EE332  

**Electrical Machines I**

*Catalog Data*


*Pre-requisites:* EE207; EE214.

*Textbook:


*Reference:


*Course Objectives:

1. The ability to understand the principles of operation of electrical machines.
2. Ability to understand the fundamental characteristics of various types of machines.
3. Understand the concept of equivalent circuit.
4. Understand the construction and design issues associated with electrical machines.
5. The simple testing of electrical machines and transformers.

*Pre-Requisites by Topic:

1. Electric Circuits
2. Electromagnetic

*Topics:

1. Magnetic circuit, losses and inductance 3 Hours
2. Transformers 7 Hours
3. DC machines 9 Hours
4. Three phase induction (asynchronous) machines 11 Hours
5. Synchronous machines 10 Hours
6. Single phase motors 5 Hours

*Computer Usage:

Matlab Simulation

*Estimated Content:

Engineering Science 2.3 Credits
Engineering Design 0.7 Credits

*Prepared by:

Dr. S. R. Alwash

*Date:

15.9.2008
## Mapping of course (EE332) objectives to program outcomes

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Delivery Methods</th>
<th>Assessment Methods</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>(d)</th>
<th>(e)</th>
<th>(f)</th>
<th>(g)</th>
<th>(h)</th>
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<tbody>
<tr>
<td>1. The ability to understand the principles of operation of electrical machines.</td>
<td>Lectures, tutorials.</td>
<td>Homework, quizzes, Exams.</td>
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<td>3. Understand the concept of equivalent circuit.</td>
<td>Lectures, tutorials.</td>
<td>Homework, quizzes, Exams.</td>
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<td>4. Understand the construction and design issues associated with electrical machines.</td>
<td>Lectures, tutorials.</td>
<td>Homework, quizzes, Exams.</td>
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<td>5. The simple testing of electrical machines and transformers.</td>
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### ABET a–k Engineering and Technology program outcomes

| (a) An ability to apply knowledge of mathematics, science, and engineering | (e) An ability to identify, formulate, and solve engineering problems | (i) A recognition of the need for, and an ability to engage in life-long learning |
| (b) An ability to design and conduct experiments, to analyze and interpret data | (f) An understanding of professional and ethical responsibility | (j) A knowledge of contemporary issues |
| (c) An ability to design a system, component, or process to meet desired needs | (g) An ability to communicate effectively | (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice |
| (d) An ability to function on multi-disciplinary teams | (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context | |