

Zarqa University



Faculty of Engineering
Department: Civil Engineering
Course title: **Airport Engineering**

Prerequisite: Highway Engineering
Instructor: Dr. Mohammad Abdelkarim Abojaradeh
Lecture's time: M, W, 9:30-11:00
Semester: Second, 2017.
Office Hours: S, T, Th 11 -1 PM

Course description:

This course is oriented to those engineering students who would like to understand how airports are designed and planned. The course is suitable for civil, mechanical, aerospace, and industrial engineering students. The information provided in this course falls into three categories: 1) aircraft vehicle performance and airport interaction, 2) planning aspects of the airport system, and 3) analysis methods in airport engineering.

The course includes four main parts:

- 1- Airport Planning
- 2- Airport Design
- 3- Airport development
- 4- Airport Modeling and Simulation

Aims of the course:

To provide the student with tools and methods to analyze and plan effectively airports. The course will emphasize in the following issues: 1) technology of air vehicles related to airport engineering, 2) operating principles and costs, and 3) airport planning and systems analysis techniques.

The main objectives of this course are the following:

- This course will provide students with an understanding of the basic principles and techniques in Airport Engineering.
- Analyze the effect of atmospheric variables on aircraft airport operations (runway length analysis).
- Estimate the geometric design characteristics of an airport including taxiways, aprons and runways.
- Estimate site location criteria for new airports including terminals.
- Use computer simulation software packages used in industry in the airport pavement design
- Develop presentation skills and team work through individual and group projects.

Intended Learning Outcomes (ILOs):

1. Ability in understanding fundamentals of airport planning and design and engineering and fundamentals of Aircraft Characteristics and Air Traffic Control and Managements.
2. Ability in applying basic principles of runway orientation length and geometrics design.
3. Ability in applying basic principles of runway pavement design.
4. Ability in applying basic principles of Marking and Lighting of runway and Taxiway and other parts of Airside and landside of airports.



Course structures:

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
Week 1		1	Introduction to the course: The Nature of Civil Aviation and Airports Chapter 1	PPT. lecture	
Week 2		1	Aircraft Characteristics Related to Airport Design Chapter 2	PPT. lecture	
Week 3		1	Traffic Management Chapter 3	PPT. lecture	
Week 4		1	Airport Planning Studies Chapter 4 and 5	PPT. lecture	
Week 5-12		2	6 Geometric Design of the Airfield Chapter 6 Exam I (up to end of week 6)	PPT. lecture	Ass.#1, 2 and 3
Week 13		3	Structural Design of Airport Pavements Chapter 7 Exam II (up to end of week 13)	PPT. lecture	
Week 13		4	Airport Lighting, Marking, and Signage Chapter 8	PPT. lecture	
Week 13		4	Airport Drainage Chapter Chapter 9	PPT. lecture	
Week 14-16			Project Presentation, Review, Final Exam	PPT. lecture	Final project Final Exam

References:

Textbook: Planning and Design of Airports: 5th Edition, by Robert Horonjeff, Francis McKelvey, William Sproule and Seth Young, McGraw-Hill, 2010.

1- [Airport Engineering](#) Planning, design, and Development, by Norman J. Ashford, Saleh A. Mumayiz and Paul H. Wright, 4th Edition, John Wiley, 2011.

2- **Airport Systems: Planning Design and Management**, by Richard DeNeufville and Amedeo Odoni, McGraw-Hill, 2003.

3- [Airport Planning & Management](#) by [Alexander T. Wells](#) and Seth Young (Jan 1, 2004)

Assessment Methods:

Methods	Grade	Date
Assignments	5	monthly
Project	5	term
First Exam	20	3/4/2017
Second Exam	20	15/5/2017
Final Exam	50	

