Computer Engineering Department

COURSE TITLE: Microprocessor and Interfacing-Lab
INSTRUCTOR: Engr. Sharoon Saleem
COURSE CODE: CP-208
SEMESTER: 4th
ENTRY: 4th Semester
Credit Hours: 1(LAB)

Check List

a) Course Plan

– Course Code / Title		– Course Learning Outcomes	
– Course Aim and Objectives		– Mapping of CLO's to PLO's	
– Reference Books/Course Web Page/Tools Info		– Mapping of Assessments to CLO's (Quizzes, Assignments, Mid and Final Exam)	
– Course Contents		– Weekly Schedule	

b) Course Log File ☐

c) Attendance Record ☐

d) Assessment Records ☐

– Quizzes		– Mid Exam	
– Marked Samples of Quizzes		– Marked Samples of Mid Exam	
– Assignments		– Final Exam	
– Marked Samples of Assignments		– Marked Samples of Final Exam	

e) Course Result ☐

a) Course Plan

Subject: **Microprocessor and Interfacing (CP-208)**

Instructor: **Engr. Sharoon Saleem**

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Email: sharoon.saleem@uettaxila.edu.pk
Office Hours: Monday (11:00 AM → 12:00 PM) Wednesday (11:00 AM → 12:00 PM)
Faculty Office, First Floor, CPED

Teaching Assistant:

Course Description:

The purpose of the course is to develop the ability to use the simulation tools in order to program the microprocessor. The course covers in depth knowledge of hardware training kit which incorporates a microprocessor interfaced with different peripherals.

Course Aims and Objectives:

1. To become familiar with the simulation tools for the Implementation of Assembly/ C language programs
2. To provide practical hands-on experience on the Hardware Trainer Kit incorporating Intel Microprocessor

Reference Text Books:

1-Mazidi, "Programming, Interfacing and Design using 8086", or Latest Edition.

Course Web Page:

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Course Contents:

Complete Assembly language programming on Microprocessor trainers as well as on PCs. Complete design and hardware implementation of microprocessor-based systems and connecting to peripherals.

Course Learning Outcomes (CLO's):

Upon successful completion of the course the student will be able to:

S. No.	Course Learning Outcome (CLO's)	Bloom's Learning Level
1.	Practice the assembly and C language programs on simulator/ hardware training kit	P3
2.	Select hardware/ software configurations for configuring 8086/other hardware modules based on specifications and requirements	P3
3.	Practice the Interfacing of different components to microprocessor on hardware development kit using techniques e.g. UART, I/O port programming, interrupt processing	P3

Mapping of CLO's to PLO's with %:

Course	CLOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12	Learning Levels
CP-208 Microprocessor and Interfacing-Lab	CLO 1					100%								
	CLO 2		100%											
	CLO 3			100%										

Mapping of Quizzes to CLO's:

Quiz No.	CLO:1	CLO:2
01	50%	
02	50%	
03		50%
04		50%

Mapping of Assignments to CLO's:

Assignment No.	CLO:1	CLO:2
01	50%	
02	50%	
03		50%
04		50%

Mapping of Mid Exam to CLO's:

Question No.	CLO:1	CLO:2
01	**50%**	
02	50%	
03		
04		

Mapping of Final Exam to CLO's:

Question No.	CLO:1	CLO:2
01	100%	
02		50%
03		50%
04		

Weekly Schedule:

This course will have sixteen Lectures of 120 minute each.

Week	Topic Covered	CLO No.	Assessment (if Any)	Learning Domain (Cognitive, Affective, Psychomotor)	Level of learning (1-6)
1	Introduction to 8086 Architecture and Register Set, Use of Emulator and executing Assembly Language programs	1		psychomotor	**1**
2	Implementation of 8086 based Data Movement and Arithmetic Instructions such as ADD, SUB, MOV using EMU8086	1		psychomotor	**3**
3	Implementation of Multiplication, Division, CMP, LEA instructions on EMU8086	1	Assignment No.1	psychomotor	**3**
4	Implementation based on Flag Registers, Assembly Language Programs to see effects on the Flags Registers using EMU8086	1	Quiz No.1	psychomotor	**3**

5	Implementation of basic Addressing modes using different assembly language programs using EMU8086	1		psychomotor	**4**
6	Implementation of Loops, Labels and Conditional Instructions using EMU8086	1		psychomotor	**4**
7	Implementation of Logical Instructions	1	Assignment No.2	psychomotor	**4**
8	Implementation of Assembly Language programs using Procedures and CALL using EMU8086	1	Quiz No. 2	psychomotor	**5**
9	Implementation of Assembly Language programs using MACROS on EMU8086	1		psychomotor	**5**
10	Implementation of Stack Manipulation Instructions using EMU8086	1		psychomotor	**5**
11	Implementation of Interrupts using EMU8086	1	Assignment No.3	psychomotor	**5**
12	Introduction to Hardware Training Kit and study of its Hardware Manual/ Use of Software application to program the microprocessor	1,2	Quiz No.3	psychomotor	**1,2**
13	Programming & Interfacing of LCD Display with 8086 Microprocessor on Hardware Training Kit	1,2		psychomotor	**1**
14		1,2		psychomotor	**3**

	Programming & Interfacing of Seven Segment with 8086 Microprocessor on Hardware Training Kit, Implementation				
15	Programming & Interfacing Dot Matrix Display provided on Hardware Training Kit with 8086	1,2	Assignment No.4	psychomotor	**5**
16	Programming & Interfacing other interfaces of the Hardware Training Kit	**1,2**	Quiz No. 4	psychomotor	**5**

b) Course Log File

Lecture /Section / Date	Topic Covered	Quiz / Assignment / other Assessment
1		
2		
3		
4		
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16		
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c) Attendance Record

d) Assessment Records

(Every Quiz/Assignment Questions and solutions (Assessment Criteria) / samples need to be attached)

e) Course Result

(Mid exam Question paper, solutions, final exam question paper, solution and samples of mid and final need to be attached. Sessional and final result sheet will also be required)