وزارة التعليم العالي والبحث العلمي
جـهاز الإشـراف والتقـويم العلـمي
دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الأكاديمي للكليات والمعاهد

للعام الدراسي

الجامعة : شط العرب
الكلية /المعهد : التقنية الهندسية
القسم العلمي : هندسة تقنيات الاجهزة الطبية
تاريخ ملء الملف : ٢٠٢٦ / ٧ / ٢

التوقيع :
اسم رئيس القسم : أ.م.د. علي حميد ناصر
التاريخ : ٢٠٢٦/٧/٥

التوقيع :
اسم المعاون العلمي م.عصام خليل ابراهيم
معاون العميد للشؤون العلمية
التاريخ : ٢٠٢٦/٧/٥

دقق الملف من قبل
شعبة ضمان الجودة والأداء الجامعي
اسم مدير شعبة ضمان الجودة والأداء الجامعي:
التاريخ / /
التوقيع

مصادقة السيد العميد

أ.م.د. مازن عبدالاله علوان
عميد الكلية التقنية الهندسية
٢٠٢٦/٧/٥

جامعة شط العرب
قسم ضمان الجودة
وتقييم الاداء

Course Description Sample
Course Description of Microprocessor

This course aims to introduce the student to the basic concepts of microprocessors with a focus on the 8085 processor, its characteristics, architecture, and instruction set. The course covers programming methods for performing arithmetic and logical operations, data transfer, and multitasking control. It also includes training on drawing timing diagrams for instructions and recognizing the types of memory associated with the processor. The course emphasizes practical application through designing and implementing simple programs and circuits using the microprocessor. Thus, the student gains a combination of theoretical knowledge and practical skills suited for modern engineering and electronic applications.

1. Educational Institution	Shatt Al-Arab University College
2. Scientific Department / Center	Medical Instrumentations Techniques Engineering
3. Course Name / Code	Microprocessor / MIET3102
4. Course Lecturer	Asst. Lecturer Aliaa Hussein Abbas
5. Attendance Format	Weekly / 2 hours theoretical
6. Semester / Year	First Semester / 2025–2026
7. Total Study Hours	180
8. Date of Preparing This Description	6 -12 -2025

9. Course Objectives

- Enable the student to grasp basic concepts and understand the 8085 microprocessor.
- Develop student skills for engaging colleagues and stakeholders in managing information, knowledge systems, and communication.
- Ability to design and implement applications based on the 8085 microprocessor.
- Identify principles, methods, tools, and techniques used in protecting information, knowledge, and communication, and determine appropriate security levels and methods.
- Acquire the skill of evaluating current information and knowledge systems and analyzing their capability to meet future needs.

- Recognize information, knowledge, and communication technologies, understand their features and advantages, and employ them in academic and professional requirements.
- Become familiar with the sources and suppliers of information, knowledge, and the 8085 microprocessor, and evaluate their potentials and capabilities.

10.Course Learning Outcomes, Teaching, Learning, and Assessment Methods

A. Cognitive Objectives:

- Understand the difference between a Microprocessor and a Microcontroller.
- Recognize the applications of microprocessors in medical devices.
- Identify the characteristics of the 8085 microprocessor.
- Understand the architecture of the 8085 microprocessor.
- Distinguish between the pins of the 8085 microprocessor.
- Identify the opcodes of instructions.
- Apply practically how to transfer data between memory and the processor through programming.
- Build a program that performs arithmetic operations.
- Build a program that performs logical operations.
- Program using branching instructions to execute multiple tasks.
- Master the calculation of time delay for any written program.
- Draw the timing diagram for any instruction.
- Recognize the types of memory.

B. Skills-Based Objectives

- Enable the student to operate the 8085 microprocessor and use its programs and instructions accurately and efficiently.
- Provide the student with skills in using measurement and testing devices to diagnose faults in microprocessor and memory applications.
- Train the student practically on programming the microprocessor to perform arithmetic, logical, and multi-task control operations.
- Develop the student's ability to read and understand architectural diagrams, timing diagrams, and track programming and functional errors.
- Enhance the ability to design and implement simple practical applications based on the microprocessor, maintain them, and evaluate their performance.

Teaching and Learning Methods

- Lectures covering the basic concepts of microprocessor architecture and instruction sets.

- Group discussions among students about the applications of microprocessors in medical fields.
- Workshops and theoretical/practical demonstrations on how to use the 8085 microprocessor in preparing and implementing control programs for simple and complex electronic circuits.
- Use of various tools (visual media, software simulators) to enhance understanding and practical illustration.
- Discussions and assignments to reinforce understanding through applied examples in programming instructions, data transfer, and arithmetic/logical operations using the microprocessor.

