

Kadi Sarva Vishwavidyalaya, Gandhinagar
M.E. (Civil Infrastructure Engineering) Semester: I
(w.e.f. Academic Year 2017-18)

Subject Name: Urban Infrastructure Planning and Engineering.

Subject code: MECV104-N

A. Course objective :

- To cover concepts of Transportation planning, various modes, transit systems and their suitability
- To give idea of modeling in planning, to develop the methodology of travel demand modeling for Urban Transportation Systems
- To provide knowledge of Land use planning and transportation interaction.

B. Teaching /Examination Scheme

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect (Hrs)	Tu (Hrs)	Prac. (Hrs)	Total (Hrs)	Theory	Pra/TW	Total	UE	IE	CIA	Prac/Viva	Total
04	02	00	06	04	01	05	70	30	20	30	150

C. Detailed Syllabus

Module I : Urban Transportation

- 1 Travel demand modeling :** Trip Generation Methods and their Comparison, Modal Split Analysis, Behavioral Approach, Two stage Modal Split Models.
Trip Distribution –Growth Factor Method, Gravity Model, Intervening Opportunity and Competing Opportunity Models, Entropy Maximizing and Linear Programming Methods. Network Assignment, Capacity Restrained and Simultaneous Distribution, Direct Demand Models
- 2 Land use planning models and their suitability:** Transportation impacts study Methodologies.
- 3 Corridor type travel modeling**

Module II :Urban Infrastructure Planning

- 1. Urban Infrastructure:** Types, significance, urban form, urban services overview, Requirements of electricity and telecommunication network
- 2. Water & waste water supply system:** necessity and management of water supply scheme, overview of water sources, location & layout of water treatment plant, distribution system, necessity of waste water treatment plant and site selection of ETP, disposal site
- 3. Solid waste Management:** Collection system, site selection for landfill

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D. Lesson Planning:

Sr. No.	Title of the Unit	Minimum Hours	Weightage (%)
1	Travel demand modeling	20	30
2	Land use planning models and their suitability	05	10
3	Corridor type travel modeling	05	10
4	Urban Infrastructure	10	20
5	Water & waste water supply system	15	25
6	Solid waste Management	5	5
Total		60	100

E. List of tutorials

- 1 Trip Generation models: Regression model, Trip distribution methods, Mode choice/ modal split problems Network coding, Trip Assignment, Semester problem
- 2 Land-use planning models
- 3 Urban services
- 4 Urban form
- 5 Water supply system
- 6 Waste water treatment plant
- 7 Solid waste management

F. Instructional method and pedagogy(Continuous Internal Assessment Scheme)(CIA)

- At the start of course, the course delivery pattern, prerequisite of the subject will be Discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.
- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms Carries Marks
- Internal exam of 30 marks will be conducted as a part of Mid semester evaluation.
- Experiments shall be performed in the field related to course contents.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

G. Students Learning Outcomes:

- The students will gain an experience in the implementation of planning transportation routes in new developing towns and cities.
- The students will get a diverse knowledge to solve the problem of congestion and inconvenience.
- The students would be able to understand and evaluate current scenarios of traffic management and improve it.
- The students will gain an experience in the implementation of Impact analysis on environmental engineering concepts which are applied in field of Engineering.
- The students will get a diverse knowledge & practices applied to real life problems.
- The students will learn to understand the theoretical and practical aspects of EIA.

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H. Recommended Study Materials

A Text Books:

- 1 Kadiyali, L.R., Traffic Engineering & Transport Planning, Khanna Publishers, New Delhi
- 2 Jotin Khisty, S.C. and Kent Lall, B., Transportation Engineering – An Introduction, Prentice-Hall, NJ
- 3 Salter, R J., Highway Traffic Analysis and Design, ELBS

B. Reference Books:

- 4 Hutchison, B.G., Introduction to Transportation Engineering, & Planning, McGraw Hill Book Co.
- 5 John W. Dickey, Metropolitan Transportation Planning, Tata McGraw Hill Pub. Co.
- 6 Vukan R. Vuchic, Urban Public Transportation System & Technology, Prentice Hall, Inc.
- 7 Papacostas, C.S., Fundamentals of Transportation System Analysis, PHI
- 8 Jotin Khisty, C. and Kent Lall, B., Transportation Engineering – An Introduction, Prentice-Hall, NJ
- 9 Water supply by S.K.Garg by Khann publication vol.I
- 10 Waste Water supply by S.K.Garg by Khann publication vol.II
- 11 Network and services by T.M.VINODKUMAR IITP reading manuals