Course Specifications

University: Benha University  Faculty: Benha Faculty of engineering

Course specifications
Programme(s) on which the course is given: Electrical Engineering Technology.
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: 2009

A- Basic Information

Title: Electrical Power Technology  Code: E050
Credit Hours: N.A.  Lecture: 3
Tutorial: 1  Practical: 1  Total: 5

B- Professional Information

1 - Overall aims of course
Upon successful completion of this course, the students should be able to understands generation transmission and distribution of electrical energy, The unified electrical power station, Elements of electrical power generation, Electrical power station, Economical operation of generating system and Basic of operation short, medium and transmission lines.

2- Intended learning outcomes of course (ILOs)

a. Knowledge and understanding:

- Provide an understanding to the overall objective of electrical power technology.
- Define principles of generation of electric energy.
- List electrical power distribution and utilization.
- Describe principles of HVDC transmission of electrical power.
- Mention general applications, power station area, and purposes for the design, calibration, setting, and testing of operating devices.
- List types of power station.
• Explain operation of (short-medium-long transmission lines).

b. Intellectual skill

• Conclude general applications and purposes for power station.
• Compare types of transmission lines.
• Evaluate elements of electric energy generation;

C- Professional and practical skills

• Design electrical power station ;
• Preserve principles of HVDC transmission of electrical power ;

d- 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

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5</td>
<td>3</td>
<td>1/1</td>
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<tr>
<td>An overview on generation transmission and distribution of electrical energy</td>
<td>15</td>
<td>9</td>
<td>2/4</td>
</tr>
<tr>
<td>The unified electrical power station</td>
<td>5</td>
<td>3</td>
<td>1/1</td>
</tr>
<tr>
<td>Elements of electrical power generation</td>
<td>5</td>
<td>3</td>
<td>1/1</td>
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<tr>
<td>Electrical power station</td>
<td>10</td>
<td>6</td>
<td>1/3</td>
</tr>
<tr>
<td>Economical operation of generating system</td>
<td>5</td>
<td>3</td>
<td>1/1</td>
</tr>
<tr>
<td>Basics of electrical power distribution and utilization</td>
<td>10</td>
<td>6</td>
<td>2/2</td>
</tr>
<tr>
<td>Step up and step down transformer</td>
<td>5</td>
<td>3</td>
<td>1/1</td>
</tr>
<tr>
<td>Basic operation short, medium and transmission lines</td>
<td>10</td>
<td>6</td>
<td>3/1</td>
</tr>
<tr>
<td>total</td>
<td>70</td>
<td>42</td>
<td>28</td>
</tr>
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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
   Midterm ......................... Week No. 8
   Final written exam ..............Week No. 15

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

6- List of references
   6.1- Lecture notes
   6.3- Recommended books
   1-ELECTRIC MACHINES (theory, operation, application, adjustment, and control) BY "CHARLES I. HUBERT"
   2-ELECTICAL POWER SYSTEM TECHNOLOGY, 3th EDITTION BY "DOLE R. PATRICK"
   3- ELECTRICAL POWER TECHNOLOGY BY "DAVID W.TYLER"

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: