Syllabus
CIVL459– Transportation Planning and Public Transport System

Coordinating Unit:	Department of Civil and Environmental Engineering, Faculty of Science and Technology		
Supporting Unit(s):	Nil		
Course Code:	CIVL459	Year of Study:	4
Course Title:	Transportation Planning and Public Transport System		
Compulsory/Elective:	Elective		
Course Prerequisites:	CIVL 447 Traffic Engineering		
Prerequisite Knowledge:	Traffic Flow ; Capacity of Roads		
Duration:	One semester	Credit Units:	3
Class/Laboratory Schedule:	Three hours of lecture per week		
Laboratory/Software Usage:	Nil		
Course Description:	In the first part of the course, it deals with introduction of urban transportation planning system such as data collection, trip generation, trip distribution, mode choice and trip assignment. In the second part, it familiarizes the students with important issues of public transport system such as system, technology and quality of service. Various kinds of public transportation system like bus, bus rapid transit, light rapid transit, railway rapid transit will be discussed.		
Course Objectives:	1. To introduce the issues of transportation planning and transportation policy 2. To introduce travel survey method for understanding travel behaviour 3. To introduce the key concepts of the urban transportation planning system 4. To introduce the fundamental concepts of public transport system such as system, technology and quality of service		
Learning Outcomes (LO):	Upon completion of this course, students should have: 1. Basic understanding of what transportation planning is, its theoretical backgrounds and applications (POs: a,e) 2. Skill for collecting data about travel behaviour and analyzing the data for use in transport planning (POs: b) 3. Ability to understand the important concepts about public transport system (POs: a,e) 4. Ability to work in team and communicate with others effectively for transport related topics (POs: d, g)		
Texts & References: *(* recommended textbook(s))*	1. *Urban Transportation Planning, by Michael Meyer, Eric Miller, McGraw Hill 2. Urban Transit Systems and Technology John Wiley and Sons, 2007. 3. Transit Capacity and Quality of Service Manual, 2nd Edition, Transportation Research Board 4. Traffic Engineering, by Roger P. Roess, Elena S. Prassas, and William R. McShane, 3rd Edition, 2004.		

Student Assessment:	• Assignment 10%; • Case Study and Presentation: 15%; • One midterm: 25%; • Group Project: 50%
Learning Outcome Assessment:	• Midterm , project and presentation • Course evaluation

Pedagogical Methods:	☑ Lecture	☐ Service learning
	☑ Guest speakers	☐ Internship
	☑ Case study	☐ Field study
	☐ Role playing	☐ Company visits
	☑ Student presentation	☐ e-learning
	☑ Project	☐Independent study
	☐ Simulation game	☑Others: Computer software Lab.
	☑ Exercises and problems	

Major Assessment Methods:	Case Study	Role Playing	Student Presentation	Individual project/paper	Group project/paper	Simulation Game	Exercises & problems	Service learning	Internship	Field Study	Company visits	Written examination	Oral examination	Others (please specify)
Class Participation/ Discussion (0%)														
Assignment (10%)							☐ ✓							
Case Study (15%)	✓		✓											
Test(s) (25%)												✓		
Project (50%)			✓		✓									
Others *(please specify)* _____(0 %)														
Course Web:	Course materials are available in UMMoodle (http://webcourse.umac.mo/).													

Week	Content	Exercise	LO No.
1	Introduction to transportation planning ● The planning concept ● Importance of transportation planning	1	1
2	Travel survey ● Travel survey process ● data processing and interpretation	2	1,2
3	Trip generation ● Multiple linear regression model ● Category analysis	3	1
4	Trip distribution ● Growth factor methods ● Gravity model method	4	1
5	Modal split ● Trip end models ● Trip interchange model ● Discrete choice model	5	1
6	Traffic assignment ● All-or-nothing assignment ● Incremental assignment ● Equilibrium assignment	5	1
7	Traffic impact assessment (TIA) • Content of TIA • TIA and transportation planning		1
8	Case study and individual presentation		1,4
9	Mid-term examination		1,2
10	Introduction of public transport systems ● Transit classification ● Right of way		3
11	Transit system performance ● Transit capacity ● Frequency and headway ● Quality of service		3
12	Bus and bus rapid transit ● System, technology and operation		3
13	Rail rapid transit ● System, technology and operation		3
14	Project Presentation		3,4

Percentage Content of:

Math	Basic Science	Engineering Science	Engineering Design and Synthesis	Complementary Studies	Computer Studies	Total
10	---	60	10	20	---	100

Timetabled work in hours per week:

Lecture	Tutorial	Laboratory	Other	Total
3	---	---		3

Contribution to Program Outcomes:

Program Outcomes	Contribution to POs# 5 ----------> 1 Significant Least				
	5	4	3	2	1
(a) apply knowledge of mathematics, science, and engineering	✓				
(b) design and conduct experiments, and analyze data			✓		
(c) design components, systems or processes in presence of constraints					
(d) Function in a multi-disciplinary team			✓		
(e) Engineering problem solving		✓			
(f) Understand professional and ethical responsibility					
(g) Communicate effectively		✓			
(h) Understand the impact of engineering solutions to the society					
(i) Recognize the need and have the ability for lifelong learning					
(j) Have knowledge of contemporary issues					
(k) Apply the skills, techniques, modern engineering tools					
(l) Use the computer/IT tools relevant to the discipline					

 # Note 5: Significant contribution; 4: Supporting contribution; 3: Moderate contribution; 2: Marginal support; 1: Least support

Course Instructor(s): Mr. Iat Meng Wan