Syllabus

Course Description

Course Title	CAD Modelling of Industrial Products
Course Code	42200
Course Title Additional	
Scientific-Disciplinary Sector	IIND-03/B
Language	English
Degree Course	Bachelor in Industrial and Mechanical Engineering
Other Degree Courses (Loaned)	
Lecturers	Prof. Yuri Borgianni, Yuri.Borgianni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/35189 dr. Aurora Berni, Aurora.Berni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/42284
Teaching Assistant	
Semester	Second semester
Course Year/s	1
CP	5
Teaching Hours	48
Lab Hours	8
Individual Study Hours	69
Planned Office Hours	15
Contents Summary	The objective of the course is to disclose the chances offered by 3D CAD systems for the modelling and representation of products of different complexity and from different industrial domains.
Course Topics	- Use of 2D CAD for technical drawing - Parametric 3D CAD for parts, assemblies and drafting - Modelling of complex shapes with parametric and non-parametric

	CAD - CAD-supported drafting of industrial and technical products - Interaction between different CAD platforms
Keywords	CAD; part; assembly; features; industrial products
Recommended Prerequisites	The completion of the course "Fundamentals of Technical Drawing", which provides the necessary concepts for the understanding of the present course. The concepts illustrated in "Fundamentals of Technical Drawing" will be taken for granted
Propaedeutic Courses	
Teaching Format	The course consists of classroom lectures in which the topics are presented by the lecturer; they will benefit from digital presentations of slides (uploaded materials) and the illustration of the intarfaces and main features of some CAD systems (computer-supported explanations). The exercises, all related to the use of CAD systems) are computer-based; they can be in different formats according to the their scope: a. tutorial-based (lecturer explaining) b. practical (students doing assigned exercises) c. a mixture of the above, for example a tutorial followed by exercises, A PC classroom will be booked for some exercises; frequently this will apply for the exercises of format b.
Mandatory Attendance	Attendance is not compulsory
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding 1) representation of geometries and products through different means and CAD systems (2D and 3D) 2) functioning logic of CAD systems, main differences between 2D and 3D software applications, parametric and non-parametric systems 3) modelling of solids including standard geometries and/or free-form shapes 4) use of CAD systems to accelerate the correct execution of technical drawings

	5) use of 3D CAD to approach the design of meaningful assemblies 6) exchange of files and CAD information across multiple CAD platforms Applying knowledge and understanding 7) applying drawing standards correctly within CAD environments 8) use of CAD systems to design new products Making judgements 9) choosing the most convenient system for technical documentation and modelling 10) within a 3D CAD system, choosing the most effective functions to model a specific geometric feature Communication skills 11) using the appropriate terms in the course's discipline Learning skills 12) ability to autonomously extend the knowledge acquired during the course by testing functionalities in CAD software that will not be used in the course
Specific Educational Objectives and Learning Outcomes (additional info.)	-
Assessment	The assessment is based on a (exclusively or predominantly) computer-based exam, including exercises requiring: 1. to model, through a parametric 3D CAD, a part for which a draft

	will be assigned 2. to draft a part, through a CAD system, for which a 3D model created through a parametric CAD will be assigned 3. to model through a 3D CAD a part based on a description and some requirements (e.g., encumbrance, assemblability, presence of ergonomic surfaces). Exercises of type 1 specifically target Learning Outcomes 1, 3, 10 Exercises of type 2 specifically target Learning Outcomes 2, 4, 6, 7, 9 Exercises of type 3 specifically target Learning Outcomes 1, 3, 5, 8, 10 Additional exercises, for example with open questions, might be added in the exam so to target all Learning Outcomes. These questions might be answered in a written form or through a computer. During the exam, the students will avail of all the CAD software applications used during the course and all necessary means to do the exercises and answer any additional questions.
Evaluation Criteria	For each exercise included in the exam, the maximum number of points achievable is indicated. The final score is the sum of points achieved in each exercise.
Required Readings	Slides and other materials provided by the lecturers during the course. All materials will be shared in the repository used (MS Teams).
Supplementary Readings	-
Further Information	-
Sustainable Development Goals (SDGs)	Industry, innovation and infrastructure, Quality education