Syllabus

Course Description

Course Title	Drawing 3D CAD
Course Code	97096
Course Title Additional	
Scientific-Disciplinary Sector	ICAR/17
Language	English
Degree Course	Bachelor in Design and Art - Major in Design
Other Degree Courses (Loaned)	
Lecturers	Dott. Cecilia Sannella, Cecilia.Sannella@unibz.it https://www.unibz.it/en/faculties/design-art/academic-staff/person/38303
Teaching Assistant	
Semester	All semesters
Course Year/s	1st
CP	8
Teaching Hours	240
Lab Hours	0
Individual Study Hours	80
Planned Office Hours	24
Contents Summary	The course introduces students to the fundamentals of representing a project in its geometric and spatial components and to digital design, modelling and 3D visualization techniques.
Course Topics	The course Drawing 3D CAD 1 and 2 will introduce the students to the most advanced digital design techniques for 3D modeling and visualization. The students of the 1st year will be introduced to the representation modeling of the objects in the three-dimensional space using the software Rhinocersos, Grasshopper and KeyShot.

	Aim of the course is to provide all the knowledge from basic to advance digital design as part of the design processes and strategies. During the first semester the students will be introduced to the software of Rhino and KeyShot, and the logics behind the three-dimensional representation. Simple object of everyday life will be recreated in 3D, studying the forms, materials, and different techniques for their representation (from 2D, 3D to render). The second semester will be focus on the advanced digital modeling with the introduction of parametric modeling, in order to achieve a control of creation, manipulation and representation of forms, from simple to advanced geometries, and surfaces tessellation. Different methods of representation will be covered and discussed through a fluid workflow between different platforms. The course is a preparation for a further development and improving of visualization, modeling and observation skills of the students.
Keywords	3D Modelling, bidimensional objects, Curves, Nurbs, 2D drawings, parametric design, digital design strategies and processes, visualization, rendering and postproduction.
Recommended Prerequisites	none
Propaedeutic Courses	none
Teaching Format	Frontal lessons. The students will have individual exercises based on the topic covered and will be assisted through desk critics. During each semester - WS and SS - will take place an intermediate group discussion (PIN-UP) based on the individual tasks. Every lesson will cover a specific topic. Exercises based on the application of the techniques learned in class.
Mandatory Attendance	Not compulsory but recommended
Specific Educational Objectives and Learning Outcomes	Disciplinary competence Knowledge and understanding

	- have acquired the basic knowledge necessary to realise a project in the field of 3D CAD; - have acquired the basic knowledge necessary for further Master's studies in all components of project culture as well as in technical subjects, with a particular attention to the field of 3D CAD. Applying knowledge and understanding - use the basic knowledge acquired in the technical fields to realise a mature project; - make use of the skills acquired during the course of study in the event of continuing studies in a Master's degree programme and to develop them further. Transversal competence and soft skills Making judgements - Be able to make independent judgements for the purpose of developing their own design skills and in relation to all those decisions that are necessary to bring a project of 3D CAD to completion. Communication skills - present an independently realised project in the field of 3D CAD in the form of an installation, orally as well as in writing in a professional manner. Learning skills - have learned a work methodology at a professional level - in the sense of being able to identify, develop and realise solutions to complex problems by applying the acquired knowledge in the different fields, with a particular attention to the field of 3D CAD - in order to start a professional activity and/or continue their studies with a master's degree programme; - have developed a creative attitude and learned how to enhance it and develop it according to their own inclinations; - have acquired basic knowledge in the field of 3D CAD as well as a study methodology suitable for continuing studies with a Master's degree programme.

Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	By the exam's date, each student must upload on the Microsite of the faculty detailed documentation of the work done during the course. https://designart.unibz.it/ Documentation is an integral part of the exam. The documentation must include visual documentation and an abstract of the project. Attending Students During the year will take place an intermediate presentation with a portfolio of works that covers the exercises developed during the winter semester as a mid-term presentation. The presentation consists in a conversation and a check of students' work of the course. Students will get a mark that will influence the final mark of the exam. The attending students that will not pass and or did not present the portfolio in the intermediate presentation will present the works during the final exam. Final Exam At the end of the course. Oral and project work: Students must present a portfolio of the exercises developed during the summer semester and final boards. The exam will be oral with review questions to test knowledge application skills, evaluation of results. Non-attending students Final Exam. The non-attending students will present a portfolio of works that covers the exercises developed during all the year. Oral and project work: Students must present a portfolio of the exercises developed during the winter and summer semester and final boards. The exam will be oral with questions to test knowledge, application

	skills and evaluation of results. - Questions regarding notions and topics covered in the handouts, questions and test finalized to prove the knowledge and understanding of algorithm definitions developed during the course and the topics covered in the Handouts. "N.B. ALL THE STUDENTS ATTENDING THE EXAM AS "OPT" OR AS NON-ATTENDING STUDENTS MUST AGREE UPON THE CONTENTS WITH THE TEACHER."
Evaluation Criteria	The final assessment is based on the content of all the exercises according to the following criteria: on the student's works developed during the course and on the final presentation. Attending Final mark will be the average of the marks from partial evaluations (intermediate presentation and final presentation) 50% intermediate – 50% final presentation Threshold: 18/30 Non-Attending Only one final mark. Relevant for semester 1 will be the ability to think critically and observe reality, clear communicate the design strategies and processes, move independently in the 3D space, and apply the tools learned. Relevant for semester 2 will be the ability to move independently among the different methods of representations, understanding the possibility of the three-dimensional space, have familiarity with digital design tools, think critically and observe reality, make forms in the three dimensional space and apply complex transformation tasks, clear communicate the design strategies and the steps of design processes, familiarity with algorithm definition.
Required Readings	Handouts of the different topics will be provided and loaded on Microsoft Teams.

	Microsoft Teams of the class: Attending students Recommended Link will be provided Non - Attending students Mandatory Link will be provided
Supplementary Readings	Supplementary readings and information will be loaded on Microsoft Teams.
Further Information	
Sustainable Development Goals (SDGs)	Quality education