Course Specifications

University: Benha University
Faculty: Benha Faculty of engineering

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

A- Basic Information
Title: signal processing
Code: E051
Credit Hours: N.A.
Lecture: 3
Tutorial: 1
Practical: 2
Total: 6

B- Professional Information
1 - Overall aims of course
Upon successful completion of this course, signal processing introduces the mathematical techniques used and applied in modern signal processing systems; and acknowledge of analog and digital circuits, amplifiers, Volt-ampere characteristics for networks, Frequency response and feedback, Waveform generation.

2- Intended learning outcomes of course (ILOs)
a. Knowledge and understanding:
Provide an understanding to the overall objective of signal processing:

- understanding of signal processing
- illustrate signal processing
- Define Computer aided design and analysis techniques appropriate to signal processing
- Mention measurement equipments.
- List analog and digital circuits.
- Describe amplifiers.
• Define Volt-ampere characteristics for networks.
• Explain Frequency response and feed back
• Draw Waveform generation

b. Intellectual skill

• Apply General applications and purposes for the design, analysis, setting, and generating systems.
• Conclude Types of signal processing system.
• Conclude Available tools that the designer may use for process analysis.

c- Professional and practical skills
By the end of this course, the student should be able to:

C.1 Collect knowledge of principles of signal processing;
C.2 Design basic analogy circuit;
C.3 Design basic digital circuit;
C.4 Perform amplifier using BJT, JFET, MOSFET;
C.5 Diagnose Volt-ampere characteristics for linear networks;
C.6 Diagnose Volt-ampere characteristics for non-linear networks;
C.7 Diagnose Basic of power supplies;
C.8 Diagnose Diode logic; Transistor logic; MOSFET logic; Flip-flops

d- General and transferable skills
By the end of this course, the student should be able to:

D.1 Work cooperatively and effectively in a group
D.2 Present information independently

3- Contents

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<tr>
<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/Practical</th>
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<td>Analog and digital circuits</td>
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<td>Amplifiers</td>
<td>6</td>
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<tr>
<td>Volt-ampere characteristics for networks</td>
<td>12</td>
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<tr>
<td>Frequency response and feed back</td>
<td>6</td>
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</table>
Waveform generation           6           3           -/3
Power supplies               6           3           -/3
Diode logic                 6           3           -/3
Transistor logic            6           3           1/2
Binary counters             6           3           -/3
Multiplexers and encoders   6           3           1/2
Demultiplexers and decoders 6           3           1/2
Arithmetic circuit, memories and timing circuit 12           6           2/4

Total                        84          42          42

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
Midterm                        Week No. 6
Oral and Practical exam.......Week No. 8
Final written exam...............Week No. 15

Weighting of assessments
Mid-term examination          20%
Oral and Practical exam       20%
Final-term examination        60%
Total                          100%
6- List of references

6.1- Lecture notes

6.2- Internet facility

6.3- Recommended books

1- HAND BOOK OF DIGITAL SIGNAL PROCESSING
   BY “DOUGLAS F. ELLIOTT”
2- ADVANCED TOPICS IN SIGNAL PROCESSING
   BY “J.S LIM AND A.V OPPENHEIM”

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: