



COLLEGE OF ENGINEERING AND TECHNOLOGY

OUTCOMES-BASED EDUCATION COURSE SYLLABUS **CE 316 PRINCIPLES OF TRANSPORTATION ENGINEERING** CIVIL ENGINEERING DEPARTMENT First Semester, A.Y. 2022-2023

VISION, MISSION, GOALS AND OBJECTIVES

Vision

A research-based academic institution committed to excellence and service in nurturing globally competitive workforce towards sustainable development.

Mission

Romblon State University shall nurture an academic environment that provides advanced education, higher technological and professional instruction and technical expertise in agriculture and fisheries, forestry, engineering and technology, education, humanities, sciences and other relevant fields of study and collaborate with other institutions and communities through responsive, relevant and research-based extension services.

Core Values

1. Stewardship
2. Competence
3. Resilience
4. Integrity
5. Balance
6. Excellence
7. Service

Goals

The College of Engineering and Technology's goal is to provide relevant and quality training for students in engineering, technology and related fields consistently to satisfy the national development trusts.



Objectives

All engineering programs must be defined consistent with the vision and mission of the university, The College endeavors to:

- Produce graduates with the necessary theoretical knowledge of mathematics and natural sciences as well as the background knowledge needed by them to acquire the experience and practical skills required of professional engineers and technicians;
- Educate students for their careers as engineers and technicians, to enable them to contribute to the developmental effort of the country as entrepreneurs or competent professionals;
- Educate students imbued with good moral and ethical values and the acute sense of awareness of the conservation of the environment for the sustainable development of the country;
- Provide students instruction in both theoretical and practical aspects of engineering and technology and exposure to industrial setting in the form of field experience provide a well-rounded engineering and technical education that draws upon resources of a comprehensive research university to attract outstanding undergraduate students in selected engineering fields;
- Conduct quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- Serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

Course Description:

This course covers gives emphasis on urban transportation planning, design and operation using statistical and modelling techniques and computer methods. It also covers capacity and level of service of air, rail and highway. It also includes, safety, environmental impacts and mitigation, transportation policy fundamentals and case studies.

Course Code: CE 316

Credit Units: 3 units

Prerequisites: Highway and Railroad Engineering

Program Outcomes:

- a. apply knowledge of mathematics and science to solve complex civil engineering problems;
- b. design and conduct experiments, as well as to analyze and interpret data;
- c. design a system, component, or process to meet desired needs within realistic constraints, in accordance with standards;
- d. function in multidisciplinary and multi-cultural teams;
- e. identify, formulate, and solve complex civil engineering problems;
- f. understand professional and ethical responsibility;



- g. communicate effectively civil engineering activities with the engineering community and with society at large;
- h. understand the impact of civil engineering solutions in a global, economic, environmental, and societal context
- i. recognize the need for, and engage in life-long learning
- j. know contemporary issues;
- k. use techniques, skills, and modern engineering tools necessary for civil engineering practice;
- l. know and understand engineering and management principles as a member and leader of a team, and to manage projects in a multidisciplinary environment;
- m. understand at least one specialized field of engineering practice

Course Outcomes Link to Program Outcomes:

Course Outcomes (Co) For Introduction to Transportation Engineering in relation to Program Outcomes

Course Outcomes(COs) : At the end of the course, the student will be able to:		Program Outcomes												
		a	b	c	d	e	f	g	h	i	j	k	l	m
CO-1	DEFINE concepts of transportation systems analysis and planning	E												
CO-2	APPLY travel demand forecasting computation and analysis	E		D										
CO-3	PREPARE traffic impact assessment reports	E		D			D							
CO-4	RECOGNIZE current transportation issues, policies, economic, safety and environmental concerns	E					D							

Note: I - An introductory course to an Outcome
 E – Enabling
 D - Demonstrate

Course Requirements:

- Online Attendance/Login
- Online Class participation thru Discussion Forum
- Online Assignments/Exercises
- Online Quizzes/Major Examinations
- Group Work Projects/Project Progress Reports



Course Policies:

