



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401372	Electrical Machines (1)	3	3T

INSTRUCTOR/COORDINATOR

Name	Prof. Abdullah Al-Odienat
Email/Office	odienat@mutah.edu.jo
Office Hours	10 :00-11 :00 Tue 9 :30-10 :30 Mon
Classroom/Time	Eng. 15

TEXTBOOK

Title	Electric Machinery Fundamentals
Author/Year/Edition	Stephen J. Chapman/ Fifth Edition, McGraw-Hill, 2012.
Other Supplemental Materials	
Title	Electric Machinery
Author/Year/Edition	Fitzgerald, Kingsley/ Sixth Edition

SPECIFIC COURSE INFORMATION

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

Principles of magnetic circuit concepts; Single-phase transformers: ideal, transformer, per unit system, equivalent circuit, autotransformer; Three-Phase Transformer: Types, Connection; DC Machinery Fundamentals: Construction, Principal of operation; DC generators, DC motors, starting of DC motors, Speed control and characteristics.

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

Electric Circuits (2) (0401212) (P)
Electromagnetics (0401252) (P)

C. Course Type (Required or Elective)

Required

SPECIFIC GOALS

A. Course Learning Objectives (CLOs)

CLO1: Understand the principles of operation of electrical machines [1].

CLO2: Understand the fundamental characteristics of various types of machines [1].
CLO3: Understand the concept of equivalent circuit [1].
CLO4: Understand the construction and design issues associated with electrical machines [1].

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

1	2	3	4	5	6	7
✓						

BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Principles of magnetic circuit concepts	2	6
Single-phase transformers: ideal, transformer	3	9
per unit system, equivalent circuit, autotransformer; Three-Phase Transformer	2	6
DC Machinery Fundamentals:	2	6
Construction, Principal of operation; DC generators	2	6
DC motors, starting of DC motors, Speed control and characteristics.	3	9

Total 14 42

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, 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.

