MUTAH UNIVERSITY
Faculty of Engineering
Department of Computer Engineering

Course Syllabus
Study Plan 2021: Communication Track, and Power and Control Track

Course Code	Course Name	Credits	Contact Hours
0405486	Microprocessors and Embedded Systems	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Mutaz A. B. Al-Tarawneh
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Office Hours	12-1 Sunday, Tuesday and Thursday

TEXTBOOK	
Title	The x86 PC: Assembly Language, Design and Interfacing
Author/Year/Edition	Muhammad A. Mazidi et. al., 2010, 5th
Other Supplemental Materials	
Title	
Author/Year/Edition	

SPECIFIC COURSE INFORMATION

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

This course introduces students to the design of a microcomputer system using 8086/8088 processor family. The covered topics include: Microprocessor and Microcomputer Basics, Introduction to the x86 processors, x86 instruction set architecture, x86 assembly language programming with emphasis on addressing modes, stack operations, conditional instructions and subroutines. The course also covers memory organization, memory mapping and interfacing.

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

Digital Systems Design (0405271) **(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:** Students should demonstrate an ability to identify the basic elements of a microprocessor system [1]. **CLO2**: Students should demonstrate an ability to recognize the internal architecture of the x86 processors [1]. **CLO3**: Students should demonstrate an ability to write assembly language programs using the x86 instruction set [2]. **CLO4**: Students should demonstrate an ability to design a simple microcomputer using the x86 processor with appropriate memory mapping and interfacing circuitry [2].

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**
Introduction to microprocessors and microcomputers	1	3
Introduction to the x86 processors	1	3
Basic instructions and addressing modes	2	6
X86 processor instruction set	2	6
X86 processor programming	2	6
Memory chips and organization	2	6
Memory Interfacing	2	6
I/O Interfacing	2	6
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	
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
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