Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Technical Drawing and Computer-Aided Design
Course code	42308
Scientific sector	ING-IND/15
Degree	Bachelor in Wood Engineering (L-9)
Semester	2
Year	*I*
Academic year	2019-20
Credits	6
Modular	*No*

Total lecturing hours	36
Total lab hours	
Total exercise hours	24
Attendance	Highly recommended
Prerequisites	
Course page	

Specific educational objectives	The course's objective is to provide students with the required skills about representation techniques for the technical drawing, both paper-based and supported by a computer. In doing so, the course illustrates fundamental engineering notions that have to be mastered in any industrial domain and specifically in wood-related branches. Students will be able to exploit the knowledge acquired during the course in order to formalize product development cycles. More in details, the treated topics follow: • Drawing standards and representation options o drawing lines o orthographic projections and axonometric drawings o section drawings • Representation of parts and their peculiarities o dimensioning o dimensional tolerances • Computer-Aided Design (CAD) o 2D CAD systems o 3D CAD systems o Managing drawings, 3D parts and simple assemblies within the same software or

	across different ones

Lecturers	*Yuri Borgianni, L5-03, yuri.borgianni@unibz.it, +39 0471 017821 - https://tinyurl.com/jeet4cr* *Lorenzo Maccioni, L5-04, lorenzo.maccioni@unibz.it*
Scientific sector of the lecturer	ING-IND/15
Teaching language	English
Office hours	From Monday to Friday, upon email request
Teaching format	Frontal lectures, paper-based and computer-supported exercises

Learning outcomes	Knowledge and understanding 1) fundamentals and formalized representation standards of the technical drawing 2) tolerances and other imperfections of real mechanical parts 3) Functioning logic of CAD systems Applying knowledge and understanding 4) applying drawing standards correctly 5) representing a technical system accurately in both paper-based and computer-aided fashions Making judgements 6) choosing (and justifying the choice of) a specific representation methods in terms of, e.g. clarity, completeness and non-ambiguity 7) evaluating pros and cons of alternative paths to build a geometry in a 3D CAD Communication skills 8) using the appropriate terms in the field of the technical drawing Ability to learn 9) Ability to autonomously extend the knowledge acquired during the study course by reading and understanding 10) Learning advanced CAD functions autonomously also thanks to the individuation of sources that support troubleshooting

Assessment	The exam is articulated in two tests, which will be performed separately few days apart. The final mark will be the average of the two separate assessments. To sit the exam, students have to perform both assessment tests. The first one is a written exam, which includes representation exercises (e.g. projections, sections and

	axonometric drawing), exercises on tolerances and general questions about the course's contents. The second one is a computer-based test to demonstrate the capability to use the illustrated CAD systems effectively. The simulations of both tests will be uploaded in the OLE system, on which students will train during the last two Exercises of the course with the lecturers' support. The kind of exercises proposed during the course are eligible to be included in the exam as well.
Assessment language	English
Evaluation criteria and criteria for awarding marks	The final evaluation is based on the outcomes of the written exam (which includes representation exercises, questions about theoretical aspects) and exercises with CAD. A clear indication will be given of the maximum number of points students can achieve by solving each exercise or task. The assessment procedure evaluates • the capability of interpreting and representing geometries correctly (1, 4, 5) by means of exercises aimed at drafting and making representations such as projections, sections and axonometric drawings free-hand or supported by CAD systems; • the capability of leveraging dimensioning, dimensional tolerances, as well as characterizing fits (2) through specific exercises in the first test • the ability to use CAD systems through specific exercises (3), as well as the correctness and clarity of drawing choices (8). The non-mentioned items of the above Learning Outcomes will be trained during the course as well. Items 6-7 concerning the capability to make judgments will be stimulated during lectures, since the lecturers will ask the students to agree on design and drawing choices that have been made – some of them will, besides, present shortcomings. Items 9 and 10 will be monitored thanks to the provision of supplementary material and indicating useful sources. In particular, students will be invited to read and analyze texts that concern topics closely related to technical drawing and report the main concepts, which, in turn, support the comprehension of design choices and representation standards.

Required readings	Handouts of the course supplemented by extracts of selected books and Internet websites.
Supplementary readings	Some extra material will be provided (in Italian and German beyond English) in order to support students' comprehension; however, it will not correspond to the contents of the course completely.