MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
040376	Electrical Machines (2)	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Prof. Hussein Al-Majali
Email/Office	halmajali@mutah.edu.jo/ Eng. Bldg.-Prof. Hussein Al-Majali Office
Office Hours	10:00-11:00 (Sun, Tues)
Classroom/Time	Hall 1 / 09:30 – 11:00 (Mon, Wend.)

TEXTBOOK	
Title	Electric Machinery Fundamentals
Author/Year/Edition	S. J. Chapman, McGraw Hill/2012/ 5th Ed
Other Supplemental Materials	
Title	Principles of electric machines and power electronics
Author/Year/Edition	P. C. Sen, John Wiley & Sons, Inc 1997/3nd Edition

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Fundamental principles of AC machines Concept, Construction, rotating magnetic field, synchronous machines, induction machines and special purpose machines. Introduce the principle of converting electrical energy to mechanical energy and vice versa via electromagnetic field. To introduce different machines, their operating principle and the analysis of key characteristics. To provide the basis for further study of electric machines.

B. Pre-requisites (P) or Co-requisites (C)

Electric Machines (1) (0401372) **(P)**

C. Course Type (Required or Elective)

Required

SPECIFIC GOALS

A. Course Learning Objectives (CLOs)

By the end of this course, the student should be able to:

CLO1: Analyze Understand the performance of AC machines and their operating characteristics [1]. **CLO2:** Evaluate motor performance and its characteristics using modern engineering tools such as MALAB/SIMULINK [1].

B. Student Learning Outcomes (SOs) Addressed by the Course

1	2	3	4	5	6	7
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BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Chapter 1: Fundamental of AC Machines	2	6
Chapter 2: Synchronous Generator 15hrs	4	12
Chapter 3: Synchronous Motor	2	6
Chapter 4: Induction Machines 12hrs	4	12
Chapter 5: Single Phase Motors 9hrs	1	3
Chapter 6: Special Machines 6hrs	1	3

Tutorial classes if needed.

Total	*14*	*42*

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Home-works, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)		
	Relationship to program outcomes	
ABET 1-7		**Engineering Student Outcomes**
1	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3		an ability to communicate effectively with a range of audiences.
4		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.