Course Description Form

1. Course Name:
Microprocessor
2. Course Code:
WBM-51-06
3. Semester / Year:
Semester
4. Description Preparation Date:
28/10/2026
5. Available Attendance Forms:
Presence in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
30h Theory – 45h Lab / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Ali Abdulhussein Mohammed Email: ali.masaoodi@uowa.edu.iq
8. Course Objectives
Understanding Microprocessor Architecture: Students should acquire a comprehensive knowledge of the 8086 microprocessor architecture, including the bus interface, memory organization, and instruction set. **Programming Skills:** Develop students' proficiency in assembly language programming, with a focus on writing and executing programs specific to the 8086 microprocessor. **Interfacing Techniques:** Enable students to understand how to connect the 8086 microprocessor to other components and electronic devices, and acquire the skills necessary to design and implement interface circuits. **Problem Solving:** Equip students with the ability to analyze theoretical and practical problems related to the 8086 microprocessor, and to develop appropriate solutions using design and programming skills. **Application in Biomedical Engineering:** Understand the applications of microprocessors in the design and implementation of medical devices and systems, and employ them to meet diagnostic and therapeutic needs.

9. Teaching and Learning Strategies

1. Teaching Methods

- **Lectures and Demonstrations:**
  Use lectures to cover theoretical aspects, and live demonstrations to highlight practical applications.
- **Interactive Sessions:**
  Engage students in interactive sessions that allow them to explore microprocessor components and functions through virtual simulations.

2. Educational Activities

- **Hands-on Laboratory Work:**
  Organize lab sessions where students work in groups to build and test simple devices using microprocessors and electronics.
- **Applied Projects:**
  Implement mini-projects that require designing a part of a dev using the 8086 microprocessor, focusing on developing studen practical and innovative skills.
- **Simulation Programs:**
  Use tools and simulation software for microprocessor function and circuit design, enhancing understanding without relying solely on physical components.

3. Continuous Improvement

- **Review Results Analysis:**
  Collect student feedback systematically to improve course content and delivery, aligning with technological advancement and changing learning needs.
- **Content Updates:**
  Rely on insights from student evaluations and teaching strategi to continuously update concepts and course material.
- **Integration with Modern Developments:**
  Regularly review curricula to stay aligned with advancements i microprocessor technologies and their applications in biomedical devices.

10. Course Structure

Week	Hours	Unit or subject name and required learning outcomes	Learning method	Evaluation method
3-1	2 h theory / 3 h lab	Introduction to microprocessor, microcomputer.	Lectures and experiments.	Daily exams + classwork

5-4	2 h theory / 3 h lab	Microprocessor organization	Lectures and experiments.	Daily exams + classwork
6-8	2 h theory / 3 h lab	Computer language and assembly language	Lectures and experiments.	Daily exams + classwork
11-9	2 h theory / 3 h lab	Stacks and subroutines, microprocessors set and computer languages,	Lectures and experiments.	Daily exams + classwork
13-12	2 h theory / 3 h lab	Logic devices for interfacing, memory mapped I/O, the 8085 (8086) and its input/output mapping	Lectures and experiments.	Daily exams + classwork
15-13	2 h theory / 3 h lab	Interrupt routines, peripheral devices, PPI, practical interface.	Lectures and experiments.	Daily exams + classwork

11. Course Evaluation

1. **Daily quizzes** with practical and theoretical questions.
2. **Participation grades** awarded for answering challenging competitive questions among students.
3. **Periodic exams** covering the course material, in addition to a **midterm exam** and a **final exam**.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Barry B. Brey, "The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, and Pentium Pro Processor Architecture, Programming, and Interfacing", 6th Edition, Prentice-Hall Inc., 2003.
Main references (sources)	Walter A. Triebe, "The 8086 Microprocessor: Architecture, Software, and Interfacing Techniques", Prentice-Hall Inc., 1998.
Recommended books and references (scientific journals, reports…)	Browsing scientific websites to stay updated on the latest developments in the subject. www.sciencedirect.com