<table>
<thead>
<tr>
<th><strong>Subject Code</strong></th>
<th>EE1D01</th>
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</thead>
<tbody>
<tr>
<td><strong>Subject Title</strong></td>
<td>Electrical Science for Everyone</td>
</tr>
<tr>
<td><strong>Credit Value</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Pre-requisite/ Co-requisite/ Exclusion</strong></td>
<td>Nil</td>
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**Objectives**

As electrical technology becomes increasingly embedded in everyday life, it is necessary to know more about it in order to live more happily, practice energy-efficiency and safely in everyday life. This subject is to provide a well-grounded understanding of selected fundamental concepts in electricity and helps non-science students to understand the electrical science and apply scientific principles to the world around them. It provides an overview of key electrical technologies that are useful in everyday life and introduce to students how various electrical and electronic devices work. The science knowledge involved in the operation of these devices, as well as, the science related to safety is also presented.

**Intended Learning Outcomes**

Upon completion of the subject, students will be able to:

a. understand basic operation principles of some electrical devices;

b. know ways to avoid electrical accidents at home and in workplace;

c. use electricity in a more energy efficient way;

d. recognize the need for life-long learning.

**Subject Synopsis/Indicative Syllabus**

1. **Basic electricity**
   Forms of electricity, batteries and generators, science in the electrical conversion processes, use of electricity, electricity tariffs.

2. **Electrical and electronic appliances**
   A number of electrical and electronic appliances and consumer products and their working principles and related science will be discussed, using easy-to-understand approach. These include large appliances found in the household; consumer and entertainment products; equipment found in the office; and other electronic devices used in everyday life. Devices discussed in this course include a selection of some of the followings:
   - Lifts and escalators
   - Lighting: fluorescent tubes and LED
   - Microwave oven, electric cooker, induction cooker
   - Radio and television
   - Telephones and computer networks

3. **Electrical safety**
   Safety rules when using electrical and electronic appliances; proper wiring and earthing practice; meaning of electric shocks, how to avoid electric shocks; meaning of lightning, what to do during lightning; how to prevent electrical accidents; what to do when a circuit breaker tripped.

4. **Energy efficiency**
   Ways to reduce energy consumption in daily life, various type of energy saving devices, and the related scientific principles.
Teaching/Learning Methodology

An easy-to-understand approach will be used throughout on explaining the scientific concepts and principles, no complicated equation will be involved. The fundamental concepts will be presented through lectures, tutorials, and some case studies. Students will be required to form groups to work through a mini-project. Tutorials will be structured on different sessions with specific topics and will require sufficient contribution from students. Students will also learn through active participation in the presentation of their project works, case studies and discussion among students.

Assessment Methods in Alignment with Intended Learning Outcomes

<table>
<thead>
<tr>
<th>Specific assessment methods/tasks</th>
<th>% weighting</th>
<th>Intended subject learning outcomes to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Examination</td>
<td>60%</td>
<td>✓     ✓     ✓</td>
</tr>
<tr>
<td>2. Numerical computation</td>
<td>6%</td>
<td>✓</td>
</tr>
<tr>
<td>3. Short essays</td>
<td>16%</td>
<td>✓     ✓     ✓</td>
</tr>
<tr>
<td>4. Group report</td>
<td>12%</td>
<td>✓</td>
</tr>
<tr>
<td>5. Group presentation</td>
<td>6%</td>
<td>✓</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
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Student Study Effort Expected

Class contact:
- Lecture: 26 Hrs.
- Tutorial: 13 Hrs.

Other student study effort:
- Revision and Assignments: 39 Hrs.
- Mini-project: 30 Hrs.

Total student study effort: 108 Hrs.

Reading List and References


July 2018