

## TEMPLATE FOR COURSE SPECIFICATION

### HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

#### COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	Baghdad University- Al-Khwarizmi College of Engineering
2. University Department/Centre	Biomedical Engineering
3. Course title/code	Microprocessor and Microcontroller / <b>BME423</b>
4. Programme(s) to which it contributes	BSc in Biomedical Engineering
5. Modes of Attendance offered	Full time attendance
6. Semester/Year	1 semester per year
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	
9. Aims of the Course	
By the end of this course, the students will be able to:	
1- Know the concept of the Microprocessor and the architecture of the simple type of Microprocessors (8086/8088).	
2- Know how the Microprocessors communicate with the memory and Input/output ports.	
3- Learn some simple programs in assembly language.	

4- Know the applications of the Microcontroller such as Arduino.

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

### A- Knowledge and Understanding

- A1.
- A2.
- A3.

### B. Subject-specific skills

- B1.
- B2.
- B4.

### Teaching and Learning Methods

- Lectures where the students write information presented to them via slide show, overhead or written by the lecturer;
- Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture;
- Question and answer sessions during lectures or staff Office Hours;

### Assessment methods

- Written examinations (Summative assessment);
- Oral presentations of individual and group work;
- Homework;
- Practical skills will be assessed through laboratory experiments, write-ups, coursework reports, project reports and presentations;
- Presentation skills through group presentations and poster presentations to improve their soft skills such as problem solving, team work, time management and presentation skills.

### C. Thinking Skills

- C1.
- C2.
- C3.
- C4.

### Teaching and Learning Methods

- External lectures from industry or clinicians;
- Feedback given to students during tutorials;

- Question and answer sessions during lectures or staff Office Hours;
- Completion of web-based exercises or computer based laboratory sessions;

#### Assessment methods

- Individual written project report(s) of both individual and group projects;
- Practical skills will be assessed through coursework reports, project reports and presentations;
  - Presentation skills through group presentations and poster presentations.

#### D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1.
- D3.
- D4.

#### Teaching and Learning Methods

- Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture;
- Lecture material placed on web-pages or other e-learning environment;
- External lectures from industry or clinicians;
- Question and answer sessions during lectures or staff Office Hours;

#### Assessment Methods

- Practical skills will be assessed through coursework reports, project reports and presentations;
- Presentation skills through group presentations and poster presentations.

## 11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
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Week	Date	Topes Covered	Lab. Experiment Assignments	Notes
1		introduction to Mocroprocessor 8086/8088		
2		Bus interfaces and registers.		
3		Addressing Mode I		
4		Addressing Mode II		Quiz 1
5		Operation Code (for data movement)		
6		The concept of the arithmetic and logic instructions with Simple programs		
7		8086/8088 hardwar specifications		Quiz 2
8		Seminar activity and group presentations		
9		8086/8088 Timming digram		
10		Memory interface – types of memory		
11		Input/Output ports		Quiz 3
12		Interfacing and Microcontroller		
13		Seminar		Seminar
14		The Architecture of the microcontroller (Arduino)		
15		Exam end term		

13. Admissions	
Pre-requisites	<b>Microprocessor and Microcontroller</b>
Minimum number of students	<b>10</b>
Maximum number of students	<b>40</b>

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	The 8088 and 8086 Microprocessors: Programming, Interfacing, Software, Hardware, and Applications. Walter A. Triebel, Avtar Singh. Prentice Hall PTR, 2002 - Technology & Engineering
Community-based facilities (include for example, guest Lectures , internship , field studies)	