



Shaheed Zulfikar Ali Bhutto
Institute of Science & Technology

Engineering Drawing Studio

Courses Covered:



Lab Incharge: Fahad Ahmed Khan

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Pictorial View Of Lab



Figure 1: Pictorial View 1

Course Description

1) Engineering Drawing I

This course introduces students to manual drafting standards and protocols through a series of class exercises.

a. Course Meeting Times

Labs: 2 session / week, 3 hours / session

b. Description

Drawings are means of communication for engineers. During this course this is accomplished through sketching, use of instruments and knowledge of orthographic projection. Initially students are introduced to engineering drawing basics, such as types of lines, lettering, dimensioning, use of pencil and drawing instruments, planning of drawing sheet. Then students are given practice of making engineering drawings of different objects. Furthermore, students are also made to practice to draw orthographic projections in first and third angles. This helps them in understanding the engineering drawings and then making and modifying them efficiently.

c. Lab Equipment's

1. Assembly of bending device

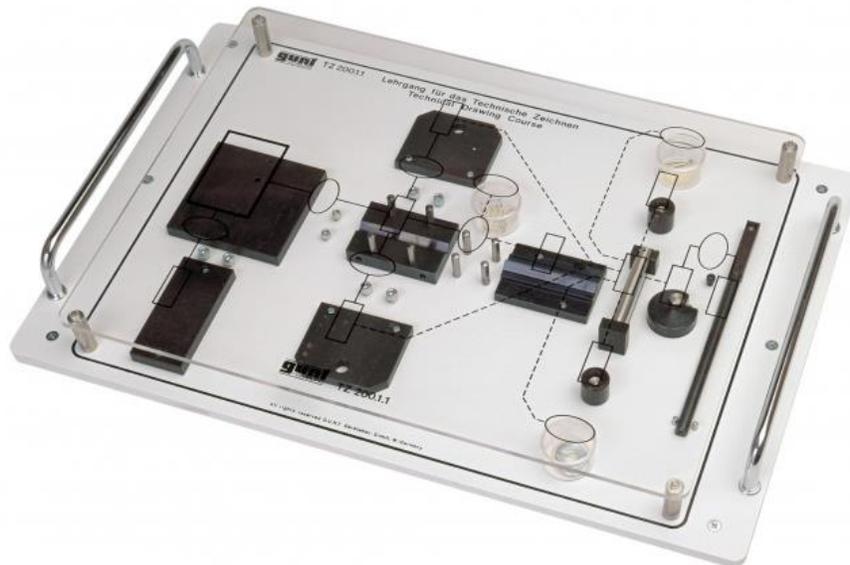


Figure 2: Assembly of bending device

Learning Objectives

- Introduction to engineering drawing
 - Read and understand engineering drawings
 - Three-dimensional display
 - Sectional views
 - Drawing types
 - 3D representation
 - Lists of parts
 - Dimensioning
 - Surface and tolerance specifications
 - Difference between standard and production parts
 - Materials specifications
- Planning and execution of simple assembly operations
 - Plan and describe operations
 - Evaluate results
- measuring exercises
 - Longitudinal measurements
 - Angular measurements

2. Rotationally symmetrical components assembly



Figure 3: Rotationally symmetrical components assembly

Learning Objectives

- Introduction to graphical representation of rotationally symmetrical components
- Familiarization with sectional views: full section and half section
- Dimensioning of rotating parts and threads
- Production engineering aspects
 - Devices as aids for drilling and reaming
 - Complete machining on modern tooling machines
 - Tolerances, fits, surface specifications
- Classification of the workpiece (bearing cap) in a larger technological context

3. Assembly of lever shears



Figure 4 Assembly of lever shears

Learning Objectives

- Introduction to engineering drawing
 - Read and understand engineering drawings
 - Three-dimensional display
 - Sectional views
 - Drawing types
 - 3D representation
 - Lists of parts
 - Dimensioning
 - Surface and tolerance specifications
 - Difference between standard and production parts
 - Materials specifications
- Planning and execution of simple assembly operations
 - Plan and describe operations
 - Evaluate results
- Measuring exercises
 - Longitudinal measurements
 - Angular measurements
- Manufacturing processes
 - Working examples of handmade production and production on machine tools

4. Assembly of lever press



Figure 5: Assembly of lever press

Learning Objectives

- Introduction to engineering drawing
 - Read and understand engineering drawings
 - Three-dimensional display
 - Sectional views
 - Drawing types
 - 3D representation
 - Lists of parts
 - Dimensioning
 - Surface and tolerance specifications
 - Difference between standard and production parts
 - Materials specifications
- Planning and execution of simple assembly operations
 - Plan and describe operations
 - Evaluate results

- Measuring exercises
 - Longitudinal measurements
 - Angular measurements
- Manufacturing processes
 - Working examples of handmade production and production on machine tools

5. Cylindrical work samples with cut-outs parallel to axis



Figure 6: Cylindrical work samples with cut-outs parallel to axis

Learning Objectives

- Familiarization with three-dimensional views as the basis of technical drawing
- Step-by-step development of three-dimensional visualization: from the solid model to the more abstract views in a technical drawing
- Systematic familiarization with a wide range of features on cylindrical base forms
- Exercises in production-oriented and standard dimensioning

- Measurement exercises: outer dimensions, inner dimensions, tolerances

6. Three-dimensional display



Figure 7: Three-Dimensional display

Learning Objectives

- Familiarization with three-dimensional display as a basic principle of engineering drawing
- Step-by-step development of spatial thinking: from the concrete situation to the abstract representation in an engineering drawing
- Measuring exercises

7. A2 Drawing Boards



Figure 8: Drawing Boards

