EAS307 Avionics Systems Design

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JAN

Synopsis:

The course introduces the concepts used in modern design of aircraft avionic systems, covering the use of proven international standards. In the second part of the course the student will undertake the design of various types of avionic systems as case study design exercises.

Topics:

- Overview of Avionics Architecture, Onboard Communications
- Operating principles of radars, Application of radars
- Inertial Navigation, Radio Navigation, Satellite Navigation
- Radio Communications, Transponders, Data Link, Integrated Navigation, Flight Management System
- Indicators, Multi-Function Displays, HUD and HMD
- Flight Control Systems, Autopilot Systems, Flight Data Recorders, Sensors and self-protection, Weapons

Textbooks:

EAS307 Study Guide
ISBN-13: SG-0707

Aircraft Systems: Instruments, Communications, Navigation, and Control Chris Binn John Wiley
ISBN-13: 9781119262350

Learning Outcome:

- Analyse commercial avionic system general design requirements, characteristics of avionic system architecture by the Air Transport Association (ATA).
- Appraise navigation and communication system design from electronic engineering aspects of avionic systems plus the elements of terrestrial, satellite, radar navigation systems and fly by wire controls.
- Apply the theories and concepts learned in the class for practical applications.
- Differentiate various cockpit layouts and their controls in the large simulators.
- Show the interrelationships of avionic systems, various types of case study examples are used.
- Describe the principles of operation and roles of Flight Control Systems (Civilian and Military Applications) as well as mission avionics (Military Application)
- Verify learnt content to explain real scenarios such as future avionics market data/ crew centered cockpit.

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.