Department of City & Regional Planning,
School of Architecture & Planning,
University of Management and Technology

Course Outline – Transportation Planning
CRP-235

UMT Vision:
OUR VISION IS LEARNING!
It defines our existence, inspires all stakeholders associated with us, creates a powerful momentum inside, and responds to the challenges outside. It continues to evolve as present captures new realities and foresight unfolds new possibilities. All in an incessant attempt to help individuals and organizations discover their God-given potentials to achieve Ultimate Success actualizing the highest standards of efficiency, effectiveness, excellence, equity, trusteeship and sustainable development of global human society.

UMT Mission
OUR MISSION IS LEADING
We aspire to become a learning institution and evolve as the leading community for the purpose of integrated development of the society by actualizing strategic partnership with stakeholders, harnessing leadership, generating useful knowledge, fostering enduring values, and projecting sustainable
technologies and practices.

Vision and Mission Statements of the City & Regional Planning Department

The vision statement of the Department of City & Regional Planning is:
- To be a leading City & Regional Planning Department aiming for excellence in learning, research and innovation with integrity and equity.

The mission of the Department of City & Regional Planning is:
- The mission is to establish a very important program concerning the development and management of the built environment. This is entitled as Bachelor of Science in City and Regional Planning. The studies will be focused on needs of the nation in the field of built environment of our regional, urban and rural settlements. The students are required to be equipped with knowledge of advanced skills, latest knowledge and technology used in the planning and management of various settlements. They need to be fully aware of the current world, new trends and direction of the developments in future.

Program Educational Objectives (PEOs)

Five years after graduating, the graduates of the program should be characterized by the following three features:

PEO-1:

The graduates will apply learnt knowledge and skills of spatial, temporal, and physical planning.

PEO- 2:

The graduates will propose and execute appropriate solutions to complex planning and urban issues and adapt recent developments in planning focusing on research, creativity, and innovation.

PEO-3:

The graduates will reflect core ethical values in their professional conduct and become responsible members of society.

Program Learning Outcomes (PLOs) / Graduate Attributes

Graduates of the BS CRP program at UMT are expected to have acquired and developed the following set of knowledge, skills, and personality traits (these are also referred to as graduate attributes)

PLO 1: Planning Knowledge

An ability to demonstrate knowledge of contemporary planning theories and conceptual ideologies and models.

PLO 2: Designing Analysis

An ability to identify and investigate problems, construct theoretical framework through literature review and case studies and synthesize information.

PLO 3: Professional Skills

Apply planning knowledge in design/planning process to synthesize and articulate multi-faceted variables to generate an integrated solution based on societal and environmental considerations.

PLO 4: Usage of IT

An ability to select and apply appropriate techniques and resources, including prediction and modelling, to complex planning activities.

PLO 5: Communication

Convey ideas and solutions of planning/urban problems in verbal, written and graphical modes, effectively.

PLO 6: Leadership

Ability to opt a role for affective coordination within the team & collaboration with the community.

PLO 7: Professional Ethics

An ability to apply ethical principles and professional codes following the social norms to the best interest of the society.

PLO 8: Lifelong Learning

Capable of acquiring knowledge, skill, and information self-reliantly from diverse sources and appreciating new ideas and concepts.

Course Learning outcomes (CLOs)
After studying this course, the learners will be able to:
1. Understanding of transport planning, models, transport project planning and development
2. Understanding of transport surveys, and designing parking spaces
3. Learn and understand modal split for mode choice analysis
4. Learn calculating parking demand and parking efficiency

Tittle	Course Learning Outcomes	PLO 1: Planning Knowledge	PLO 2: Professional Skills	PLO 3: Usage of IT	PLO 4: Communication	PLO 5: Critical Thinking	PLO 6: Leadership and Professional Ethics	PLO 7: Lifelong Learning
Transportation Planning	Understanding of transport planning, models, transport project planning and development	✓	✓					✓
	Understanding of transport surveys, and designing parking spaces.	✓	✓			✓		✓
	Learn and understand modal split for mode choice analysis	✓				✓		
	Learn calculating parking demand and parking efficiency	✓		✓	✓			✓

CODE	NAME	CLO	CLO Type
235.1	235.C1	Understanding of transport planning, models, transport project planning and development	C1
235.2	235.C2	Understanding of transport surveys, and designing parking spaces	P3
235.3	235.C3	Learn and understand modal split for mode choice analysis	A4
235.4	235.C4	Learn calculating parking demand and parking efficiency	C2
235.5	235.C5	Understand the role of artificial intelligence in transportation sector.	C3

PROGRAM	**Bachelor of City & Regional Planning**
COURSE	**CRP-235 Transportation Planning**
CREDIT HOURS	2 + 1
LECTURE SCHEDULE	
PREREQUISITES	None
RESOURCE PERSON	
COUNSELING TIMING	
CONTACT	

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

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*

Weekly course plan

Week	CLOs	Theory	Practical
Week 1	1,3	Transportation System and their Influence upon National, Regional and Local Development: Road Transportation, Water Transportation, Railroad Transportation, Truck Transportation, Pipeline Transportation, Air Transportation	
Week 2	1, 2	Transportation Surveys: Traffic Analysis Zones, Turning Tendency Survey, Turning Movement Counts	Measuring Traffic volume, Conduct origin-designation surveys
Week 3	1, 3	Transportation Surveys: Traffic Volume, Traffic Compliance, Vehicle Occupancy Study, Origin-Destination	Parking surveys
Week 4	2, 3	Parking and Service Areas: Appropriate Siting and Planning of Car Parks and Garages	Traffic in-out Surveys
Week 5	2, 3	Types of Parking (On-Street, Off-Street, Shared parking, Metered Parking, Mechanical Parking, Park and Ride etc.),	Off street and On street parking surveys.
Week 6	2, 3	Parking Efficiency, Parking Accumulation, Turn-over Rate, Volume, Probability Calculation	

Week 7	3, 4	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	Examining signalized and non-signalized corridors.
Week 8		Mid term exam	
Week 9	3,4	Trip Generation Modeling: Trip Production and Trip Attraction Trip Distribution Model: Gravity Model, Modal split	Traffic count surveys
Week 10	1, 4	Land use and transportation Accessibility Index; Land use Transportation Model, Traffic Assignment Models	Project Progress phase 1
Week 11	1, 4	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.	Project Presentation
Week 12	3, 4	Segregation of Vehicular and Pedestrian Traffic.	
Week 13	2, 4	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	Project Progress phase 2
Week 14	2	Intelligent Transportation System: Objective, Classification of ITS, Merits and Demerits of ITS	
Week 15	4	Urban Mass Transit Systems, Transit Orient Development and advanced transport system	Present some research findings on ITS
Week 16	3	Current Transportation Paradigm Shift, Traffic Impact Assessment (TIA) of	Final Submission of Project

		proposed land use on the surround road network.	

Evaluation Criteria

Marks Evaluation	Marks in percentage
Projects + Assignments	30%
Mid Term	25%
Quiz	10%
Final exam	35%
Total	**100%**