Course Specifications

University: Benha University  Faculty: Benha Faculty of Engineering

Course specifications
Program(s) on which the course is given: Control and Measurements Dep.
Major or minor element of programs: Major
Department offering the program: Electrical Engineering technology Dep.
Department offering the course: Electrical Engineering technology Dep.
Academic year / Level: Forth year
Date of specification approval: 2009

A- Basic Information
Title: Microprocessors Based Systems  Code: E421
Credit Hours: N.A.  Lecture: 3
Tutorial: 2  Practical: 1  Total: 6

B- Professional Information

1 - Overall aims of course
This is an introductory course in Microprocessors Based Systems. It provides a review of number systems and computer codes, data and arithmetic, Microcomputer Fundamentals (architecture, CPU, Memory, I/O) and operation, Architecture of Microprocessor; Accumulator, Condition Code Registers CCR, PC, Stack and Stack Pointer SP, Register file, arithmetic and Logic Unit ALU. Microprocessor interfaces; with ROM; with RAM, I/O interfacing basics, Synchronous I/O data transfers using interrupts. Selected Architectures of 8-bit microprocessors (8085, M6800, 6502), Instruction set, programming examples, support chips.

2- Intended learning outcomes of course (ILOs)
a- Knowledge and understanding:
On successful completion of the module the student should:

- The student will list the number systems and computer codes.
- The student will describe the Microcomputer Fundamentals (architecture, CPU, Memory, I/O) and operation.
- The student will describe the Microprocessor Interfacing with ROM, RAM and I/O interfacing basics.
• The student will explain the operation and interface of a selected architectures of 8-bit microprocessors (8085, M6800, 6502).

b- Intellectual skills
By the end of this course, the student should be able to:
• Link the number systems and computer codes.
• Analyze the Microprocessor Interfacing with ROM, RAM and I/O interfacing basics.
• Analyze the operation and interface of a selected architectures of 8-bit microprocessors (8085, M6800, 6502).

c- Professional and practical skills
By the end of this course, the student should be able to:
• Perform different measurements on basic instruments.
• Perform simple Lab experiments.
• Collect information from collected data in the lab.

d- General and transferable skills
By the end of this course, the student should be able to:
• Work cooperatively and effectively in a group
• Present information independently

3- Contents

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Selected Architectures of 8-bit microprocessors (8085, M6800, 6502) & 12 & 6 & 4/2

Instruction set and programming examples & 12 & 6 & 4/2

Total & 84 & 42 & 28/14

4– Teaching and learning methods
   4.1- Lectures
   4.2- Tutorials
   4.3- Practice in Laboratories
   4.4- Internet collected information and Self-study projects

5- Student assessment methods
   5-1 Written exams (Final and Midterm), assignments and quizzes to assess knowledge and understanding, solving problems skills and interpretation capabilities of physical phenomena.
   5-2 Oral exams to assess the abilities of discussing physical concepts
   5-3 Practical exam to assess measuring and professional skills

Assessment schedule
   Quiz 1  ......................Week No. 4
   Midterm  ........................Week No. 8
   Quiz 2  ........................Week No. 12
   Oral and Practical exam .........Week No. 14
   Final written exam ..............Week No. 15

Weighting of assessments
   Final-term examination  60%
   Semester work  40%
   Total  100%

6- List of references
   - Recommended books

7- Facilities required for teaching and learning
Lecture rooms – Tutorial section rooms – Experimental Labs - computers – Virtual simulation programs

Course coordinator:
Head of Department: Assoc. Prof. Ghada Amer
Date: