

## Syllabus

### Course description

<b>Course title</b>	Technical Drawing and Computer-Aided Design
<b>Course code</b>	
<b>Scientific sector</b>	ING-IND/15
<b>Degree</b>	Bachelor in Wood Engineering (L-9)
<b>Semester</b>	2
<b>Year</b>	<i>I</i>
<b>Academic year</b>	2021-2022
<b>Credits</b>	6
<b>Modular</b>	<i>No</i>

<b>Total lecturing hours</b>	24
<b>Total lab hours</b>	
<b>Total exercise hours</b>	42
<b>Attendance</b>	Highly recommended
<b>Prerequisites</b>	
<b>Course page</b>	

<b>Specific educational objectives</b>	<p>The course's objective is to provide students with the required skills about representation techniques for the technical drawing and the graphical representation of systems, industrial products and part of buildings. The process is largely supported by Computer-Aided Design (CAD) systems; these include parametric and non-parametric, 2D and 3D software applications. Students will acquired basic practice for the use of different CAD systems in different industrial contexts and in relation to different scopes (modelling, production of technical drawing documentations, graphical illustration).</p> <p>More in details, the treated topics follow:</p> <ul style="list-style-type: none"> <li>• Drawing standards <ul style="list-style-type: none"> <li>○ drawing lines</li> <li>○ orthographic projections and axonometric drawings</li> <li>○ section drawings</li> <li>○ dimensioning</li> <li>○ Peculiarities of architectural drawing</li> </ul> </li> <li>• Computer-Aided Design (CAD) <ul style="list-style-type: none"> <li>○ 2D CAD systems</li> <li>○ Parametric 3D CAD systems for the modelling of industrial products</li> <li>○ 3D CAD systems for graphics and application thereof in the building industry</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>○ Interactions among different CAD environments</li> </ul>
<b>Lecturers</b>	<p><i>Yuri Borgianni, L5-03, <a href="mailto:yuri.borgianni@unibz.it">yuri.borgianni@unibz.it</a></i></p> <p><i>Chiara Nezzi, L5-01, <a href="mailto:chiara.nezzi@unibz.it">chiara.nezzi@unibz.it</a></i></p> <p><i>Laura M. Ruiz-Pastor, L5-01, <a href="mailto:lauramaria.ruizpastor@unibz.it">lauramaria.ruizpastor@unibz.it</a></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, tutorials, 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) Functioning logic of CAD systems</li> <li>3) Appropriateness of representations for different product typologies</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> <li>6) choosing the correct system for technical documentation and modelling</li> </ol> <p>Making judgements</p> <ol style="list-style-type: none"> <li>7) choosing (and justifying the choice of) a specific representation methods in terms of, e.g. clarity, completeness and non-ambiguity</li> <li>8) 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>9) using the appropriate terms in the course's discipline</li> </ol> <p>Ability to learn</p> <ol style="list-style-type: none"> <li>10) Ability to autonomously extend the knowledge acquired during the study course by reading and understanding</li> <li>11) Learning advanced CAD functions autonomously also thanks to the individuation of sources that support troubleshooting</li> </ol>
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<b>Assessment</b>	The exam requires the elaboration two separate CAD projects to be agreed with the lecturers and delivered one week before the official start of the session. The exam is completed with an oral test in which the CAD projects are critically discussed and the students' comprehension and skills are further tested. The two CAD projects are aimed at the modelling and representation of a) simple industrial products; b) buildings or parts thereof.
<b>Assessment language</b>	English
<b>Evaluation criteria and criteria for awarding marks</b>	<p>The final mark will be based on the two separate assessments of the CAD projects, and the oral exam. The assessment procedure evaluates</p> <ul style="list-style-type: none"> <li>• the capability of representing geometries correctly (1, 3, 4, 5, 7) to be tested through the CAD projects;</li> <li>• the ability to use and choose CAD systems (2, 5, 6), as well as the correctness and clarity of drawing choices (8);</li> <li>• The capability of mastering the discipline and use the appropriate terminology (9) especially through the oral exam.</li> </ul> <p>Items 10 and 11, not mentioned in the assessment procedure, will be monitored thanks to the provision of supplementary material and indicating useful sources.</p>
<b>Required readings</b>	Handouts of the course (especially in its initial part) supplemented by extracts of selected books and Internet websites.
<b>Supplementary readings</b>	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.