C. Affective Objectives

- Enhance critical thinking and instill ethical responsibility in learning, and develop the student's ability to find practical solutions to technical problems related to microprocessor applications.
- Develop student strategies for understanding and analyzing microprocessor architecture and related systems, and transforming theoretical knowledge into executable practical applications.
- Promote self-respect and respect for others through meaningful discussions and teamwork in laboratories, contributing to improved practical skills and familiarity with modern software and equipment.
- Cultivate modern techniques and skills in the field of microprocessors and encourage students to use available tools and technologies to design and implement innovative applications that support practical knowledge development.

Assessment Methods

- Midterm examinations
- Quizzes
- Additional out-of-class assessments

D. General and Transferable Skills (Employability & Personal Development Skills)

D1 – Communication skills and conveying information clearly.

D2 – Analysis and investigation to produce complex diagrams using available tools.

D3 – Using modern technology to understand and attempt to design microprocessors.

D4 – Importance of teamwork to achieve required tasks, as goals cannot be achieved without an integrated team.

11.Course Structure					
Assessment	Teaching Method	Unit/Topic	Learning Outcome	Hours	Week
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Introduction to microprocessor and microcomputer	The student becomes familiar with basic concepts of microprocessors and microcomputers and can distinguish between core components such as the CPU, memory, and I/O units, understanding the role of the microprocessor in practical applications.	4	1
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	MP architecture	Student understands the internal architecture of the microprocessor regarding the control unit, ALU, and registers; interprets data flow; and analyzes the relation between internal architecture and performance.	4	2
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	MP IC pins	Student identifies the pins of the microprocessor and understands their functions, including related input and output signals, and links them to practical circuit diagrams.	4	3
class assignment + discussion	Explaining basic concepts, solving examples,	bus signal	Student learns the concept of buses such as address, data, and control buses, distinguishes between signals and their functions,	4	4

	using board and display screen, showing videos/images when available		and analyzes timing and control signals for data transfer.		
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Introduction to Instruction set MP and addressing mode	Student is introduced to the instruction set and addressing modes (direct, indirect, immediate, register), and is able to select the appropriate one through practical examples.	4	5
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Data transfer instructions	Student learns how to use data transfer instructions between registers and memory and applies this by writing simple programs.	4	6
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Mid-term Exam + Arithmetic instructions	Student becomes capable of using arithmetic instructions to perform addition, subtraction, multiplication, and division; writing simple computational programs; and analyzing the effect on flags.		7
class assignment	Explaining basic concepts,	Logical instructions	Student learns logical instructions such as AND, OR, XOR, and NOT,	4	8

+ discussion	solving examples, using board and display screen, showing videos/images when available		applies logical operations to data, and connects this with program control.		
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Branching instructions	Student understands how to use conditional and unconditional jump instructions to build loops and branching programs and recognizes the role of flags.	4	9
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Review instructions and Tutorial	Comprehensive review of previous topics, including solving problems and practical applications to integrate concepts in complete programs.	4	10
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Op-code and machine cycle	Student understands opcode concepts, machine cycles during instruction execution, and traces execution steps at the component level.	4	11

class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Timing diagram of instructions	Study of instruction timing diagrams, understanding synchronization between bus signals and instruction execution, and analyzing execution time.	4	12
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Time delay of code	Student learns how to write time-delay programs using loops, calculates execution time based on frequency, and designs precise delays for practical applications.	4	13
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Types and architecture for memory	Student recognizes types of memory such as RAM, ROM, and EPROM, understands memory architecture and interfacing, and analyzes memory addressing methods.	4	14
class assignment + discussion	Explaining basic concepts, solving examples, using board and display screen, showing videos/imag				15

	es when available				
	Explaining basic concepts, solving examples, using board and display screen, showing videos/images when available	Preparatory week before the final exam	Dedicated to comprehensive review, solving additional exercises, and preparing the student for the final exam.		16

12.Academic Infrastructure	
Microprocessor Architecture, Programming and Applications with the 8085 (6th Edition)	1- Required Textbooks
https://www.mediafire.com/file/xnu0xhfknbp9bml/sim8085_win_7.rar/file	2- Internet Resources

13. Course Development Plan

- Update the content by adding modern applications and introducing processors such as 8086 and ARM.
- Enhance the practical component using simulators, laboratory sessions, and real programming tasks.
- Include small group projects to strengthen applied skills.
- Link the course to medical device applications and invite specialists or arrange short field visits.