

GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM

AIRPORT OPERATIONS

(Code : 3350106)

Diploma Programme in which this course is offered	Semester in which offered
Aeronautical Engineering	Fifth

1. RATIONALE

The main objective of this course is to understand the airport operations. This subject addresses the understanding and functioning of air traffic control, radio system and runways markings.

2. LIST OF COMPETENCIES

The course content should be taught and implemented with an aim to develop different types of skills leading to the achievement of the following competencies:

- **To know about different types of airports.**
- **To study about details information of runway markings & ATC.**

3. TEACHING AND EXAMINATION SCHEME.

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	100
04	00	00	04	70	30	00	00	

Legends: L-Lecture; T – Tutorial/Teacher Guided Theory Practice; P -Practical; C – Credit, ESE - End Semester Examination; PA - Progressive Assessment.

4. DETAILED COURSE CONTENTS

Unit	Major Learning Topics and Sub- topics	Outcomes (in cognitive domain)
UNIT– I INTRODUCTION	<ul style="list-style-type: none"> • To study about types of airports 	1.1 Airport Categories 1.2 Types of Airports a. Towered Airport b. Nontowered Airport 1.3 Sources for Airport Data

UNIT– II AIRPORT MARKINGS AND SIGNS	<ul style="list-style-type: none"> • To Study about runway marking signs. • To Study about taxiway marking signs. • To study about marking and lighting of permanently closed runways and taxiways • To about airport signs 	2.1 Runway Markings and Signs <ol style="list-style-type: none"> a. Relocated Runway Threshold b. Displaced Threshold c. Runway Safety Area d. Runway Safety Area Boundary Sign e. Runway Holding Position Sign f. Runway Holding Position Marking g. Runway Distance Remaining Signs h. Runway Designation Marking i. Land and Hold Short Operations (LAHSO) 2.2 Taxiway Markings and Signs <ol style="list-style-type: none"> a. Enhanced Taxiway Centerline Markings b. Destination Signs c. Holding Position Signs and Markings for an Aircraft. d. Instrument Landing System (ILS) Critical Area e. Holding Position Markings for Taxiway/Taxiway f. Intersections g. Marking and Lighting of Permanently Closed Runways and Taxiways h. Runways and Taxiways i. Temporarily Closed Runways and Taxiways j. Other Markings k. Airport Signs
UNIT– III AIRPORT LIGHTING & INDICATORS	<ul style="list-style-type: none"> • To study about types of airport lightning system. 	3.1 Airport beacon 3.2 Approach light systems 3.3 Runway lighting 3.4 Control of airport lighting 3.5 Taxiway lights. 3.6 Wind direction indicators 3.7 Traffic pattern
UNIT– IV RADIO & ATC	<ul style="list-style-type: none"> • To study about Radio communication system. • To study about Air Traffic Control. 	4.1 Radio communications 4.2 Air traffic control (ATC) services 4.3 Wake turbulence 4.4 Collision avoidance 4.5 ATC instructions

5. SUGGESTED SPECIFICATION TABLE WITH HOURS AND MARKS (THEORY).

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	INTRODUCTION	08	04	04	02	10
II	AIRPORT MARKINGS AND SIGNS	10	08	12	04	24
III	AIRPORT LIGHTING & INDICATORS	08	06	04	06	16
IV	RADIO & ATC	08	06	06	08	20
TOTAL		34	24	26	20	70

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy).

6. SUGGESTED LIST OF STUDENT ACTIVITIES.

Following is the list of proposed student activities like:

SR.NO. ACTIVITY

- 1 Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory.
- 2 Prepare a charts & model of airport.

7. SUGGESTED LEARNING RESOURCES.**A. List of Books:**

SR. NO.	TITLE OF BOOK	AUTHOR	PUBLICATION
1.	Airport Operations	Norman Ashford, Pierre Coutu, John Beasley	McGraw Hill Professional
2.	Practical Airport Operations, Safety, and Emergency Management	Jeffrey Price, Jeffrey Forrest	McGraw Hill Professional

B. List of Software/Learning Websites

- a. <https://en.wikipedia.org/wiki/Airport>
- b. <http://www.noisequest.psu.edu/aboutairports-typesofairports.html>
- c. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/categories/
- d. https://www.in.gov/indot/files/Aviation_Chapter2AirportCategories.pdf
- e. https://www.youtube.com/watch?v=AGVkcq_Z3i4
- f. <https://www.youtube.com/watch?v=Ql6F9RFbjMA>
- g. https://www.youtube.com/watch?v=6y_itjIV93c
- h. https://www.youtube.com/watch?v=Vyb0Sr_dNFA

8. COURSE CURRICULUM DEVELOPMENT COMMITTEE

Faculty Members from Polytechnic.

- **Prof.Ankit Patel**, H.O.D., Aeronautical Dept. Parul institute of Engg. & tech-Diploma studies

Faculty Members from Engineering.

- **Dr.Dipali Thakkar**, H.O.D., Aeronautical Engineering Dept. SVIT, Vasad

Coordinator and Faculty Members from NITTTR Bhopal.