



Philadelphia University

Faculty of Engineering - Department of Electrical Engineering

Course Details:

- Title:** Power system Lab (610417)
Prerequisite: Power system 1 (610411)
Credit Hours: 1 credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook: Laboratory notes and manual
References: Power System Analysis. John J.Grainger and William D. Stevenson,Jr.- McGraw-Hill1994

Course

- Description:** Introduce practical concept of Electrical Power systems. Transmission Line Performance and Characteristics, Reactive Power Compensation Using Parallel and series capacitor Bank, Various Method of Earthing, Symmetrical and Asymmetrical Faults ,Power System Protection.

Course Outlines:

Week	Topic
1	Introduction
2	Transmission Line Performance 1
3	Transmission Line Performance 2
4	Transmission Line Load Characteristics 1
5	Transmission Line Load Characteristics 2
6, 7	Various Method of Earthing
8, 9	Symmetrical and Asymmetrical Faults
10, 11	Reactive Power Compensation Using Parallel capacitor Bank
12, 13	Reactive Power Compensation Using series capacitor Bank
14, 15	Power System Protection, Over and under Voltage Relays
16	Revision

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Investigate the operating performance of a transmission line.	[a, b, d, k]
2.	Measure and interpreting the current and voltage ratio of T.L. during symmetrical and asymmetrical Faults	[a, b, d, k]
3.	Investigate the operating performance of a protective relays.	[a, b, d, k]
4.	Investigate the types of reactive power compensation	[a, b, d, k]
5.	Investigating the performance of a transmission line with different types of earthing systems	[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 lecturer.
- Reports:** 10 report.
- Final Exam:** The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

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 45 credit hours. Total absence hours from classes must not exceed 15% of the total credit hours. 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 course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

January, 2018