Course Specifications

University: Benha University
Faculty: High Institute of Technology

Course specifications
Programme(s) on which the course is given: All Mechanical Engineering Departments
Major or minor element of programmes: All Mechanical Engineering Departments
Department offering the programme: All Mechanical Engineering Departments
Department offering the course: All Mechanical Engineering Departments
Academic year / Level: Second Year
Date of specification approval: 30 / 6 / 2009

A- Basic Information
Title: Engineering Skills
Code: M 250
Credit Hours:
Lecture: 
Tutorial: 4
Practical: 
Total: 4

B- Professional Information

1 - Overall aims of course
By the end of the course the students will be able to
- Understand the basic techniques for assembly of machine parts
- Apply the main assembly instructions on some important exercises
- Distinguish and generate the different types of drawings: Working drawings and assembly drawings
- Practice the design office practice in mechanical drawings
- Demonstrate knowledge of the principles needed for writing engineering reports and the logical basis for engineering writing.

2- Intended learning outcomes of course (ILOs)

a. Knowledge and understanding:
   a.1  – Understand the basic methods for machine assembly
a.2 – Distinguish between the data and instructions used for both working and assembly drawings
a.3 - Professionally deduce and sketched both working and assembly drawing according to the international standards
a.4 - Explain the guidelines for good engineering writing.
a.5 - Describe the format of an engineering report and the structure of thesis

b. Intellectual skills
b.1 – Motivate the intellectual abilities to imagine and deduce machine parts and a whole machine from the drawings views 
b.2 - Motivate the student imagination for producing new ideas and methods in machine drawings 
b.3 - Create new concepts for the design of machine components and also for assembly of them 
b.4 – Analyze problems, conclude solutions and demonstrate creative thinking.

c- Professional and practical skills
c.1 – Practice the standard drawing methods to generate both working and assembly mechanical drawings 
c.2 – Write and specify correctly and according to the standards the instructions and machining marks and the dimensions on mechanical drawing 
c.3 - Prepare engineering technical report

d- General and transferable skills
d.1 - Cooperate to work in groups through small scale projects 
d.2 - Use the update facilities to communicate with some professionally technical enter prices 
d.3 – Write reports in accordance with the standard scientific guideline.

3- Contents.
Drawing and Machine Construction

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/ Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals and conventions representation of machine elements (screw joints, keys joints, Rivets, Welding, Circlips, Springs, Bearings) The basic methods for assembly drawings Exercises.</td>
<td>16</td>
<td>0</td>
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<tr>
<td>Surface roughness.</td>
<td>16</td>
<td>0</td>
<td>16</td>
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<tr>
<td>Fits and Tolerances.</td>
<td>16</td>
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<td>16</td>
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<tr>
<td>Exercises in assembly of small scale mechanical units</td>
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<td></td>
<td></td>
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<tr>
<td>Exercises in assembly of large mechanical units</td>
<td>12</td>
<td>0</td>
<td>12</td>
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<tr>
<td>Generation of working and assembly drawing</td>
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Technical Report Writing

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<th>Lecture</th>
<th>Practical</th>
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</thead>
<tbody>
<tr>
<td>Technical of laboratory procedure.</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Tabular &amp; Graphical representation</td>
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<td>4</td>
<td></td>
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<tr>
<td>Writing engineering reports</td>
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<td>Total</td>
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4– Teaching and learning methods

4.1- Tutorials

5- Student assessment methods

5.1 - Weekly offered exercises

5.2 - Mid-Term exams (two exams)

5.3 - Final exam

5.4 - Class activities: (report discussion and assignments): To assess understanding and the skills of problem solving, discussion and report writing.

Assessment schedule

Mid term examination Week 7
Weighting of assessments

<table>
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<th>Assessment</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>Working Exercises</td>
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</tr>
<tr>
<td>Mid-term (two examinations)</td>
<td>30%</td>
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<tr>
<td>Report</td>
<td>20%</td>
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<tr>
<td>Final-term examination</td>
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<tr>
<td>Total</td>
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</table>

6- List of references

6.1- Course notes
   - Course drawing notes

6.2- Essential books (text books)

7- Facilities required for teaching and learning

- Classes facilitated with drawing boards and the necessary mechanical drawing facilities
- One supervising staff per 12 students (at least mechanical engineer)
- The appropriate facilities and student services
- Teaching Aids (for technical report writing) presentation board and an overhead projector.

Course coordinator: Dr. Samia Naser El Deen Abedu
Head of Department: Assoc. Prof. Dr. Sameh abed El Wahed Nada
Date: / 30 / 6 / 2009