



Jordan University of Science and Technology
Faculty of Architecture And Design
Architecture Department

ARCH593 Special Topics In Architecture (A) - JNQF Level: 7

First Semester 2023-2024

Course Catalog

3 Credit Hours. This course aims to identify the development of airway transport and types of aircraft and classify them according to their sizes and engines, types of airports and how to choose them, environmental and mechanical factors, loads affecting them, and their relationship to the surrounding environment, communication between airports and airplanes and the controlling, various domestic and international air routes, how to design Airport facilities, routes, lengths and characteristics, distribution of the airport apron, taxiways, taxi lanes and runways, in addition to designing the types of different types of pavements used in airports. Railways planning, designing loads and speeds, designing routes and sight distances, horizontal and vertical curves, characteristics of locomotives and trains, longitudinal and transverse sections of the railway, water drainage, design of pavement layers, types and specifications of rail bars, key points and switching, passenger and passenger stations.

Text Book

Title	1- Planning & Design of Airports
Author(s)	Robert Horonjeff, et al.
Edition	5th Edition
Short Name	1
Other Information	McGraw Hill

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Railroad Engineering 101	David Wilcok	1st Edition	2013
3	Railroad Design Criteria	The Chief Harbor Engineer	1st Edition	
4	Introduction to Railroad Track Structural Design	Don Uzarski	1st Edition	Illinois Railroad Engineering Program

Instructor

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Office Hours	
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Class Schedule & Room

Section 2:
 Lecture Time: Mon : 10:00 - 11:30
 Room: A3130

Prerequisites

Line Number	Course Name	Prerequisite Type
2213120	ARCH312 Architectural Design (4)	Prerequisite / Study

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	The nature of civil aviation and airport	From 1
Week 3	Aircraft Characteristics Related to Airport Design	From 1
Week 4	Air Traffic Management	From 1
Week 5	Airport planning studies	From 1
Weeks 6, 7	Geometric Design and pavement Design of the airfield.	From 1
Weeks 8, 9	The Nature of Railroads Transportation	From 2
Week 10	Trains Characteristics Related to Railroads Design	From 3
Weeks 11, 12	Railroad Traffic Planning and Management	From 3, From 4

Weeks 13, 14	Geometric Design and Pavement Design of the Railroads	From 2, From 3, From 4
Week 15	Final Assessment	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the airport and aircraft characteristics and their international standards [1B.B1] [1L7K1]	20%	
Recognize the principles of air traffic management [1B.B1, 1B.B2] [1L7S2]	10%	
Identify the importance of airport planning studies [1B.B1] [1L7K1]	20%	
Define the standards of airport geometric design and parking lots [1B.B2] [1L7C1]	10%	
Understand the nature of railroads and their characteristics. [1B.B1, 1B.B2] [1L7K1]	20%	
Recognize the railroad planning and geometric design [1B.B1] [1L7C1]	20%	

Relationship to Program Student Outcomes (Out of 100%)																									
A.A1	A.A2	A.A3	A.A4	A.A5	A.A6	A.A7	A.A8	B.B1	B.B2	B.B3	B.B4	B.B5	B.B6	B.B7	B.B8	B.B9	B.B10	C.C1	C.C2	C.C3	D.D1	D.D2	D.D3	D.D4	D.D5
								75	25																

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S2	L7C1
60	10	30

Evaluation	
Assessment Tool	Weight
Mid-term Exam	30%
Assignments and Quizzes	20%
Final Exam	50%

Policy	
Course Objectives:	1- Knowing the developing of railroads and airways industries during the time. 2- Understanding the elements of railroads and airways and the factors affecting them. 3- Knowing the types of trains and aircrafts and their classification and capacity. 4- Define and analyze the railroads and airways effects on the environment and how to protect it. 5- Design the passenger terminals, parking areas, taxiways and taxi lanes, and runways for airports. 6- Design the passenger stations, parking area, sight distances, horizontal and vertical curves, water drainage, key points and switching for railroads.

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