- Online login/participation is necessary for each student to obtain maximum benefits for instruction. It is expected that the students regularly visit the websites (Weebly, Google Classroom/Meet-up); and active participation in the online discussion/forums will be monitored regularly. Observe proper online etiquette (politeness) in posting messages in the discussion forums.
- Projects and online homework/assignments must be submitted on time. Point deduction will apply to late submission of individual projects and homework/assignments.
- Online quizzes will be given on a specified time and to be announced ahead of time. Make-up online quizzes will be given only for those who have valid reasons of missing the quizzes/examinations.
- Online major examinations (Mid-term and Final) are optional and to be announced ahead of time. Make-up online examinations will be given depending on the availability of the students. It might be given on-site or face-face provided that necessary arrangements will be made.
- **Students are required to have a notebook for the subject.** It is expected that all students will take notes during class and will study these notes. Handouts should be downloaded or photocopied. Assignments will be handwritten in the notebook and images/photos of these assignments will be submitted electronically via Google Classroom.
- No sharing of homework/assignments electronically or any means of copying others outputs.
- Personal laptops, cell phones and other electronic gadgets are strongly encouraged to use for the online learning. Visit to computer shops are still acceptable but maintain social distancing and wearing ng face masks/shields.
- Face-to-face group studying and peer teaching are also encouraged to enhance the knowledge and skills but proper protocols such as social distancing and wearing of face masks and shields will be strictly observed.
- Any form of online cheating will not be tolerated. Any violation will be dealt properly.
- **Plagiarism is not tolerated in the preparation of written reports, thus proper citation and referencing are necessary.**

Students with Special Needs

Students who have any disability that might affect their performance in the class are encouraged to speak with the instructor early in the semester.

Course Grading System

Grading will be as follows:

Online Attendance/Class Participation	10%
Homework/Assignment/Reaction Paper	20%
Quiz	5%
Group Work/Output	40%
Midterm and Final Examinations	25%
TOTAL	100%



Methods of Computation

Absolute zero shall be used in all examinations and quizzes.

Percentile shall be used in recording grades when evaluating students using the formula below.

$$\text{Final Grade} = \frac{\text{Midterm Grade} + \text{Final Term Grade}}{2}$$

Grades Equivalent

<i>Rating</i>	<i>Grade</i>
96 - 100	1.00
91 - 95	1.25
86 - 90	1.50
81 - 85	1.75
76 - 80	2.00
71 - 75	2.25
66 - 70	2.50
61 - 65	2.75
60	3.00
Conditional	4.00
Below 60	5.00

CONDITIONAL is not a grade. It is given to students that lacks necessary requirements and therefore, must be accomplished before the end of that semester to obtain a grade. INCOMPLETE (INC) is reflected in the university online grading/report system as a mark given to the students for major compliance in the subjects which requires a Completion Form from the Registrar to be filled-up and accomplished within a year, otherwise noncompliance is a final grade of 5.0. WITHDRAW (W) is also reflected in the grading/report to indicate that the student withdraws or did not finish/complete the subject enrolled.



