



LABORATORY PLANNING GUIDE

L20.1 Technical Drawing I Laboratory

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Covered subjects according to the curriculum

Major topics of learning content:

- familiarisation with three-dimensional views as the basis of technical drawing
- step-by-step development of three-dimensional visualisation
- measurement exercises:
 - * outer dimensions
 - * inner dimensions
 - * depths
 - * angles
 - * radii
 - * parallelism
 - * internal and external tapers
 - * tolerances
- exercises in production-oriented and standard dimensioning
- systematic familiarisation with a wide range of features on
 - * cylindrical base forms
 - * prismatic base forms
- familiarisation with
 - * steel ruler
 - * vernier caliper gauge
 - * depth caliper gauge
 - * external micrometer
 - * depth micrometer
 - * inside spring caliper as gauge
 - * block gauge
 - * taper ring gauge

Main concept

The laboratory is designed for accommodation of 24 students + 2 laboratory staff:

- 2 - 4 students form a team and work together at a workstation / training system
- 38 experiment sets, in 13 different types
- Easy storage and transportation in a practical case
- Each set is equipped with a manual containing technical information, basic theory, experiment instructions, evaluation help and safety advice.
- Student teams are scheduled to change workstations from lab session to lab session in order to perform the entire range of experiments within the course duration.
- Average time per experiment: 90 to 120 minutes.

2 workstations for laboratory staff (with PC and internet access)

1 printer for common use

1 cupboard for the experiment cases

Initial training provided for laboratory personnel

Trainer: Specialized engineer of G.U.N.T. Gerätebau GmbH, Germany.

To be conducted immediately after installation and commissioning of the equipment.

General topics to be covered for any of the educational systems:

- Basic familiarization with the system.
- Functions and components.
- Overall system configuration aspects.
- Start-up and operational aspects.
- Conduction experiments, including evaluation and calculation.
- Using the system with and without the software (where applicable).
- Trouble shooting and maintenance aspects.
- Hands-on, practical familiarization aspects.
- Seminar participants with the delivered system.
- Details of the manuals.
- Safe operation and preventive maintenance.

Requirements / Utilities

Power supply:

- 230 V / 50 Hz / 1 phase – at least 2 power sockets for staff computers.

Laboratory computer network:

- 2 internet connections for staff

Location:

- Laboratory space min 60 m²
- This laboratory could be installed on any floor (e.g. ground floor or 1st floor)

Schedule of requirements

Item No.	Description	Quantity
Item 1	Engineering drawing: three-dimensional display	6 pcs.
Item 2	Cylindrical work samples with cut-outs parallel to axis	4 pcs.
Item 3	Cylindrical work samples with slanted cut-outs	4 pcs.
Item 4	Prismatic work samples with cut-outs parallel to edges	4 pcs.
Item 5	Prismatic work samples with slanted cut-outs	4 pcs.
Item 6	Dimensional metrology I: training kit 1	2 pcs.
Item 7	Dimensional metrology I: training kit 2	2 pcs.
Item 8	Dimensional metrology I: training kit 3	2 pcs.
Item 9	Dimensional metrology I: training kit 4	2 pcs.
Item 10	Dimensional metrology I: training kit 5	2 pcs.
Item 11	Dimensional metrology I: training kit 6	2 pcs.
Item 12	Dimensional metrology II: training kit 1	2 pcs.
Item 13	Dimensional metrology II: training kit 2	4 pcs.

Laboratory drawing

