



## Course Descriptor

### CVEN361 ENVIRONMENTAL ENGINEERING

<b>Proposed Academic Year</b>	2020/2021	<b>Last Reviewed Academic Year</b>	2019/2020
<b>Course Code</b>	CVEN361	<b>Course Title</b>	Environmental Engineering
<b>Credit hours</b>	3	<b>Level of study</b>	Third
<b>College / Centre</b>	College of Engineering	<b>Department</b>	Environmental Engineering
<b>Co-requisites</b>		<b>Pre-requisites</b>	CVEN350

#### 1. COURSE OUTLINE

This course teaches environmental science from engineering approach. Introduction to environmental engineering, water pollution, air pollution, soil contamination, Hazardous and solid waste.

#### 2. AIMS

[The course provides students with concepts and techniques that enable to understand the environmental engineering basic topics and models

#### 3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

<b>Learning Outcomes (Definitive)</b>	<b>Teaching and Learning methods (Indicative)</b>	<b>Assessment (Indicative)</b>
Upon successful completion of this course, students will be able to:		
1. List and define all major waste quality parameters Relate waste quality parameters to environmental health.	Lectures	Assignments and in-class tests
2. Design water and wastewater treatment processes Perform basic water quality tests Define and understand all major waste quality parameters.	Lectures	Assignments and in-class tests
3. Understand the Environmental and Public health significance of waste quality parameters and basic waste quality tests Understand important regulatory aspects of waste quality parameters	Lectures	Assignments and in-class tests
4.		

#### 4. ASSESSMENT WEIGHTING



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Assessment	Percentage of final mark (%)
ENVIRONMENTAL ENGINEERING	



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Assignments	20%
Quizzes	
Mid-term Examination, two	40%
Final Examination	40%
<b>TOTAL</b>	<b>100%</b>

#### 5. ACHIEVING A PASS

Students will achieve 4 credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

**NB \*Ensure that ALL learning outcomes are taken into account**

#### 6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
Introduction to Environmental engineering	3
Population, urbanization, economic growth, industrialization and energy-use as causes of environmental pollution	3
Mass and energy balance for environmental engineering systems	3
Notions of risks, standards, and criteria for environmental matrices	3
Water quality characteristics and pollution 1. Water conductivity and pH analysis 2. Solids on water analysis	3
Water treatment 1. Water quality measurements	3
Wastewater treatment 1. COD and BOD analysis 2. Hardness analysis	3
Soil contamination and remediation	3
Solid waste management	3
Hazardous waste management	3
Air quality and pollution control	3
Ecosystem pollution impact and control	3
Sustainability and Green Engineering	3
Environmental management	3
Course review	3



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<b>TOTAL HOURS</b>	45
Plus <b>RECOMMENDED INDEPENDENT STUDY HOURS</b>	
<b>TOTAL COURSE HOURS</b>	45

#### 7. RECOMMENDED READING

##### Core text/s:

- Davis and Cornwell (2006). *Introduction to Environmental Engineering*, 4th Ed, McGraw-Hill Publishers, Inc., New York, NY.
- Mihelcic and Zimmerman (2010). *Environmental Engineering-fundamentals, Sustainability, Design*. John Wiley & Sons, Inc., New Jersey.

##### Library + online resources:

<https://open.umn.edu/opentextbooks/textbooks/introduction-to-environmental-science-2nd-edition>  
<https://open.umn.edu/opentextbooks/textbooks/introduction-to-environmental-science-2nd-edition>

<https://www.oercommons.org/courses/environmental-engineering-3>

<https://www.oercommons.org/courses/environmental-engineering-and-water-chemistry/view>