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AE6701 AVIONICS

DETAILED SYLLABUS

UNIT I INTRODUCTION TO AVIONICS

Need for avionics in civil and military aircraft and space systems – integrated avionics and weapon systems – typical avionics subsystems, design, technologies – Introduction to digital computer and memories.

UNIT II DIGITAL AVIONICS ARCHITECTURE

Avionics system architecture – data buses – MIL-STD-1553B – ARINC – 420 – ARINC – 629.

UNIT III FLIGHT DECKS AND COCKPITS

Control and display technologies: CRT, LED, LCD, EL and plasma panel – Touch screen – Direct voice input (DVI) – Civil and Military Cockpits: MFDS, HUD, MFK, HOTAS.

UNIT IV INTRODUCTION TO NAVIGATION SYSTEMS

Radio navigation – ADF, DME, VOR, LORAN, DECCA, OMEGA, ILS, MLS – Inertial Navigation Systems (INS) – Inertial sensors, INS block diagram – Satellite navigation systems – GPS.

UNIT V AIR DATA SYSTEMS AND AUTO PILOT

Air data quantities – Altitude, Air speed, Vertical speed, Mach Number, Total air temperature, Mach warning, Altitude warning – Auto pilot – Basic principles, Longitudinal and lateral auto pilot.

TEXT BOOKS

1. Albert Helfrick.D., "Principles of Avionics", Avionics Communications Inc., 2004.
2. Collinson.R.P.G. "Introduction to Avionics", Chapman and Hall, 1996.

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REFERENCES

1. Middleton, D.H., Ed., "Avionics systems, Longman Scientific and Technical", Longman Group UK Ltd., England, 1989.
2. Spitzer, C.R. "Digital Avionics Systems", Prentice-Hall, Englewood Cliffs, N.J., U.S.A. 1993.
3. Spitzer. C.R. "The Avionics Hand Book", CRC Press, 2000.
4. Pallet.E.H.J., "Aircraft Instruments and Integrated Systems", Longman Scientific.

OBJECTIVES

- To introduce the basic of avionics and its need for civil and military aircrafts.
- To impart knowledge about the avionic architecture and various avionics data buses.
- To gain more knowledge on various avionics subsystems.