Machine Design for Petroleum Engineers

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Machine Design for Petroleum Engineers</th>
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<tbody>
<tr>
<td>Reference No. (showing level)</td>
<td>EAX_4_270/DSGN06104</td>
</tr>
<tr>
<td>Credit Value</td>
<td>10 credit points</td>
</tr>
<tr>
<td>Student Study Hours</td>
<td>Contact hours: 24 lectures + 12 Tutors</td>
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<tr>
<td>Pre-requisite learning</td>
<td></td>
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<tr>
<td>Co-requisites</td>
<td>-</td>
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<tr>
<td>Excluded combinations</td>
<td>-</td>
</tr>
<tr>
<td>Module co-ordinator (Name + Email)</td>
<td>Dr. Tarek Hatem Tarek. <a href="mailto:Hatem@bue.edu.eg">Hatem@bue.edu.eg</a></td>
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<tr>
<td>Faculty/Department</td>
<td>Engineering/PEGT</td>
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<tr>
<td>Short Description</td>
<td>This module is concerned with failure theories, shafts, fasteners, gears, bearings.</td>
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<td>Aims</td>
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| Learning Outcomes | Knowledge and Understanding: 
On completion of this module students should be able to demonstrate knowledge and understanding of: 
1. design theories; 
2. materials in machine design |
| Intellectual Skills: | On completion of this module students should be able to demonstrate ability in: 
3. recognise and distinguish between the types of machine element failure; |
| Practical Skills: | On completion of this module students should be able to demonstrate ability in: 
4. perform simple design calculations for machine components; 
5. analyse a design problem and seek a possible solution to it which meets set criteria; 
6. select a suitable material and/or standard item from relevant standards, catalogues etc; |
| Transferable Skills: | On completion of this module students should be able to demonstrate ability in: |
7. prepare and present a simple documented design study.
8. apply learned eng knowledge in eng design.

### Content

- fundamental principles;
- materials in machine design;
- static failure theories;
- design of shafts;
- design of fasteners;
- design of gears;
- Design and selection of bearings.

### Employability

To prepare student to get job and be professional graduate in future, the development of one or more of top engineering skills, namely problem solving, communication, management and environment and economics, is addressed in this module. Personal development planning is also one of our focuses in this module.

### Teaching and learning pattern

**Teaching & Learning:**

1. 12, 2 hr lectures. This method informs learning outcomes 1, 2, 3.
2. 12, 1 hr Design studio and tutorials. This method informs learning outcomes 4, 5, 6, 7, 8.

### Indicative content

- fundamental principles;
- materials in machine design;
- static failure theories;
- design of shafts;
- design of fasteners;
- design of gears;
- design and selection of bearings

### Assessment

#### Elements & weightings

- **Examination:** A 180 minute open book written examination assesses learning outcomes 1, 2, 3, 4. **70%**
- **Course Work:** 30% A design project, technical report and presentation assesses learning outcomes 5, 6, 7, 8. **30%**
- Students must achieve (i) 40% for the total module mark and (ii) at least 30% in the unseen examination and the course work in order to achieve an overall passing mark for this module.

### Indicative Sources
