



**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**

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

**TEXTBOOK**

<b>Title</b>	Electric Machinery Fundamentals
<b>Author/Year/Edition</b>	Stephen J. Chapman/ Fifth Edition, McGraw-Hill, 2012.
<b>Other Supplemental Materials</b>	
<b>Title</b>	Electric Machinery
<b>Author/Year/Edition</b>	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	
<b>ABET 1-7</b>	<b>Engineering Student Outcomes</b>
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.

