Course Specifications

University: Benha University
Faculty: Benha Faculty of Engineering

Course specifications
Program(s) on which the course is given: Electrical Engineering technology 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: 4th year – 2nd term
Date of specification approval: 2009

A- Basic Information
Title: Power Electronics
Code: E 264
Credit Hours: N.A.
Lecture: 3
Tutorial: 4
Practical: 2
Total: 7

B- Professional Information

1 - Overall aims of course
Upon successful completion of this course, Students will become familiar with A.C. Voltage Controllers - Space vector analysis - Types of Inverters - Variable voltage and frequency A.C. systems firing control circuits and protection for inverters.

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

- Understand what is meant by A.C. Voltage Controllers.
- Be able to understand the Space vector analysis.
- Know what is types of Inverters.
- Recognize and understand the voltage and frequency A.C. systems Firing control circuits and protection for inverters.

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

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

3- Contents

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<thead>
<tr>
<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/Practical</th>
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<td>A.C. Voltage Controllers</td>
<td>12</td>
<td>9</td>
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<td>Space vector analysis</td>
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<tr>
<td>Types of Inverters</td>
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<tr>
<td>Variable voltage and frequency A.C. systems firing control circuits and protection for inverters</td>
<td>26</td>
<td>15</td>
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<tr>
<td>Total</td>
<td>84</td>
<td>42</td>
<td>14/28</td>
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</tbody>
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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  20%
Oral Examination  20%
Total  100%

6- List of references
- Essential books

7- Facilities required for teaching and learning

Lecture rooms – Tutorial section rooms – Experimental Labs - computers – Virtual simulation programs

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