Course Outline

WEEK	TOPICS	LEARNING OUTCOMES	BLENDED (Synchronous/Asynchronous)	
			Learning Activities	Assessment Tasks
1-2	<p>Online Course Orientation via GOOGLE Classroom/Meet-up. Discussion of the Online Platforms such Weebly, Google Classroom/Meet-up, Discussion about university VMGO, including course syllabus/contents, class policies and requirements on the online learning modalities</p>	<ul style="list-style-type: none"> Familiarize with the university VMGO Familiarize with the course policies, course outline and coverage Familiarize with the basic features of the learning management using Weebly and Google Classroom 	<ul style="list-style-type: none"> Watch the online college orientation via RSU and CET Facebook Official Accounts Handouts and other supplemental reading materials will be uploaded in the website on a weekly basis. Download relevant course materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> Submission of individual short Reaction Paper via Google Classroom Open Forum link
	<p>MODULE 1 1.1 INTRODUCTION TO TRANSPORTATION PLANNING AND ENGINEERING What is transportation: meaning, types, means, advantages, disadvantages and importance of transportation in commerce and marketing 1.2 TRANSPORTATION AS A SYSTEM What is transportation engineering? Practice and Nature of Transportation Engineering; The System Approach; Transport System Characteristics, Hierarchies, Classification and Transportation Technologies</p>	<ul style="list-style-type: none"> Define concepts of transportation planning and engineering and technical terms in transportation Identify the importance of good transport system of commerce, various means of transportation Discuss the advantages and disadvantages of the various means of transportation Discuss transportation in a system approach, including its characteristics, classifications, and technologies 	<ul style="list-style-type: none"> Online attendance via Google Classroom/Meet-up Participation during online meet-up and Forum Discussion via Google Classroom Relevant video presentation via Youtube channel Download relevant course and supplemental reading materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> Submission of Reaction Paper/Homework or Assignment as posted in Google Classroom. Deadline of submission is set in real time All assessment tasks are hand-written in a dedicated notebook of the student, unless it is specified to be typewritten Case studies discussion and assessment
3-5	<p>MODULE 2 2.1 TRANSPORTATION AND GEOGRAPHY Concepts of Transport Geography Transportation and space; Spatial Structure; Transportation Modes, terminals; 2.2 TRANSPORT AND THE ECONOMY, ENERGY AND ENVIRONMENT</p>	<ul style="list-style-type: none"> Define the concepts of transport geography, in terms of spatial structure, and modes Recognize the relationship of transportation with the economic development, energy, environment and sustainability 	<ul style="list-style-type: none"> Online attendance via Google Classroom/Meet-up Participation during online meet-up and Forum Discussion via Google Classroom Relevant video presentation via Youtube channel 	<ul style="list-style-type: none"> Submission of Homework or Assignment or exercises Online Quiz with real time submission via Google Classroom All assessment tasks are hand-written in a dedicated notebook of the student,



	Transport Cost, Transport and demand; Environmental Impacts; Transportation and Energy; Transportation and Sustainability		<ul style="list-style-type: none"> Download relevant course and supplemental reading materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> unless it is specified to be typewritten Case studies discussion and assessment
6	MIDTERM EXAMINATION			
7	MODULE 3 3.1 URBAN TRANSPORT AND LANDUSE Urban System Components; Concepts and definitions; Transportation and the urban form; urban mobility 3.2 TRAFFIC OPERATIONS AND RELATED TRAFFIC ENGINEERING STUDIES Characteristics of the Driver, the Pedestrian, the Vehicle and the Road; Studies related to speed, volume, travel time, and parking; Local Area Traffic Management	<ul style="list-style-type: none"> Discuss the relationships between transport and land use, including urban form and mobility issues, including traveling operations and related traffic engineering studies in terms of driver, pedestrian, road, speed, volume, travel time, and parking. 	<ul style="list-style-type: none"> Online attendance via Google Classroom/Meet-up Participation during online meet-up and Forum Discussion via Google Classroom Relevant video presentation via Youtube channel Download relevant course and supplemental reading materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> Submission of Homework or Assignment as posted in Google Classroom. Deadline of submission is set in real time All assessment tasks are hand-written in a dedicated notebook of the student, unless it is specified to be typewritten Progress Reporting of the Grouwork
8-9	MODULE 4 4.1 TRANSPORT PLANNING AND POLICY Transport Planning Process, Transport Safety and Security; Transportation and Disasters; Transportation and Pandemics; International Trade and Freight Distribution 4.2 FORECASTING TRAVEL Forecasting Travel Demand Approaches, Trip Generation, Trip Distribution, Mode Choice, Traffic Impact Studies	<ul style="list-style-type: none"> Discuss transportation planning and policy, including the planning process, safety and security, disasters, and trade, and traffic impacts studies Perform basic forecasting problems using the different travel demand approaches 	<ul style="list-style-type: none"> Online attendance via Google Classroom/Meet-up Participation during online meet-up and Forum Discussion via Google Classroom Relevant video presentation via Youtube channel Download relevant course and supplemental reading materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> Submission of Homework or Assignment as posted in Google Classroom. Deadline of submission is set in real time All assessment tasks are hand-written in a dedicated notebook of the student, unless it is specified to be typewritten Case studies discussion and assessment
10	MODULE 5 5.1 TRANSPORTATION SYSTEMS MODELING AND EVALUATION Types of Transportation Models and Model Paradigms; Examples of Studies and Models;	<ul style="list-style-type: none"> Familiarize with the types of transportation models and paradigms Provide examples and models, including evaluation towards transport improvement 	<ul style="list-style-type: none"> Online attendance via Google Classroom/Meet-up Participation during online meet-up and Forum Discussion via Google Classroom 	<ul style="list-style-type: none"> Submission of Homework or Assignment as posted in Google Classroom. Deadline of submission is set in real time



