Course Specification
(Bachelor)

Course Title:	Public Transportation
Course Code:	CE 4308
Program:	Bachelor of Science in Civil Engineering
Department:	Civil Engineering Department
College:	College of Engineering and Architecture
Institution:	Umm Al Qura University
Version:	1
Last Revision Date:	31 January 2025

Table of Contents

A. General information about the course: 3

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods 4

C. Course Content 5

D. Students Assessment Activities 6

E. Learning Resources and Facilities 6

F. Assessment of Course Quality 7

G. Specification Approval 8

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	Others
B.	☐Required		☒ Elective		
3. Level/year at which this course is offered: (Level 9 or 10 / 5th Year)					
4. Course General Description:					
This course discusses the evolution and role of public transportation modes, systems, and services focusing on bus and rail. It describes the technological characteristics and their impacts on capacity and service quality. It also discusses current practice and new methods for data collection and analysis, route design, frequency determination, and vehicle and crew scheduling. Various kinds of public transportation system like bus, bus rapid transit, light rapid transit, and rail rapid transit will be discussed.					
5. Pre-requirements for this course (if any)**:**					
Introduction to Transportation Engineering					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
• To enable civil engineering students, acquire necessary knowledge related to public transportation. • To introduce the fundamental concepts of public transport system such as system, technology and quality if service.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Ability to describe the process of how decisions to build transportation facilities are made.	K3	• Through lectures, module notes, tutorials, coursework and examinations. • Through group project work requiring detailed consideration of a multi-disciplinary approach • Through detailed research and analysis of a particular topic for their Individual Project requiring a multi-disciplinary approach	• Assessed out-of-class and in-class course works. Course works may be in the form of: laboratory and fieldwork reports, essays, in-class tests, design calculations, and literature reviews • Written examinations • Project report(s), oral examination and writing of a journal-style paper
1.2	To learn about planning, analysis and designing in the field of Transportation engineering.	K3		
2.0	**Skills**			
2.1	Conduct transportation studies with field data	S2	• Through lectures, module notes, tutorials,	• Assessed out-of-class and in-class course works. Course
2.2	Ability to estimate the expected travel demand	S3		

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	on a specified segment of a transportation system under a set of a given conditions.		coursework and examinations. • Through group project work that will require detailed consideration of a multi-disciplinary approach • Through detailed research and analysis of a particular topic in the compulsory Individual Project module requiring a multi-disciplinary approach.	works may be in the form of: fieldwork reports, essays, in-class tests, design calculations, and literature reviews • Written examinations Project report(s), oral examination and writing of a journal-style paper
3.0	**Values, autonomy, and responsibility**			
3.1	To increase the ability to understand problems and issues related to Transportation planning, Traffic and Highway Engineering	V1	• Through lectures, tutorials, coursework and group project work. • Through supervised laboratory exercises following standard procedures • Through supervised outdoor practical work Through supervised computer-based laboratory exercises	• Assessed out of class and in-class coursework. (fieldwork reports, modelling calculations) • Project reports and peer review of individual contributions to group work Observation by tutors during laboratory and fieldwork activities
3.2	To interpret the data and information and overcoming the problems	V2		
3.3	To prepare our students for immediate employment in any primary branch of civil engineering.	V3		

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction of Public Transport Systems (Transit Classification)	3
2.	Transit System Performance (Transit Capacity, Frequency and Headway, Quality of Service)	6
3.	Timetable Design	6
4.	Vehicle Scheduling	3

5.	Crew Scheduling	3
6.	Service Design: Parking, Stop Locations, Transit Network Rout Design, Line Planning	3
7.	Transit Modes and Technologies (Urban and Intercity Passenger Transit Modes	6
8.	Bus and Bus Rapid Transit	6
9.	Rail Rapid Transit	3
10.	Safety and Security and use of ITS and GIS in Public Transit	3
11.	Modern tools and software in transportation planning	3
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework Assignment	Bi-weekly	15 %
2.	Quizzes	Bi-weekly	10 %
3.	Midterm Exam	6 or 7	25 %
4.	Final Exam	16	50 %

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Ceder, A. (2016). Public transit planning and operation: Modeling, practice and behavior. CRC press. http://imentaraddod.com/wp-content/uploads/2017/07/337-Public-Transit-Planning-and-Operation-Theory-Modeling-and-Practice-Avishai-Ceder-075066166.pdf
Supportive References	Urban Transit Systems and Technology, John Wiley and Sons, 2007 Roess, R. P., Prassas, E. S., and McShane, W. R., "Traffic Engineering", 5th Edition, Pearson, 2018.
Electronic Materials	http://www.sciencedirect.com. http://www.trb.org/Main/Home.aspx
Other Learning Materials	Transit Capacity and Quality of Service Manual, 2nd Edition, Transportation Research Board.

2. Required Facilities and equipment

Items	Resources
facilities	Classroom for about 40 students, with white board, computer, projector and internet

Items	Resources
(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	
Technology equipment (projector, smart board, software)	Computing Services provides the University IT facilities and infrastructure. General purpose computer resources across campus are open 24 hours and more specialist computer laboratories are provided in partnership with departments. Students in halls of residence are supported in connecting their computers to the high speed network. The University's virtual learning environment "LEARN" provides on and off campus access to web-based teaching materials provided by lecturing staff.
Other equipment (depending on the nature of the specialty)	A white board & Computer with internet and data show. Computing Services provides the University IT facilities and infrastructure. General purpose computer resources across campus are open 24 hours and more specialist computer laboratories are provided in partnership with departments. Students in halls of residence are supported in connecting their computers to the high speed network. The University's virtual learning environment "LEARN" provides on and off campus access to web-based teaching materials provided by lecturing staff.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty members who teach this course	• Student questionnaire at the end of the semester. • Student test result analysis. • Regular feedback from students.
Effectiveness of Students assessment	Independent member(s) teaching staff	• Check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution. • A review of a sample of student answers by a related department committee.

Assessment Areas/Issues	Assessor	Assessment Methods
		• In-department group review and marking. • External reviewer for a sample of student answering sheets.
Quality of learning resources		• Increasing the number of computers. • E- learning • Video conference • Field applications must be completed. • Additional training for the staff assistants. • Scanning electron microscope. • Multi-media facility (video projector, TV, etc.).
The extent to which CLOs have been achieved		
Other		

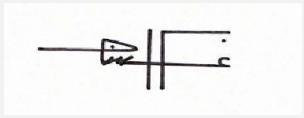
Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**CIVIL ENGINEERING COUNCIL**
REFERENCE NO.	**THE FIFTEENTH SESSION OF THE ACADEMIC YEAR 1446**
DATE	**30 APRIL 2025**

Course Coordinator



Dr. Baraa Adil Alfasi

