CB474   Highway Design And Construction

COURSE INFORMATION

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laboratory	
CB472	4	8	2	2	0	3

COURSE AIM

The course aims at introducing the student to the fundamentals of highway Engineering and its relation to the field of transportation. Through using; communication technologies and skills, engineering technologies, data collection and interpretation, and writing technical reports referring to the relevant literature.

COURSE WEEKLY CONTENTS

1	Highway Classification and Process of location Selection.
2	Introduction to geometric design of highways, horizontal alignment and super-elevation calculations.
3	AASHTO Stopping Sight Distance, Passing Sight Distance, Vertical Alignment, Sag/Crest Vertical Curves.
4	Highway Intersections (1,2).
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6	Principles of traffic flow and level of services (LOS).
7	Capacity of highway Segments I Multi-lane Highway. + Midterm Exam
8	Capacity of highway Segments II Two-lane Highway.
9	Capacity of at grade intersection and Design of Traffic Signals
10	Soil Engineering for Highway Design, California Bearing Ratio Test, Bituminous Material, Common tests , MCO , etc .
11	Marshall Test for asphalt mixtures and design of mix. Traffic load Transformation and Concept of equivalent single Axle load (ESAL)
12	Rigid vs. Flexible pavement and Design of flexible pavement, Classical Methods. Design of Flexible Pavements, AASHTO method , Pavement Management.
13	Highway Linear Scheduling technique and application
14	Highway Construction and Equipment.
15	Highway Pavement Common Distresses and repair

STUDENT GRADING & ASSESSMENT

Weeks	Exams		Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20	Midterm	← 1 0 M A R K S To be freely distributed among possible assessments				→	30
8 to 12	←				2 0 M A R K S		→	20
13 to 15	←				1 0 M A R K S		→	10
16 or 17	40	Final						40
Total	Exams		Assign.	Quizzes	Reports	Present.	Lab.	100

REFERENCES

Textbook	Highway Engineering, C.H. Oglesby and R.G. Hicks, John Wiley and Sons, 1982
Other	Standard Handbook for Civil Engineers, F.S. Merrit,McGraw Hill book NY Pavement Management for Airports, Roadsand Parking lots, M.Y.Shahin, Chapman and Hall, New York Latest Edition. Egyptian Code for Highway, Ministry of Urban Planning, Latest Edition. Transportation and traffic Engineering Handbook, Institute of transportation Engineers, Prentice Hall, Latest Edition. Handbook of Highway Engineering, R.Baker, van Nostrand Reinforced Co, New York, Latest Edition.