



Electrical and Renewable Energy Engineering Program

Course Specification - (2025-2026)

Renewable Energy Management – ERE471

Academic Year	2025/2026	Semester	Fall
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1. Basic Information

Course Title (according to the bylaw)	Renewable Energy Management				
Course Code (according to the bylaw)	ERE471				
Prerequisite:	Solar Energy – ERE314, Wind Energy – ERE315				
Department/s participating in delivery of the course	Electrical and Renewable Energy Engineering				
Number of credit hours/points of the course (according to the bylaw)	Credit Hours	Contact Hours			
		Lecture	Tutorial	Practical	Total
	3	2	2	0	4
Course Type	Elective - Minor Requirements of Electrical and Renewable Energy Engineering				
Academic level at which the course is taught	Fifth Level				
Academic Program	Bachelor of Engineering of Electrical and Renewable Energy				
Faculty/Institute	Faculty of Engineering				
University/Academy	Nahda University				
Name of Course Coordinator	Dr. Hassan Moh. Mahmoud				
Course Specification Approval:	Department council		Faculty council		
Date of Approval of the course Specification:	13 / 9 / 2025		16 / 9 / 2025		



2. Course Overview

Renewable Energy Management course focuses on renewable energy systems and energy efficiency and their potential for societies. Students get acquainted with renewable energy management related topics such as bioenergy and geothermal, solar energy, wind energy and hydropower, energy management, and others.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.	CLO1	Design basic renewable energy systems (e.g., solar PV or wind energy systems) to meet specified energy requirements.
B3	Design and implement: elements, modules, sub-systems or systems in electrical / electronic / digital engineering using technological and professional tools.	CLO2	Analyze the performance of renewable energy systems using engineering principles and performance indicators.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.	CLO3	Apply appropriate software and analytical tools to model and evaluate renewable energy system performance.
		CLO4	Select suitable renewable energy technologies and system components based on technical, economic, and environmental criteria.
D2	Identify, analyze and evaluate the energy's conversion processes and management techniques;	CLO5	Evaluate design alternatives and recommend optimized renewable energy solutions for specific applications.

4. Teaching and Learning Methods

1. Interactive Lectures
2. Self-Learning
3. Discussion
4. Tutorials
5. Report and research



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours				
			Lecture Hours	Tutorial Hours	Practical Hours	Self-learning (Ass/ Project)	Other
1	Introduction to Renewable Energy Systems	6	2	2	0	2	
2	Renewable energy resources and technologies	6	2	2	0	2	
3	Sustainability and energy management	6	2	2	0	2	
4	Solar radiation fundamentals	6	2	2	0	2	
5	PV system components and configurations	6	2	2	0	2	
6	Solar thermal systems	6	2	2	0	2	
7	Mid Term Exam						
8	Wind resource assessment	6	2	2	0	2	
9	Wind farm planning and performance evaluation	6	2	2	0	2	
10	Other Renewable Energy Technologies	6	2	2	0	2	
11	Biomass and bioenergy	6	2	2	0	2	
12	(Renewable Energy System Design	6	2	2	0	2	
13	Hybrid renewable energy systems	6	2	2	0	2	
14	Grid-connected and stand-alone systems	6	2	2	0	2	
15	Revision	6	2	2	0	2	
16	Final Term Exam						

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Mid-term written Exam	7	20	20%
2	Final Written Exam	16	40	40%
3	Assignments	2-14	10	10%
4	Quizzes	5,10	20	20%
5	Report	12	10	10%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	Beggs, Clive “Energy: Management, Supply and Conservation” Butterworth-Heinemann, 2009.
	Other References	Capehart B.L., Turner W.C. and Kennedy W.J., “Guide to Energy Management” The Fairmont Press Inc., 2006.
	Electronic Sources	www.ekb.eg
	Learning Platforms	https://lms.nub.edu.eg/login/index.php
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data Show
	Supplies	White Board
	Electronic Programs	—
	Skill Labs/ Simulators	—
	Virtual Labs	—
	Other (to be mentioned)	—

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Course Coordinator

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