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: E422
Credit Hours: N.A. Lecture: 3
Tutorial: 1 Practical: 1 Total: 5

B- Professional Information

1 - Overall aims of course
It provides a grounding in the typical 16 and 32-bit microprocessors (Intel 8086/8088, 80386/486, Z8000, M68000), Architecture, Instruction Set, Programming and Interfacing to Memory and I/O, Interface Support Chips (8255 and 8254), Basic I/O Interface (isolated and memory, mapped), The 8087 Family of Arithmetic Coprocessors. Development System Architecture; master/slave and single, processor system, Debugging with Emulation, Debugging in Real Time, Examples of some popular development systems, HP64000, Intel MDS 120, 286, Tektronic 8001,8500.

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

- Illustrate the principles of operation of the typical 16 and 32-bit microprocessors (Intel 8086/8088, 80386/486, Z8000, M68000).
- Be able to describe the interface support chips (8255 and 8254).
- Be able to explain the 8087 family of arithmetic coprocessors operation.
b- Intellectual skills
By the end of this course, the student should be able to:

- Compare between 16 and 32-bit microprocessors (Intel 8086/8088, 80386/486, Z8000, M68000).
- Analyze the interface support chips (8255 and 8254).


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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<td>Typical 16 and 32-bit microprocessors (Intel 8086/8088, 80386/486, Z8000, M68000)</td>
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<tr>
<td>Architecture, Instruction Set, Programming and Interfacing to Memory and I/O</td>
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<td>The 8087 Family of Arithmetic Coprocessors</td>
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<td>Development System Architecture</td>
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Examples of some popular development systems, HP64000, Intel MDS 120, 286, Tektronic 8001,8500

| Total | 70 | 42 | 14/14 |

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