# 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 | |
| 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

| Topic | No. of Hours | Lecture | Tutorial/ Practical |
|---|---|---|---|
| Fundamentals and conventions representation of machine elements ( screw joints, keys joints, Rivets, Welding, Circlips, Springs, Bearings)<br>The basic methods for assembly drawings<br>Exercises. | 16 | 0 | 16 |
| Surface roughness.<br>Fits and Tolerances.<br>Exercises in assembly of small scale mechanical units | 16 | 0 | 16 |
| Exercises in assembly of large mechanical units | 12 | 0 | 12 |
| Generation of working and assembly drawing | 8 | 0 | 8 |
| Total | 60 | 0 | 60 |

## Technical Report Writing

| | | | |
|---|---|---|---|
| Technical of laboratory procedure. | 3 | | 3 |
| Tabular &Graphical representation | 4 | | 4 |
| Writing engineering reports | 7 | | 7 |
| Total | 14 | | 14 |

**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 asses understanding and the skills of problem solving, discussion and report writing.

**Assessment schedule**

Mid term examination Week 7

| | |
|---|---|
| Mid term examination | Week 15 |
| Final Exam | Week 32 |

**Weighting of assessments**

| | |
|---|---|
| Working Exercises | 10**%** |
| Mid-term (two examinations) | 30% |
| Report | 20% |
| Final-term examination | 40% |
| Total | 100% |

**6- List of references**

6.1- Course notes

- Course drawing notes

6.2- Essential books (text books)

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**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**