



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401596	Antennas and Microwave Lab	1	2T

INSTRUCTOR/COORDINATOR

Name	Dr. Rula S. Alrawashdeh
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Office Hours	13:00-14:00 (Sun, Tues, Thur)

TEXTBOOK

Title	Lab Manual
Author/Year/Edition	-----
Other Supplemental Materials	
Title	Antennas from Theory to practice
Author/Year/Edition	Y. Huang and K. Boyle/2008/2 nd edition

SPECIFIC COURSE INFORMATION

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

Design and simulate RF and Microwave circuits and antennas. Students use CST Microwave Studio to simulate, verify, and optimize their design. Students learn how to measure radiation patterns.

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

Antennas and Waves Propagation (0401552) (P)
 Microwave Engineering (0401453) (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: Simulate and design different types of antennas [6].

CLO2: Analyze the performance of different types of antennas with the aid of the CST simulation tool [6].

CLO3: Measure the radiation pattern of some typical antennas [6].

CLO4: Work effectively in groups by sharing responsibilities and collaborating on findings [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
Exp 1: Introduction to CST simulation tool	1	2
Exp 2: Design of half-wave dipole antenna	1	2
Exp: 3: Design of monopole antenna	1	2
Exp 4: Design of a loop antenna	1	2
Exp 5: Design of a folded dipole antenna	1	2
Exp 6: Design of a helical antenna	1	2
Exp 7: Design of a horn antenna	1	2
Exp 8: Design of a rectangular patch antenna	1	2
Exp 9: Design of the Yagi-Uda antenna	1	2
Exp 10: Design of a slotted waveguide antenna	1	2
Exp 11: Design of an array	2	4
Exp 12: Link setup	2	4
Total	14	28

Assessment Tool	Due Date	Weight (%)
EVALUATION		
Mid Exam	According to the university examination schedule	20
Course Work (Reports and Quizzes)	One week after being assigned	40
Final Exam	According to the university final examination schedule	40

ABET's Students Learning Outcomes (Criterion # 3)

Relationship to program outcomes		
ABE T 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
3.		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