



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus
Study Plan 2017: Power and Control Track

Course Code	Course Name	Credits	Contact Hours
0401466	Industrial Electronics LAB	1	2 T

INSTRUCTOR/COORDINATOR

Name	Eng. Anwar Tarawneh
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Office Hours	12:00-13:00 (Sun, Tue, Thu)
Classroom Time	9-11 (Tue)

TEXTBOOK

Title	Laboratory Manual for Industrial Power Electronics
Author/Year/Edition	
Other Supplemental Materials	
Title	<i>Power Electronics: Converters, Applications, and Design</i>
Author/Year/Edition	N. Mohan, T. M. Undeland, and W. P. Robbins, 3rd ed. Hoboken, NJ: John Wiley & Sons, 2003/2007

SPECIFIC COURSE INFORMATION

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

Characteristics of power electronics devices; single phase and three phase uncontrolled and controlled rectifiers; DC-DC converters; inverters and frequency control; DC drive system (single and 4 quadrants); induction motor drive using V/f control; synchronous motor drive.

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

Electric Machines Lab (0401479) (P)
Industrial Electronics (0401465) (P)

C. Course Type (Required or Elective)

Required

SPECIFIC GOALS

A. Course Learning Outcomes (CLOs)

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

CLO1: Learn how to build different circuits and link the work of control circuits and power [6].

CLO2: Connecting the laboratory with the theoretical material and proving the results of mathematical equations [6].

CLO3: Work effectively in groups (teamwork) by sharing discuss and analyze the results [5].

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
Experiment 1: Introduction about our lab	1	2
Experiment2: DC test : SCR	2	4
Experiment3: Characteristics of SCR,Diod & Triac	2	4
Experiment4: Simple uncontrol rectification	1	2
Experiment5: Simple rectification by SCR	1	2
Experiment6: Full wave rectification by group of diod	1	2
Experiment7: Full wave rectification by group of SCR	1	2
Experiment8: Half control of rectifier	1	2
Experiment9: DC - DC converter (Chopper)	1	2
Experiment10: DC - AC converter (Inverter)	1	2
Experiment11: Control of DC motor by SCR	1	2
Experiment12: AC electronics contactor	1	2
Total	14	28

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	20
Lab Reports	One week after being taken	40
Final Exam	According to the university calendar	40

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.