



ROMBLON STATE UNIVERSITY
College of Engineering and Technology
 Department of Civil Engineering
COURSE SYLLABUS

CE 315 – HYDROLOGY
1st Semester SY 2020-2021

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; and
- 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: Hydrology



Course Description: This course deals on the hydrologic cycle and its processes such as precipitation, evaporation, infiltration, overland flow, groundwater flow and surface runoff generation. The course also covers classification of surface waters beneficial uses, weather instruments, water quality standards and review of environmental laws and regulations in relation to water use and quality, including water resource and watershed management.

Credit Units 3 units
Lecture hours 0
Laboratory hours 0
Pre-requisite Fluid Mechanics

STUDENTS OUTCOMES (SO)

Upon completion of the program, the Romblon State University Civil Engineering students will demonstrate:	PEO			
	1	2	3	4
1. An ability to apply knowledge of mathematics, physical sciences, engineering sciences to the practice of civil engineering.	√	√	√	√
2. An ability to design and conduct experiments, as well as to analyze and interpret data.	√	√	√	
3. An ability to design, builds, improve, and install systems or processes which meet desired needs within realistic constraints.	√	√	√	√
4. An ability to work effectively in multi-disciplinary and multi-cultural teams.			√	√
5. An ability to recognize, formulate, and solve civil engineering problems.	√	√	√	
6. An understanding of the effects and impact of civil engineering projects on nature and society, and of the civil engineers' social and ethical responsibilities.	√	√	√	√
7. Specialized engineering knowledge in each applicable field, and the ability to apply such knowledge to provide solutions to actual problems.	√	√	√	√
8. An ability to effectively communicate orally and in writing using the English language.	√	√	√	√
9. 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.			√	√
10. An ability to use the appropriate techniques, skills and modern engineering tools necessary for the practice of civil engineering.	√	√	√	√
11. Knowledge of contemporary issues.			√	√

Course Outcomes (Co) For CE4214 Hydrology (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	Discuss with appropriate diagrams of the hydrologic cycles and the different processes and storages within the cycle	E				E		E					E
CO-2	Identify the different classification of surface water and beneficial use, including relevant environmental laws and regulations in relation to water use and quality												
CO-3	Perform calculation related to water demand, design criteria and water consumption												



CO-4	Perform calculation related to measurements, movement, and storages in the different processes of the hydrologic cycle	E					E	E				E
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Note: I - An introductory course to an Outcome
 E - Enabling
 D - Demonstrate

LEARNING PLAN

Week	Topic	Satisfied CO	Teaching-Learning Activities	Assessment Technique
1	PART 1: ONLINE COLLEGE ORIENTATION Via CET Facebook Page Online Course Orientation via GOOGLE Classroom/Meet-up, WEEBLY and ARAL System (while CANVAS and MOODLE are optional platform) concerning course syllabus/contents, class policies and requirements on the online learning modalities		Introduction Multi-media presentation Familiarization of the primary online learning platforms: www.rsucivilengineering.weebly.com https://classroom.google.com/u/3/c/MTU1Njc3MTkwMzI4 Class code: a7iu47I www.aral.cloud.8000 https://rsu2020.moodlecloud.com/	
	Basic Background on Hydrology Hydrologic Cycle and its Processes Importance and Utilization of Water Classification of Surface Water and Beneficial Use Climatic Conditions in the Philippines Weather Instruments and Parameters	CO-1 CO-2	Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis. Hardcopies might be available upon request of the students Online Group Discussion Forum Video Presentation	Reaction Paper Homework/A ssignment
	Properties of Water Water Quality Standards and Analysis Review of Relevant Environmental Laws and Regulations on Water Use and Quality	CO-2 CO-3	Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis.	Homework/ Assignment Exercises Quiz



