

# **EAS305 Aircraft Electrical, Instrument Systems/Servomechanisms and Electronics**

**Level:** 3

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JULY

## **Synopsis:**

The course will provide students with a detailed understanding of aircraft electrical fundamentals and the operational characteristics of variable speed drive systems. He/She will be familiar with the terminology associated with these units, and be able to make an intelligent choice on the most appropriate system for a particular aerospace system application.

The course will provide an intermediate/advanced level treatment on the principles of operation and systems configuration / design of aircraft electrical and instrument systems.

## **Topics:**

- Electrical Fundamentals
- Electrical Systems
- Instrument Systems
- Inverters
- DC Motors
- AC Motors

## **Textbooks:**

Muhammad H. Rashid (University of West Florida): Power Electronics: Circuits, Devices and Applications (eTextbook) 4th edition. Pearson Educational International  
ISBN-13: 9780273785149

**Learning Outcome:**

- Distinguish the different types of electrical motors and the related drive units.
- Compare the electrical layout of different classes of aircrafts.
- Appraise the elements of aircraft instrumentation and integration of the system to meet the control, navigational and operational requirements of aircraft.
- Illustrate the terminologies used in aircraft control.
- Demonstrate the effects of external forces on the aircraft control system into control component specifications.
- Apply different subsystems that form the aircraft control system in block diagram form and formulate transfer function of each subsystem.
- Formulate test procedures to evaluate performance of aircraft control system and interpret results.
- Infer the laboratory sessions to physical systems in aircraft and getting feel of actual aircraft systems.
- Interpret case studies with theory learnt and relate relevance of lecture material to systems operational in latest aircrafts.

**Assessment Strategies (Evening Class):**

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