

## Syllabus

### Course description

<b>Course title</b>	Technical Drawing and Computer-Aided Design
<b>Course code</b>	42308
<b>Scientific sector</b>	ING-IND/15
<b>Degree</b>	Bachelor in Wood Engineering (L-9)
<b>Semester</b>	2
<b>Year</b>	/
<b>Academic year</b>	2018-2019
<b>Credits</b>	6
<b>Modular</b>	No

<b>Total lecturing hours</b>	40
<b>Total lab hours</b>	
<b>Total exercise hours</b>	20
<b>Attendance</b>	Highly recommended
<b>Prerequisites</b>	
<b>Course page</b>	

<b>Specific educational objectives</b>	<p>The course belongs to the set of basic teachings within industrial and mechanical engineering. It introduces the fundamental notions for what concerns the contents of SSD ING-IND/15.</p> <p>The course's objective is providing students the required skills about representation techniques for the technical drawing, both paper-based and supported by computer. Students will be able to exploit the knowledge acquired during the course in order to improve product development cycles.</p> <p>More in details, the treated topics follow:</p> <ul style="list-style-type: none"> <li>• Drawing standards and representation options <ul style="list-style-type: none"> <li>○ drawing lines</li> <li>○ orthographic projections and axonometric drawings</li> <li>○ section drawings</li> </ul> </li> <li>• Representation of machine components and simple assemblies <ul style="list-style-type: none"> <li>○ dimensioning</li> <li>○ dimensional tolerances</li> <li>○ surface roughness</li> </ul> </li> <li>• Computer-Aided Design (CAD) <ul style="list-style-type: none"> <li>○ fundamentals about parametric 3D CAD systems</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>○ main functions for the definition of geometries</li> <li>○ static and dynamic assemblies</li> <li>○ 2D drafting of 3D parts</li> </ul>
<b>Lecturers</b>	<p><i>Yuri Borgianni, K0-05, <a href="mailto:yuri.borgianni@unibz.it">yuri.borgianni@unibz.it</a>, +39 0471 017821 - <a href="https://tinyurl.com/jeet4cr">https://tinyurl.com/jeet4cr</a></i></p> <p><i>Contract professor (to be defined)</i></p>
<b>Scientific sector of the lecturer</b>	ING-IND/15
<b>Teaching language</b>	English
<b>Office hours</b>	From Monday to Friday, upon email request
<b>Teaching format</b>	Frontal lectures, paper-based and computer-supported exercises
<b>Learning outcomes</b>	<p>Knowledge and understanding</p> <ol style="list-style-type: none"> <li>1) fundamentals and formalized representation standards of the technical drawing</li> <li>2) tolerances and other imperfections of real mechanical parts</li> <li>3) use of 3D parametric CAD systems</li> </ol> <p>Applying knowledge and understanding</p> <ol style="list-style-type: none"> <li>4) applying drawing standards correctly</li> <li>5) representing a technical system accurately in both paper-based and computer-aided fashions</li> </ol> <p>Making judgements</p> <ol style="list-style-type: none"> <li>6) choosing (and justifying the choice of) a specific representation methods in terms of, e.g. clarity, completeness and non-ambiguity</li> <li>7) evaluating pros and cons of alternative paths to build a geometry in a 3D CAD</li> </ol> <p>Communication skills</p> <ol style="list-style-type: none"> <li>8) using the appropriate terms in the field of the technical drawing</li> </ol> <p>Ability to learn</p> <ol style="list-style-type: none"> <li>9) Ability to autonomously extend the knowledge acquired during the study course by reading and understanding.</li> </ol>
<b>Assessment</b>	Written exam, which includes representation exercises (e.g. projections, sections and axonometric drawing) and questions about the course's contents. Practical tests to demonstrate the capability to use a CAD system effectively
<b>Assessment language</b>	English

<p><b>Evaluation criteria and criteria for awarding marks</b></p>	<p>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 that students can achieve by solving each exercise or task.</p> <p>The assessment procedure evaluates</p> <ul style="list-style-type: none"> <li>• the capability of interpreting and representing technical systems and geometries correctly (1, 4, 5), by means of exercises aimed at drafting and making representations such as projections, sections and axonometric drawings;</li> <li>• the capability of leveraging dimensioning, dimensional tolerances and roughness indications, as well as characterizing fits (2) through specific exercises</li> <li>• the ability to use CAD systems through specific exercises (3), as well as the correctness and clarity of answers (8), which can be evaluated through open questions.</li> </ul> <p>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. Item 9 will be monitored by providing supplementary material; 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.</p>
<p><b>Required readings</b></p>	<p>Handouts of the course supplemented by extracts of selected books and Internet websites.</p>
<p><b>Supplementary readings</b></p>	<p>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.</p>