	Model Selection; Transportation Systems Evaluation; Examples of Case Studies 5.2 EVALUATION OF TRANSPORTATION IMPROVEMENT Feasibility Issues; Evaluation Issues; The Evaluation Process, Criteria and Standards		<ul style="list-style-type: none"> • Relevant video presentation via Youtube channel • Relevant case studies – journal articles • Download relevant course and supplemental reading materials via Weebly and Google Classroom, including important websites 	<ul style="list-style-type: none"> • All assessment tasks are hand-written in a dedicated notebook of the student, unless it is specified to be typewritten • Submission of the written progress report of the Final Group Work
11	MODULE 6 SPECIAL TOPICS AND CASE STUDIES THRU GROUPWORK PRESENTATIONS Data Analytics and Statistics in Transportation; Data Collection and Analysis; Master Planning of other Modes of Transport; Systems Simulation and Applications; Selected Transportation Projects in the Philippines; Challenges in Transport Sector	<ul style="list-style-type: none"> • Discuss special topics and case studies through groupwork presentations 	<ul style="list-style-type: none"> • Online attendance via Google Classroom/Meet-up • Participation during online meet-up and Forum Discussion via Google Classroom • Relevant video presentation via Youtube channel • Relevant case studies – journal articles • Download relevant course and supplemental reading materials via Weebly and Google Classroom, including links of important websites 	<ul style="list-style-type: none"> • Submission of Homework or Assignment as posted in Google Classroom. • Deadline of submission is set in real time • All assessment tasks are hand-written in a dedicated notebook of the student, unless it is specified to be typewritten • Submission of the written report of the Final Group Work • Oral Presentation of the Final Group
12	FINAL EXAMINATION			

References:

Garber, Nicholas and Hoel, Lester (2008). Traffic and Highway Engineering, 4th Edition, Brookes/Cole Publishing
<https://www.pdfdrive.com/traffic-highway-engineering-fourth-edition-d188118148.html>

Khisty, C.J and Lall B.K (2016). Transportation Engineering: An Introduction, India: Persaon India Education Services, Pvt. Ltd
<https://dokumen.pub/transportation-engineering-an-introduction-3nbsped-9789332569706-9789332587649.html>



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<https://www.pdfdrive.com/principles-of-highway-engineering-and-traffic-analysis-e175915587.html>

Ortuzar, J.D. and Willumsen, L.G. (2011). Modelling Transport, John Wiley and Sons, Ltd.
<https://www.pdfdrive.com/modelling-transport-4th-edition-d161416515.html>

Rodrigue, JP, Comtois, C. and Slack, B. (2013), The Geography of Transport Systems, Third Edition, USA: Routledge
<https://transportgeography.org/media/e-book/>

Kutz, M. (2004). Handbook of Transportation Engineering, McGraw-Hill
<https://www.zuj.edu.jo/download/handbook-of-transportation-engineering-pdf/>
<http://www.icivil-hu.com/Nedal/Handbook%20of%20Transportation%20Engineering.pdf>

NOTE: All handouts and supplemental reading materials are available at the following sites:

www.rsucivilengineering.weebly.com

www.brainitiativesph.com

<https://classroom.google.com/u/6/c/NTM4NTY1MjA4Mjc>

Class code: **gnbx64s**

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