INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)**
SEMESTER	**7**
COURSE TITLE	**AIRPORT ENGINEERING**
COURSE CODE	**01CI0717**
COURSE CREDITS	**3**

Objective:

1 To understand the fundamentals of Airport Engineering
2 To determine the runway orientation, design of runway and airport facilities.
3 To plan geometric design, and construction of various facilities of the Airport
4 To know the operational management of the various facilities of the Airport.

Course Outcomes: After completion of this course, student will be able to:

1 Explain Airport Engineering in the Context of Regional Mass Transportation Systems
2 Apply design principles of planning to Airport Infrastructure
3 Evaluate Parking Configurations and Apron Facilities
4 Design Runways, Taxiways, Aprons, and Cargo Facilities

Pre-requisite of course: Elementary knowledge of transportation system components

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Introduction to Air transportation** History of Air transportation, policy of air transportation, air transport activities, Various organizations – AAI, DGCA, ICAO their functions and guidelines, Development of Air transportation in India, Major Airports of India, Airport classification by ICAO	8
2	**Airport and Aircrafts** Terminologies related to aircraft, Characteristics of aircraft – static and dynamic, Comparison of Civil and Military aircraft, Terminologies related to Airport, Factors affecting site selection of an airport, General requirements of an airport, Layout plan, Master plan of an airport as per FAA and ICAO guidelines	8

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Contents : Unit	Topics	Contact Hours
3	**Design of Airport Infrastructure** Wind rose diagram – types and utilities, Orientation of runway, Wind coverage and cross wind component, Factors affecting runway length, Corrections to runway length, Runway patterns, Taxiway geometric elements, controlling factors, Exit taxiway – location, layout and geometrics, Aprons – locations, size, gate positions, Holding apron and turnaround facilities, Aircraft parking configurations and parking systems, Hanger – site selection, planning and design consideration. Fuel storage area, blast pad, wind direction indicators	12
4	**Grading and Drainage of Airport** Airport grading – importance and operations, Airport drainage – Aim, Importance, Basic requirements, Surface and Sub-surface drainage	6
5	**Terminal Building, Air traffic control and Visual Aids** Terminal area elements and requirements, Terminal building – functions, space requirements, vehicular parking area and circulation network, passenger requirements at terminal building, Air traffic control – objectives, control system, control network – visual aids landing information system, airport markings and lighting	8
Total Hours		**42**

Textbook :

1 Airport Planning & Design, Khanna S.K., Arora M.G., Jain S.S., Nemchand Bros., Roorkee, 2020

References:

1 The planning & Design of Airports, The planning & Design of Airports, Horenjeff Robert, McGraw Hill Book, 2018

2 Airport Planning & Management, Airport Planning & Management, Wells, Alexander; Young, Seth, McGraw Hill, 2019

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
5.00	10.00	30.00	30.00	15.00	10.00

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Instructional Method:

1. Prerequisite of the course and its pattern shall be discussed on the commencement of the course
2. Lectures shall be conducted in class room using various teaching aids.
3. Presence in all academic sessions is mandatory which shall carry 5% marks of the total internal evaluation
4. At the end of each unit/topic an assignment based on the course content shall be given to the students which shall carry 5% weightage for timely completion and submission of the assigned work.

Supplementary Resources:

1. https://archive.nptel.ac.in/courses/105/107/105107123/

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