



**COURSE SYLLABUS**  
**CE 315 Environmental Engineering**  
**1<sup>st</sup> Semester SY 2018 - 2019**

**RSU VISION**

Romblon State University as a premier institution of higher education in the MIMAROPA region for a globally competitive Province of Romblon.

**RSU MISSION**

The Romblon State University is committed to:

- 1) Provide advanced education, higher technological and professional instruction.
- 2) Provide training in agriculture and fishery, for science and technology, education, arts, agriculture, and other relevant fields of study.
- 3) Undertake research and extension services.
- 4) Provide progressive leadership in its areas of specialization.

**PROGRAM EDUCATIONAL OBJECTIVES (PEO)**

The Civil Engineering Program Educational Objectives and Relationship to RSU Mission:

Graduates of the Civil Engineering program are expected to attain or achieve the following Program Educational Objectives 3 - 5 years of graduation:	MISSION			
	1	2	3	4
1) Attain technical and managerial skills in planning, design, construction, operation, management and maintenance of the built environment and global infrastructures and utilizing their skills to analyze and design systems, specify project methods and materials.	√	√	√	√
2) Establish a technical expertise and become a total engineer utilizing his knowledge in arts, sciences and communication skills in oral, written, visual and graphic modes when working as a team members or leaders, so they can actively participate in their communities and their profession.	√	√	√	√
3) Establish an understanding of professionalism, ethics quality performance, public policy, safety, and sustainability that allows them to be professional leaders and contributors to society when solving engineering problems and producing civil engineering solutions through research and development.			√	√
4) Initiate an active program of life-long learning, including studies leading to professional licensure or an advanced degree in engineering that provides for continued development of their technical abilities and management skills and attainment of professional expertise.			√	√

**COURSE INFORMATION:**

*Course Code:* CE 315

*Course Title:* Environmental Engineering

*Course Description:* This course covers topics related to ecological framework of sustainable development; pollution environments: water, air, solid waste, including waste and waste water treatment processes and

management; government legislations, rules, and regulations related to the environment and waste management and environmental system; and alternative and renewal sources of energy.

Credit Units	3 units
Lecture hours	3
Laboratory hours	0
Pre-requisite	Chemistry and 100% third year standing

### STUDENTS OUTCOMES (SO)

Upon completion of the program, the Romblon State University Civil Engineering students will demonstrate:	PEO			
	1	2	3	4
a) An ability to apply knowledge of mathematics, physical sciences, engineering sciences to the practice of civil engineering.	√	√	√	√
b) An ability to design and conduct experiments, as well as to analyze and interpret data.	√	√	√	
c) An ability to design, builds, improve, and install systems or processes which meet desired needs within realistic constraints.	√	√	√	√
d) An ability to work effectively in multi-disciplinary and multi-cultural teams.			√	√
e) An ability to recognize, formulate, and solve civil engineering problems.	√	√	√	
f) An understanding of the effects and impact of civil engineering projects on nature and society, and of the civil engineers' social and ethical responsibilities.	√	√	√	√
g) Specialized engineering knowledge in each applicable field, and the ability to apply such knowledge to provide solutions to actual problems.	√	√	√	√
h) An ability to effectively communicate orally and in writing using the English language.	√	√	√	√
i) An ability to engage in life-long learning and an acceptance of the need to keep current of the development in the specific field of specialization.			√	√
j) An ability to use the appropriate techniques, skills and modern engineering tools necessary for the practice of civil engineering.	√	√	√	√
k) Knowledge of contemporary issues.			√	√

### Course Outcomes (Co) For Environmental Engineering (Subject) in relation to Student Outcomes

Course Outcomes(COs) : At the end of the course, the student will be able to:		Student Outcomes										
		a	b	c	d	e	f	g	h	i	j	k
CO-1	<b>Discuss</b> the principles of sustainable engineering, green engineering, sustainable development, millennium development goals, ecological concepts, existing environmental laws and regulations, environmental ethics, the current environmental issues and problems, and tools/techniques on environmental decision making			E			D	D			E	
CO-2	<b>Identify and enumerate</b> the various sources effects of environmental pollution (water, air and land), and their possible solutions; alternative and renewal sources of energy			E			D	D			E	
CO-3	<b>Identify and explain</b> the water quality parameters and standards/guidelines, classify sources of water, river system management, and select appropriate treatment schemes for appropriate usage.			E			D	D			E	



