**. TRANSPORTATION PLANNING**

Credit hours: 3 (2+1)

Prerequisites: None

**Specific Objectives**

To Impart Skills and Techniques for Transportation Planning Including Public Transport

**Learning outcomes**

After studying this course, the learners will be able to:

1. Design and conduct surveys to provide data required for transportation planning
2. Learn and understand zonal demand generation and attraction regression model
3. Learn and understand modal split for mode choice analysis
4. Learn calculating parking demand and parking efficiency
5. Learn concepts of Intelligent Transport System (ITS), its component and application
6. Be familiar with categories of public transportation, key term of public transportation and how to calculate capacity of public transportation
7. Understand transportation project planning and development

**Content List**

* Transportation System and their Influence upon National, Regional and Local Development: Road Transportation, Water Transportation, Railroad Transportation, Truck Transportation, Pipeline Transportation, Air Transportation
* Traffic Management Measures
* Transportation Surveys: Traffic Analysis Zones, Turning Tendency Survey, Turning Movement Counts, Traffic Volume, Traffic Compliance, Vehicle Occupancy Study, Origin-Destination
* Parking and Service Areas: Appropriate Siting and Planning of Car Parks and Garages (including Mechanical Methods) above and below Ground; Petrol Filling Stations and Service Areas. Types of Parking (On-Street, Off-Street, Shared parking , Metered Parking, Mechanical Parking, Park and Ride etc.), Parking Efficiency, Parking Accumulation, Turn-over Rate, Volume, Probability Calculation
* Uniform Traffic Laws and Control Devices; Traffic Signs, Traffic Markings, Traffic Signal System, Traffic Island, Bus-Ways, Service Roads and Lay-Byes, Traffic Lanes, Channelization, Traffic Calming
* Trip Generation Modeling: Trip Production and Trip Attraction
* Trip Distribution Model: Gravity Model, Modal split
* Land use and transportation interaction: Accessibility Index; Land use Transportation Model, Traffic Assignment Models
* Urban Structure and Mobility: Centripetal, Grid Type & Linear Structure and their Effect on Mobility, Design of Roads in Relation to Different Types of Traffic and Buildings Including Road Width; Traffic Lanes and Means of Access; Service roads and lay-byes. ; Segregation of Vehicular and Pedestrian Traffic. Planning of Roads in Relation to Existing Features, Trees and Streams. Planning of Road Junctions and Intersections to Facilitate Free Flow of Traffic With Safety and Comfort for all Users, Pedestrian and Bicycle Facilities Design, Planning of Transport Terminals
* Intelligent Transportation System: Objective, Classification of ITS, Merits and Demerits of ITS
* Urban Mass Transit Systems, Transit –Orient Development; Effects and Changing Trend along Transit Corridors w.r.t Current Transportation Paradigm Shift, Traffic Impact Assessment (TIA) of proposed land use on the surround road network.

**Practical**

* Traffic and Parking Surveys
* Travel Time and Delay Studies.
* Hotspot Surveys.
* Application of TAZ in Study Area
* Household Surveys for Trip Calculations of Residential Area
* Traffic Impact Analysis of a Proposed Commercial Plaza

**Proposed Teaching Methodology**

* Lecturing
* Written Assignments
* Guest Speaker
* Field Visits
* Report Writing
* Poster Displayetc

**Proposed Assessment (theory, 100%)**

 **Mid Term (40%)**

* Written long/short questions, quizzes etc.

**Final Term (60%)**

* Written long/short questions, quizzes etc.

**Proposed Assessment (practical, 100%)**

* Presentations, assignments, report writing, viva voce, field visits etc.

**Recommended Books**

1. Buchanan, Colin (2015), *Traffic In Towns: A Study Of The Long Term Problems Of Traffic In Urban Areas*, Routledge
2. Dimitriou, Harry T. (2011), *Urban Transport Planning: a developmental approach*, Routledge.
3. Schiller, Preston. (2010), *An Introduction to sustainable Transportation: policy, planning and implementation*, Earth scan.
4. Chakroborty, P. & , Das, (2003), *A Principles of Transportation Engineering*, New Delhi, Prentice–Hall
5. Khisty C. Jotin&Lall B. Kent, (2002), *Transportation Engineering An Introduction*, New Delhi, Prentice–Hall, (Third Edition).
6. Currin R. Thomas., (2001), *An Introduction to Traffic Engineering: A Manual for Data Collection and Analysis*
7. Jason, Y.C. (1982),*Transportation Engineering: Introduction to Planning, Design and Operations*, New York, Elsevier North Holland Inc. (Latest Edition).