

<p>Kingdom of Saudi Arabia Ministry of Higher Education Qassim University College of Engineering</p>		المملكة العربية السعودية وزارة التعليم العالي جامعة القصيم كلية الهندسة
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CE 654 Airport Planning and Design

College: Engineering

Department: Civil

First: Course Definition

1- Course Code : CE 654

2- Units: 3

3 – Semester

4 -Prerequisite

5- Co-requisite

6- Location (if not on main Campus):

Second: Course Objectives

- 1- To develop understanding of the concepts, theories of air transportation system and demand forecasting.
- 2- To develop understanding of the process for planning various airport systems including site studies, master plan and environmental studies.
- 3- Estimate the geometric design characteristics of an airport including taxiways, aprons and runways.
- 4- To provide an understanding of the criteria used in designing airport systems and to introduce the airport design process.
- 5-To provide an understanding of the managerial, operational, financial, technical and environmental issues related to airport planning and development.

Third: Course Specifications

1- Topics to be covered

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Subject	No of Weeks	Units
Introduction to airports	1	3
Airport environmental studies	2	6
Demand forecasting	1	3
Aircraft Characteristics	1	3
runway requirements	2	6
airport layout and design	2	6
Environmental factors	1	3
airport capacity and operations	1	3
Terminal and ground access planning and analysis.	2	6
Lightning and Marking	1	3

2- Course components (Total hrs in the Semester): 42

Lecture	Exercise	Other
42	-	0

3- Intended Learning Outcomes of the Course (ILO's)

a. Knowledge

i) Description of the knowledge to be acquired:

- List the airport planning items.
- Define the aircraft classifications.
- List the demand forecasting items.
- Describe the process used in runway orientation.
- Define lighting and marking process.

ii) Teaching strategies to be used to develop that knowledge

- Class lectures.
- Term projects.
- Students' presentations.
- Group discussion.
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iii) Methods of assessment of knowledge acquired

- Exams.
- Quizzes.
- Homework assignments.
- Term projects.

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b- Cognitive (Intellectual) Skills

- i) Cognitive skills to be developed***
- Identify the airport environmental studies.
 - Identify the designed aircraft characteristics.
 - Classify the runway requirements.
 - Examine Terminal and ground access.
 - Recognize Environmental factors.

- ii) Teaching strategies to be used to develop these cognitive skills***
- Class lectures.
 - Case studies analysis.
 - Term projects.

- iii) Methods of assessment of students cognitive skills***
- Students' seminars and presentations.
 - Term projects.
 - Written reports.

c. Interpersonal Skills and Responsibility

- i) Description of the interpersonal skills and capacity to carry responsibility to be developed***
- Suggest alternative schemes for runway orientation.
 - Suggest alternative schemes for site selection.
 - Evaluate the runway requirements.
 - Evaluate the terminal access and planning.
 - Suggest alternative schemes for geometric design of runways and taxiways.

- ii) Teaching strategies to be used to develop these skills***
- Class lectures.
 - Case studies analysis.
 - Term projects.

- iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility***
- Students' seminars and presentations.
 - Term projects.
 - Written reports.

d. Communication, Information Technology and Numerical Skills

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i) Description of the skills to be developed in this domain

- Literature research.
- Problems modeling.
- Utilization of computer applications in analysis and design.

ii) Teaching strategies to be used to develop these skills

- Class lectures.
- Case studies analysis.
- Computer lab sessions.
- Term projects.

iii) Methods of assessment of students numerical and communication skills

- Term project.
- Written reports.
- Students' seminars and presentations.

e. Psychomotor (if applicable) & Other Non-cognitive Skills

i) Description of the psychomotor or other skills to be developed and the level of performance required

- NA

ii) Teaching strategies to be used to develop these skills-

-NA

iii) Methods of assessment of student's psychomotor skills

-NA

4- Student Assessment Schedule

Serial	Assessment tool (test, group project, examination etc.)	Week due	Weight
1	Term Project – 1	3 rd	15 %
2	Mid Term Exam -1	7 th	15 %
3	Term Project – 2	10 th	15 %
4	Term Project – 3	13 th	15 %
5	Final Exam	16 th	40 %

5- Student Support

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- Providing electronic library of textbooks and scientific periodicals.
- Providing the necessary computer applications for the course.

6- Learning Resources

- i) Essential Books (References)**
- McKelvey, F., Horonjeff, R. and Sproute, W. "Planning and Design of Airports," McGraw-Hill Prof Med/Tech; 5th edition, 2010. ISBN: 0071446419, 978007144641.
 - Ashford, N. and Wright, P. H. "Airport Engineering" Wiley-Interscience, 1992. ISBN: 0471527556, 9780471527558
 - Federal Administration Administration (FAA) Advisory Circulars

- ii) Course Note**
- NA

- iii) Recommended Books**
- Airport Systems: Planning Design and Management, by Richard DeNeufville and Amedeo Odoni, McGraw-Hill, 2003

- iv) Electronic Books & Web Sites:**
- Scientific journals and forums.
 - Instructor’s instruction

- v) Periodicals**
- Journal of Transportation Engineering
 - Transportation Research Records
 - International Journal of Pavement Research and Technology
 - ASTM Journal of Testing and Evaluation
 - Journal of Applied Science.

7- Course Evaluation and Improvement Processes

- i) Strategies for Obtaining Student Feedback on Effectiveness of Teaching**
- Students’ questioners.
 - Students’ evaluation of course and instructor.

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ii) Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Public faculty seminars.
- Assessment by external evaluators of students achievements.
- Instructor (Course) Report

iii) Processes for Improvement of Teaching

- Assessment of students' work by external examiners.
- Analysis of students' evaluation of course and instructor.
- Seminars by industry professionals.

iv) Processes for verifying standards of student achievement (e.g. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)

- Assessment of students' work by external examiners.
- Analysis of students' evaluation of course and instructor.
- Seminars by industry professionals.
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v) Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Assessment and evaluation of the level of achieving the course outcomes through a continuous improvement process (part of a quality assurance system established by the university),
- Consequently, actions are to be taken to improve the course delivery when necessary.
- Review of the course objectives, outcomes and curriculum every 2 years.