

GUJARAT TECHNOLOGICAL UNIVERSITY

AERONAUTICAL ENGINEERING AVIATION METEOROLOGY, NAVIGATION AND COMMUNICATION SUBJECT CODE: 2160110 B.E. 6th SEMESTER

Type of course: Engineering

Prerequisite: Basic and technical knowledge about aircrafts

Rationale: As a student of Aeronautical Engineering he/she may have opportunities to work in aviation industry as a flight dispatcher, Air Traffic Controller, Airport Manager, Meteorology officer, Flight engineer etc.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
			ESE (E)	PA (M)		ESE (V)		PA (I)		
PA	ALA	ESE		OEP						
0	0	2	2	0	0	0	50	30	20	100

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Air navigation	4	20
2	Aviation meteorology	4	20
3	Air regulations	4	20
4	Radio Telephony	4	20
5	General Technical	4	20

Text Books/ study material published by aviation authorities:

1. Weather charts and reports
2. Air Navigation log sheet
3. Flight Computers.
4. Approach Charts
5. Runway layouts
6. Weight and balance sheets

Course Outcome:

After learning the course the students should be able to:

1. To know about basic radio telephony practices and general navigation procedures.
2. To understand how to prepare weather charts.
3. To investigate technical and manmade problems resulting into air crashes.
4. To be able to operate flight computer, flight envelope and weight and balance sheets.

List of Experiments:

1. Navigation Log Sheet.
 1. Navigation map and charts. Weather charts and reports
 2. Air Navigation log sheet
 3. Flight Computers.
 4. Approach Charts
 5. Runway layouts
 6. Weight and balance sheets
- 2.
3. Calculation of different flight parameters using flight computer.
4. Runway geometry and other side areas.
5. Deciphering weather reports.
6. Principles of radio telephony
7. Preparation of locations of VOR, ILS, NDB on airports.
8. Preparation of approach charts for any Radio Navigation equipped airport.
9. Air crash investigation.
10. Weight and balance sheet of aircraft for flights.

Open Ended Problems: Apart from above practical a group of students has to undertake one open ended problem. Few examples of the same are given below.

1. Preparation of weather chart
2. Preparation of VFR and IFR navigation routes.
3. Preparation of radio telephony message using aviation abbreviations.
4. Preparation of Navigation log sheets.
5. To discuss and investigate problem/ fault in aircraft resulting in catastrophe.
6. Preparation of balance sheet for particular specific aircraft.

Major Equipment:

1. Weather charts and reports

2. Air Navigation log sheet
3. Flight Computers.
4. Approach Charts
5. Runway layouts
6. Weight and balance sheets

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.