be introduced.

Topics:

- Basic Elements of Flight
- Introduction to basic aerostructures and propulsion systems and Materials for aeroengines, metallic materials and composites for airframes
- Introduction to the basic aircraft systems and its operations and requirements.
- Mechanical engineering aspects of aerospace system design and function.
- Aerodynamics Shape and Aircraft Performance, stability and control
- Elements of radar and navigation systems, navigation and landing systems, aircraft electrical power, requirements for radar and actuator system

Textbooks:

EAS105 Laboratory Manual and Assignment Booklet - Part 1
ISBN-13: OT-1673

EAS105 Laboratory Manual and Assignment Booklet - Part 2
ISBN-13: OT-1672

EAS105 Study Guide
ISBN-13: SG-1264

Aircraft Maintenance and Repair 8th Ronald Sterkenburg and Michael J. Kroes McGraw-Hill
ISBN-13: 9781260441062

Learning Outcome:

- Demonstrate fundamental understanding of basic concept of flight, aerostructures and propulsion systems together with the important classes of materials used in airframes and aero-engines.
- Describe basic aircraft systems and its operations and requirements and the Mechanical engineering aspects of aerospace system design and function plus the elements of radar and navigation systems, navigation and landing systems, aircraft electrical power, requirements for radar and actuator systems
- Recognise the interrelationships underpinning the laws governing these two disciplines.
- Define the basic aerodynamics lift and drag forces and general aircraft flight performance and propulsion.
- Identify the general concept of aerospace engineering and the general aircraft systems and avionics involved in the operation of an aircraft.
- Describe flow visualization, Benoulli's, wind tunnel, pressurization and aircraft systems through experiments.
- Execute computer simulations and extract data and perform analyses.

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	QUIZ 1	10
	LAB REPORT 1	12
	TUTOR-MARKED ASSIGNMENT 1	8
Overall Examinable Components	Written Exam	70
Total		100

*The information listed is subject to review and change.