Course Specifications

University: Benha University  
Faculty: Benha Faculty of engineering

Course specifications
Programme(s) on which the course is given: Electrical Engineering technology Dep.
Major or minor element of programmes: Major
Department offering the programme: Mechanical Engineering technology Dep.
Department offering the course: Electrical Engineering technology Dep.
Academic year / Level: third year
Date of specification approval: 2008

A- Basic Information

Title: Electrical Machines technology  
Code: E060
Credit Hours: N.A.  
Lecture: 3
Tutorial: 1  
Practical: 1  
Total: 5

B- Professional Information

1 - Overall aims of course
By the end of this course the, the student will gain the following;

Understand the Magnetic circuits, Transformers, Dc machines, Induction machines and Synchronous machines.

2- Intended learning outcomes of course (ILOs)
a. Knowledge and understanding:

- Define Principles of operation.
- Describe of Construction.
- Draw of Equivalent circuits.
- Explain of Test.
- Draw of Phasor diagram.
- Define of Losses and efficiency.
- Explain of Name plat data
- Explain of Effect of power factor.
- Describe of Characteristics machine with load.
- Explain Effect of machines in power factor.
- Illustrate of transformers with respected load.
b. Intellectual skill

- Analyze transformers with respect to load
- Compare between motor types (dc-induction-synchronous) with respected to load.

c- Professional and practical skills

c.1 Perform Name-Plate Data of machines

c.2 Maintenance of Transformers;

c.3 Maintenance of machines (dc-induction-synchronous);

c.4 Diagnose starting OF DC motor and induction machines;

c.5 Preserve parallel operation of alternators;

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 Find information independently

3- Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>of principles of Magnetic circuits</td>
<td>12</td>
<td>3</td>
<td>-/4</td>
</tr>
<tr>
<td>transformer</td>
<td>16</td>
<td>4</td>
<td>4/4</td>
</tr>
<tr>
<td>dc machines</td>
<td>20</td>
<td>5</td>
<td>4/4</td>
</tr>
<tr>
<td>induction machines</td>
<td>20</td>
<td>5</td>
<td>4/4</td>
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<tr>
<td>synchronous machines</td>
<td>24</td>
<td>6</td>
<td>3/4</td>
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</table>

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

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Mid-term examination</td>
<td>12%</td>
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<tr>
<td>Final-term examination</td>
<td>60%</td>
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<tr>
<td>Oral and Practical examination</td>
<td>20%</td>
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<td>Semester work</td>
<td>8%</td>
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<tr>
<td>Total</td>
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6- List of references

6.1- Lecture notes

6.3- 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: 19/6/2009