



Electrical and Renewable Energy Engineering Program

Course Specification - (2025-2026)

Energy Management Essentials – ERE372

Academic Year	2025/2026	Semester	Fall
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1. Basic Information

Course Title (according to the bylaw)	Energy Management Essentials				
Course Code (according to the bylaw)	ERE372				
Prerequisite:	Electrical Measurements and Instrumentation – CCE212				
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	Assoc. Prof. Dr. Amir Yassin				
Course Specification Approval:	Department council			Faculty council	
Date of Approval of the course Specification:	13 / 9 / 2025			16 / 9 / 2025	



2. Course Overview

Energy efficiency and electricity, Energy Efficiency standards and practical considerations Diagnostics through electrical measurement, selecting relevant measuring instruments, Energy saving opportunities, Motor-related savings opportunities, Lighting, Power factor correction and harmonic filtering, Load management and smart panels, Introduction to building management systems, evaluating energy savings, Achieving sustainable performance.

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	Recognize characteristics of different types of energy saving methods
		CLO2	Analyze the performance and the characteristics of smart buildings
B3	Design and implement: elements, modules, sub-systems or systems in electrical / electronic / digital engineering using technological and professional tools	CLO1	Recognize characteristics of different types of energy saving methods
		CLO2	Analyze the performance and the characteristics of smart buildings
		CLO3	Experimental testing of AC/DC and AC/AC converter
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	Experimental testing of AC/DC and AC/AC converter
		CLO4	Discuss the operations of building management systems.
		CLO5	Gain access to data and information from libraries and internet related to course subjects.



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
D2	Identify, analyze and evaluate the energy's conversion processes and management techniques.	CLO1	Recognize characteristics of different types of energy saving methods
		CLO2	Analyze the performance and the characteristics of smart buildings
		CLO3	Experimental testing of AC/DC and AC/AC converter
		CLO4	Discuss the operations of building management systems.
		CLO5	Gain access to data and information from libraries and internet related to course subjects.

4. Teaching and Learning Methods

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

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 Energy efficiency and electricity	6	2	2	0	2	-
2	Energy Efficiency standards and practical considerations	6	2	2	0	2	-
3	Diagnostics through electrical measurement, selecting relevant measuring instruments.	6	2	2	0	2	-
4	Diagnostics through electrical measurement, selecting relevant measuring instruments.	6	2	2	0	2	-
5	Energy saving opportunities, Motor-related savings opportunities,	8	2	2	0	2	Quiz 1 (2 Hr)



6	Energy saving opportunities, Motor-related savings opportunities,	6	2	2	0	2	-
7	Mid Term Exam						
8	Lighting, Power factor correction and harmonic filtering	6	2	2	0	2	-
9	Lighting, Power factor correction and harmonic filtering	6	2	2	0	2	-
10	Load management and smart panels	8	2	2	0	2	Quiz 2 (2 Hr)
11	Load management and smart panels	6	2	2	0	2	-
12	Introduction to building management systems,	6	2	2	0	2	-
13	Introduction to building management systems,	6	2	2	0	2	
14	Evaluating energy savings, Achieving sustainable performance.	6	2	2	0	2	-
15	Revision	6	2	2	0	2	-
16	Final Term Exam						

1. 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	20	20%
4	Quizzes	5,10	20	20%

2. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	Energy Conservation Center Japan, TOTAL ENERGY MANAGEMENT HANDBOOK, NOVEMBER
	Other References	
	Electronic Sources	www.ekb.eg
	Learning Platforms	https://lms.nub.edu.eg/login/index.php
Supportive facilities &	Devices/Instruments	Data Show
	Supplies	White Board



equipment for teaching and learning	Electronic Programs	–
	Skill Labs/ Simulators	MATLAB Simulink Software Programs
	Virtual Labs	–
	Other (to be mentioned)	Lecture Hall and Laboratory Usage

Assoc. Prof. Dr. Amir Yassin
Course Coordinator

Dr. Mohamed Kourany Saad
Program Coordinator