2			<p>Hardcopies might be available upon request of the students</p> <p>Online Group Discussion Forum</p>	
	<p>Water Demand, Design Criteria and Water Consumption Calculations</p> <p>Water Balance Equation</p>		<p>Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis.</p> <p>Hardcopies might be available upon request of the students</p> <p>Online Group Discussion Forum</p>	<p>Homework/Assignment Exercises Quiz</p>
	<p>Precipitation</p> <p>Formation of Precipitations</p> <p>Classes/Forms of Precipitations</p> <p>Rainfall Analysis and Calculations</p> <p>Rain gauge Measurements</p>	CO-1	<p>Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis.</p> <p>Hardcopies might be available upon request of the students</p> <p>Online Group Discussion Forum</p>	<p>Homework/Assignment Exercises Major Examination</p>
3	<p>Evaporation and Evapotranspiration</p> <p>Evaporation Measurements and Techniques</p> <p>Estimation of Evaporation</p> <p>Guidelines on the Final Group Work</p>	CO-4	<p>Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis.</p> <p>Hardcopies might be available upon request of the students</p> <p>Online Group Discussion Forum</p> <p>Mechanics/Requirements on the Final Group work outputs</p>	<p>Homework/Assignment Exercises Quiz</p>
4	<p>Infiltration/Storage – A Process</p> <p>Methods of Measurement and Analysis</p>	CO-4	<p>Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis.</p> <p>Hardcopies might be available upon request of the students</p> <p>Online Group Discussion Forum</p>	<p>Homework/Assignment Exercises Quiz</p>



	Groundwater and Basic Terms Water Table and Aquifer	CO-4	Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis. Hardcopies might be available upon request of the students Online Group Discussion Forum	Homework/Assignment Exercises Quiz
5	Runoff Mechanism - Methods of Measurement and Analysis Hydrograph Floods Final Group Work: Progress Status Reporting	CO-4	Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis. Hardcopies might be available upon request of the students Online Group Discussion Forum Discussion on Assignment and Update on the progress of Final Group Work	Homework/Assignment Exercises Quiz
	Hydrological Design (Reservoir and Dam) Water Resource Management Watershed Management	CO-4	Handouts and other instructional/reading materials will be uploaded in the website on a weekly basis. Hardcopies might be available upon request of the students Online Group Discussion Forum Discussion on Assignment and Final Group Work Presentation	Homework/Assignment- Reaction Paper Final Group Work Report Output

COURSE REQUIREMENTS

1. Online Attendance/Login
2. Online Class participation thru Discussion Forum
3. Online Assignments
4. Online Quizzes/Major Examination



5. Progress Reports via Google Meet
6. Group Work Final via Google Meet

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, ARAL; and Canvas or Moodle are optional platforms); 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 or ARAL system.
- 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	20%
Homework/Assignment	10%
Quiz	5%
Group Work/Output	40%
Midterm and Final Examinations	25%



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

Rating	Grade
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 withdraw or did not finish/complete the subject enrolled.

READING MATERIALS

Brutsaert, W. (2005). *Hydrology An Introduction*, UK: University Press, Cambridge.

Davie, T. and Quinn, N.W. (2019). *Fundamentals of Hydrology*, New York: Routledge.

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Davis, M. L. And Masten, S.J. (2004). *Principles of Environmental Engineering and Science*, International Edition, New York: McGraw-Hill Education (Asia).

Eslamian, S. (2014). *Handbook of Engineering Hydrology, Environmental Hydrology and Water Management*, UK: Taylor & Francis Group, LLC.

Han, Dawei (2010). *Concise Hydrology*, Dawei Han and Ventus Publishing APS, Retrieved from www.bookboon.com.

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Mihelcic, J.R. and Zimmerman, J.B. (2010). *Environmental Engineering Fundamentals, Sustainability, Design*, Singapore: John Wiley & Sons Singapore Pte, Ltd.

Shaw, E.M. (2005). *Hydrology in Practice*, Third Edition, UK: Taylor & Francis or Routledge, www.ebookstore.tandf.co.uk.

Speight, J.G. and Lee S. (2000). *Environmental Technology Handbook*, 2nd Edition, USA: Taylor & Francis, USA.

Subramanya, K. (2008). *Engineering Hydrology*, 3rd Edition, New Delhi: Tata McGraw-Hill Publishing Company Limited.

Schwab, G., Fangmeier, D., Elliot, W., Frevert, R. (1993). *Soil and Water Conservation Engineering*, 4th Edition, Quezon City: JMC Press, Inc.

The World Bank Office Manila (2012). *Rural Water Supply Design Manual, Volumes 1-3*, Water Partnership Program, Manila, Philippines: World Bank.

Vesilind P.A, Morgan, S.M., and Heine, L.G. (2013). *Introduction to Environmental Engineering*, 1st Philippine reprint, Singapore: Cengage Learning Asia Pte Ltd.

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