

Faculty	Ingegneria
Bachelor	Mechanical Engineering (La Spezia)
Year/Semester	1/I

Course Title	Industrial drawing
ID Course Code	56658
Course Credits (CFU)	6
Scientific-Disciplinary Sector	ING-IND/15
Course Type	mono-disciplinary course
Lecturer-in-charge	STEFANI Fabrizio
Learning Outcomes:	

Basic elements of technical communication languages in the field of mechanical engineering. Techniques for representation of the morphology and definition of design and operational characteristics of mechanical components. Development of appropriate operational capabilities in the field of mechanical design.

Course Organisation Details

Introduction: drawing as technical language. Standardization of technical drawings. Classification of the drawings. General standards: formats and sizing, folding, title block, lines, scale. Representation methods: classification of projections. Introduction to perspectives. Orthogonal and oblique projections. Orthographic projections. Use of orthographic projections: layout and choice of views. Sections: rules, types. Dimensioning: standards, systems, dimensions of geometric elements, functional and technological dimensioning. Dimensional errors: ISO system of tolerances, types and calculation of couplings, general tolerances, tolerance of chained dimensions. Microgeometric errors: definition, measurement, symbols and choice of the roughness. Macrogeometrical errors: geometric tolerancing in outline. Threads: elements of a thread, types, representation and dimensioning.

Threaded connections elements: bolts (nuts and screws), studs, inserts, unscrewing devices. Removable non-threaded connections elements: keys, mention of plugs, safety rings and stops, splined coupling joints. Outline of permanent connections. Materials for mechanical engineering: outline of mechanical properties, notes on types of materials and heat treatments, designation.

Assessment	hours
Lectures	4.0
Practice	0.0
Laboratory	20.0
Integrative activities	0.0

References

Chirone E., Tornincasa S., *Disegno tecnico industriale*, Vol. 1 e 2, published by "il Capitello", 2007;

Ghigliazza, Ferraro and others, *Istituzioni di disegno industriale*, Vol. 1 e 2, report, Dipartimento di Meccanica e Costruzione delle Macchine, University of Genoa.

Organization and examinations

The course includes: -) theoretical lectures -) object lessons, held in the informatics hall, about the key features of the software Bentley Microstation V8 XM -) exercises carried out by the students tutored by the teacher, taking advantage of Microstation, regarding simple drawings and design problems. The written examination will cover a drawing exercise, to be carried out by means of Microstation and to be completed with all of the information (quote, tolerances, roughness, ...) needed to ensure compliance with the requirements prescribed in the text of the exercise.

Pre-requisites

Nothing.