



Philadelphia University

Faculty of Engineering - Department of Electrical Engineering

Course Details:

- Title:** Electric Machine Lab. (1) (610316)
- Prerequisite:** Electric Machine (1) (610314)
- Credit Hours:** 1 credit hours (16 weeks per semester, approximately 45 contact hours)
- Textbook:** Laboratory manuals
- References:**
1. Gordon R. Slemon: "Electric Machines and Drives", Addison-Wesley, 1992.
 2. Sen: "Principles of Electric Machines and Power Electronics", 2nd Edition, Wiley, 1997.
 3. Theodore Wildi: "Electrical Machines, Drives, and Power System", 5th Edition, Prentice Hall, 2002.
 4. Chapman: "Electric Machinery Fundamentals", Third Edition, McGraw-Hill, 1999.
 5. George Mc Pherson, and Robert D. Lammore, "Electrical Machines and transformers".
- Course Description:**
1. To understand the operation performance of electrical machines operations and applications.
 2. At completing this module the student should be able to:
 - Know the types of machines used in real life and understand its applications.
 - Using measuring instrument to measure different machines ratings under operation and indicate its characteristics.

Course Outlines:

Week	Topic
1	Introduction
2	Single phase transformer
3	Loaded three phase transformer
4	Shunt and separately excited DC-motors
5, 6	Series and compound DC-motors
7	DC-Generator
8, 9	Three- phase synchronous generator
10, 11	Three-phase synchronous motor
12, 13	Asynchronous motor " Squirrel Cage" determination of equivalent circuit
14, 15	Asynchronous motor " Squirrel Cage"
16	Revision

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this lab, student should:

1.	Ability to understand the operations and characteristics of transformers	[a, b, d, k]
2.	Ability to understand the operation and characteristics of rotating machines	[a, b, d, k]
3.	The ability to measure torque, power and other electrical parameters	[a, b, d, k]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Quizzes: (3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lab.

Reports: 10

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the lab.

Grading policy:

First Exam	"Quizzes (5%), reports (12%) and performances (3%)"	20%
Second Exam	"Quizzes (5%), reports (12%) and performances (3%)"	20%
Third Exam	"Quizzes (5%), reports (12%) and performances (3%)"	20%
Final Exam	"Practical 30% and Theoretical 10%"	40%
Total:		100%

Attendance Regulation:

The semester has in total 16 weeks. Total absence hours from classes must not exceed 15% of the total week. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the lab. If the excuse is approved by the deanship the student will be considered withdrawn from the lab.

January, 2018