First Semester 2016-2017

Course Handout (Part II)

Date: 02/08/2016

In addition to Part I (General Handout for all courses appended to the Time Table), this portion gives further specific details regarding the course.

Course No. : CE G545

Course Title : Airport Planning and Design

Instructor In-Charge: Dr. Amit Goel

Course Description:

Air transport; forecasting air travel demand: trend forecasts and analytical methods; airport system; characteristics of aircrafts: airport planning: site selection, layout plan, orientation and length of runway; airport capacity and configuration; runway, taxiway and aprons; passenger terminal, passenger and baggage flow, design concepts, parking configurations and apron facilities; air cargo facilities- flow through cargo terminals, airport lighting; airport drainage; pavement design using FAA software; airport access; environmental impact.

Scope and Objective:

The course intends to equip the students with sufficient technical knowledge of planning and design of airports based on modern operational techniques. All the necessary information has been drawn from relevant documents of International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA), USA.

Course Text Book:

- T1. Planning and Design of Airports by Robert M. Horonjeff, Francis X Mckelvey, Willian J Sproule and Seth B Young. (McGraw- Hill Professional Publishing)

Reference Books:

- R1: Airport Engineering: Planning, Design and Development of 21st Century Airports by Norman J Ashford, Saleh Mumeyiz and Paul H. Wright (John Willey & Sons)
- R2: Airport Engineering, Khanna and Arora

Course Plan:

Tentative Lectures	Learning Objectives	Topics to be covered	Reference* Chap./Sec. # (Book)
2	Introduction to air transport	Organization	Chapter-1
6	Characteristics of aircrafts	Importance to aircraft characteristics and basic dimensions, aircraft weight, runway performance.	Chapter-2
2	Airport planning studies	System plan, master plan, land-use plan	Chapter-4
2	Forecasting for airport planning	Forecasting methods	Chapter-5
5	Airport capacity	Capacity, factors affecting capacity and delay	Chapter-7 R1
7	Runway	Layout plan, Runway orientation, Length of runway, runway system dimensions	Chapter-6
3	Taxiways and aprons	Widths and slopes, separation requirement, sight distance, exit taxiway geometry and location	Chapter-6
2	Passenger terminal functions	Terminal system, design considerations, planning process, apron gate system.	Chapter-10
3	Airport lighting	Requirements of visual aids, approach lighting, threshold lighting, runway and taxiway lighting.	Chapter-8
3	Airport drainage	Purpose, design storm for surface runoff, amount of runoff, layout of surface drainage.	Chapter-9
6	Pavement design	Soil investigation and evaluation, FAA pavement design method, Design of flexible and rigid pavement, Joint and spacing,	Chapter-7

		Continuously reinforced pavement, pavement evaluation and management system.	
2	**Environmental impact of airports**	**Policy considerations, pollution, social, ecological factors, engineering and economic factors.**	**Chapter-14**

Evaluation Scheme:

EC No.	Evaluation Component	Duration	Weightage	Date, Time & Venue	Nature of Component
1	**Mid-semester**	**90 min**	**20-25%**	<TEST_1>	**Open/Closed book examination**
2	**Comprehensive**	**3 hours**	**30-35%**	<TEST_C>	**Open/Closed book examination**
3	**Assignments/ Literature-review/Seminars /Term-paper/ Surprise-Quizzes/Class-notes/ Attendance**		**40-45%**	**To be announced in the class**	**Open book/Take home (except quizzes)**

Chamber Consultation Hour: ***To be announced in the class***

Notices: Nalanda (mostly) or *Civil Engineering Department Notice Board*

Make-up Policy:

1. Make-up **may be** granted in extraordinary circumstances, only on genuine reasons. However, **prior permission is a must**.
2. For medical cases, a certificate from the concerned physician of the Medical Centre must be produced.

Instructor-in-charge