Airport Engineering

Code	Credit Hours
CE 866	3-0

Course Description

The course will provide students with knowledge, understanding, and skills in airport planning and management, enabling them to contribute positively to the airport and air transport industry as practitioners or researchers. It focuses on airports' engineering, data collection, inspection, and operations. The course also covers airport drainage and the detailed structural design of airport pavements.

Text Book:

1. Planning and Design of Airports by Hrnfett and Mekelvey.
2. Airport Engineering by Ashford and Wrift.
3. Advisory Circular - Airport pavement design and Evaluation.

Reference Books:

1. AASHTO - 93 Guide for Design of Pavement Structure.

Prerequisites

Nil

ASSESSMENT SYSTEM FOR THEORY

Quizzes	10-15%
Assignments	5-10%
Mid Terms	25%
ESE	40-50%
Term Project	10%

Teaching Plan

Week No	Topics	Learning Outcomes
1-2	Characteristics of Aircrafts Influencing Airport Design	Operational characteristics of aircrafts. The effect of aircraft performance on runway length. Noise Important aeronautical terms and their significance.
3	Air Traffic Control	Major components of the Federal Airway Systems and their functions. Air Traffic Separation Rules. Navigation aids.

4-5	Airport Planning	Types and elements of airport planning study. Land use planning. Factors affecting site selection of new airports.
6-8	Airport Operational Area Design	Airport Configurations • Various runway configurations. • Relation of terminal area to runway. • Analysis of wing obstruction and requirements. Geometric Design of Landing Area • Classification of airports. • Runways. Components, length transverse grades, longitudinal grades and sight distances. • Taxiways. Width, longitudinal and transverse slopes, sight distance and exit to taxiway. Ground Access & Parking • Configuration. • Capacity. • Design Considerations.
9	**MID TERM EXAM**	
10	Passenger Terminal Area	Activities. Configuration Internal movement.
11	Ground Service Area	Apron. Hangers. Baggage & Servicing. Design consideration.
12	Lighting, Marking, and Signing	Approach and threshold lighting systems. Runway and taxiway lighting systems. Visual approach slope aids runways and identifier lights. Runways and taxiway marking and taxiway sign systems.
13-14	Airport Drainage	Purpose and requirement of airport drainage and design storm for surface run off. Determining the amount of run off by FAA and Corps of Engineers procedure. Layout of surface and sub surface drainage.

15-17	Structural Design of Airport Pavements	Design of flexible pavements by CBR method. Design of rigid pavements. Design of flexible and rigid pavements by FAA methods. Introduction to design of overlay pavements. Aircraft and airport pavement classification systems.
18	**END SEMESTER EXAM**	