10	3	Water and Wastewater Treatment and Processes	CO-3 CO-4	Review of previous topics Discussion Assignment and Final Group work guidelines and outputs	Recitation Assignment Group Work
11-12	6	Solid Waste Management (collection, treatment, and disposal)	CO-2 CO-4	Review of previous topics Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work
13	3	Toxic and Hazardous Waste Management	CO-2 CO-4	Review of previous topics; Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work Quiz
14	3	Air Quality Management	CO-2 CO-4	Review of previous topics; Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work Quiz
15	3	Environmental Impact Assessment (EIA)	CO-1 CO-4	Review of previous topics; Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work Quiz
16	3	Land and Watershed Management	CO-1 CO-4	Review of previous topics; Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work Quiz
17	3	Alternative and Renewal Sources of Energy	CO-4	Review of previous topics; Discussion on Assignment and Group Work guidelines and outputs	Recitation Assignment Group Work Quiz
18	<b>FINAL EXAMINATION ORAL PRESENTATION OF FINAL GROUP WORK</b>				
19	<b>SUBMISSION OF FINAL GROUP WORK REPORTS REMOVAL EXAMINATION</b>				

### **COURSE REQUIREMENTS**

1. Attendance
2. Class participation
3. Assignments
4. Short and long quizzes
5. Major examination
6. Group Work

### **COURSE POLICIES**

- Attendance is necessary for each student to obtain maximum benefits for instruction. Eighty percent (80%) of the total required hours must be attended for each semester.
- None wearing of complete uniform is considered no attendance credit and will not be allowed to take examinations or tests/ quizzes.
- There will be three or four long exams given during the semester. Make-up exams will be given for missed exams at the discretion of the instructor and only for excused absences (university approved absences).
- Major exams (Mid-term and Final) will be given at the time prepared by the College. All students must take the major exams.
- Projects and assignments must be submitted on time. Late submission will not be accepted, it must be turned in at the beginning of class. Projects and assignments must be in acceptable engineering form including a problem statement, labeled

drawings of the system considered and all equations and units must be shown or the problem will not be graded.

- Quizzes will be given on a random basis, sometimes announced ahead of time and others will be unannounced. Make-up quizzes will be given only for excused absences.
- Special examination is only given for excused absences. Excuse letter duly signed by the parents or guardian or a medical certificate (in case of sickness) is required.
- Students without calculator will not be allowed to take examinations. If table and charts are needed, it is also a requirement.
- **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.
- No sharing calculators during tests, quizzes, etc. No electronic gadget, computers, etc. during a quiz or a test. Only a calculator may be used during a test or a quiz.
- Cell phones are allowed, provided, it must be on silent mode, must not be used during class hours except during extreme necessities, and must be off during tests and examinations.
- Group studying and peer teaching is encouraged to enhance the knowledge and skills.
- Any form of cheating will not be tolerated.
- **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:

Attendance/Class Participation	5%
Assignment	5%
Quiz	15%
Group Work	35%
Midterm and Final Examinations	40%

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.

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

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 online grading/report system to indicate that the student withdraw or did not finish/complete the subject enrolled.

### LIST OF RESOURCES

- Davis, M. L. And Masten, S.J. (2004). *Principles of Environmental Engineering and Science*, International Edition, New York: McGraw-Hill Education.
- Enger, E D., and Smith, B F. (2009). *Environmental Science, A Study of Interrelationships*, 11<sup>th</sup> Edition, Philippines: McGraw Hill International Edition (Asia).
- Gagalac-Regis, Emelina, Labra-Espina, and Yacat, Ma Yvaine (2001). *The Pasig River: Caring for a Dying Ecosystem*, Manila: Pasig River Rehabilitation Commission.
- Harding, R (1998). *Environmental Decision-Making*, Australia: The Federation Press.
- Henry, J.G. and Heinke, G.W. (2000). *Environmental Science and Engineering*, Singapore: Pearson Education Asia Pte., Ltd.
- Lee, S J, and Anes, M L. (2010). *Environmental Science – The Economy of Nature and Ecology of Man*, 2<sup>nd</sup> Edition, Philippines: C & E Publishing, Inc.
- Mihelcic, J.R. and Zimmerman, J.B. (2010). *Environmental Engineering Fundamentals, Sustainability, Design*, Singapore: John Wiley & Sons Singapore Pte, Ltd.
- Miller, G.T, Jr and Spoolman, S. (2013). *Principles of Environmental Science*, Singapore: Cengage Learning Asia Pte, Ltd.
- Montgomery, Carla (2000). *Environmental Geology*, 5<sup>th</sup> Edition Update, USA: McGraw-Hill Higher Education.
- Speight, J.G. and Lee S. (2000). *Environmental Technology Handbook*, 2<sup>nd</sup> Edition, USA: Taylor & Francis
- Vesilind P.A, Morgan, S.M., and Heine, L.G. (2013). *Introduction to Environmental Engineering*, 1<sup>st</sup> Philippine reprint, Singapore: Cengage Learning Asia Pte Ltd.

### INPUTS/REMARKS:

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