Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	**Drawing 3D CAD**
Course code	97096
Scientific sector	CEAR-10/A (ex ICAR/17)
Degree	Bachelor in Design and Art (L-4)
Semester	Winter and summer semester 2024/25
Year	1st year
Credits	8
Modular	No

Total lecturing hours	winter semester 60 + 60 (2 groups) summer semester 60 + 60 (2 groups)
Total hours of self-study and/ or other individual educational activities	about 80
Attendance	not compulsory but recommended
Prerequisites	No prerequisites are foreseen
Maximum number of students per class	30

Course description	*The course belongs to the class "di base" in the major in Design.* The course Drawing 3D CAD part 1 and 2 will introduce the students to the state-of-the-art digital design techniques for 3D modelling and visualization. Part 1 The students of the 1st year will be instructed in how to build professional models of artifacts in the design discipline within a three-dimensional space using the software Rhinoceros, with its native plug-in Grasshopper and CGI visualization software Key Shot. The aim of the course is to provide all the knowledge from basic to advanced in digital design, which is an integral part of the design process and is a mandatory requirement of the industry and professional world. During the first semester the students will be introduced to the basic interface of an industry standard CAD software (Rhinoceros) to understand the logics and rules behind the virtual three-dimensional design. Objects will be built inside the interface, studying shapes, details and manufacturing constraints. In

	addition, some techniques for CGI visualization (from 2D, 3D to render) will be presented. The second semester will focus on digital modelling through parametric data. This will allow students to manipulate constraints and parameters to build complex elements. Simple to advanced geometries, together with surfaces tessellation will be studied. Different methods of representation will be covered and discussed through a fluid workflow between different platforms.
Specific educational objectives	**Knowledge and understanding** - have acquired one's own work methodology in the field of 3D CAD. This methodology includes the ability to oversee all phases of implementation, from the generation of ideas to the realisation of the finished project. Through the integrated teaching of different subjects, graduates will be able to simultaneously address all these aspects and consider them as synonymous with the development of a project that is successful on a formal and technical level.

Lecturer	Dr. Camilo Ayala Garcia Office F1.03, F3.01 camilo.ayalagarcia@unibz.it Camilo Ayala Garcia / Free University of Bozen-Bolzano Arian Brajkovic Office F3.04 Arian.Brajkovic@unibz.it Arian Brajkovic / Free University of Bozen-Bolzano
Scientific sector of the lecturer	CEAR-10/A (ex ICAR/17)
Teaching language	English
Office hours	Thursday 11:00-12:00
List of topics covered	CAD Interface and environment, 3D Modelling language, Curves, NURBS, Surfaces, Polysurfaces, CGI visualization, Handouts and deliverables.
Teaching format	Frontal lessons with practical exercises and modelling challenges. The students will develop individual exercises based on the topics covered every week and will be assisted through desk revisions.

Expected 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.

Assessment	*By the exam's date, each student must upload on the Showcase 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 evidence of the process.* Attending Students intermediate presentation with a portfolio of the different works performed will take place. The attending students that did not present the portfolio in the intermediate presentation will present the work during the final exam. Final Exam At the end of the course. Oral presentation and project delivery: Students must present a portfolio of the exercises developed during the summer semester through final boards. The exam will be oral to test the acquired knowledge. Non-attending students Final Exam. The non-attending students will present a portfolio of works that cover the exercises developed throughout the year. Oral presentation: Students must explain the development of a project selected by the lecturer to proof the acquired knowledge.

Assesment language	The same as the teaching language
Evaluation criteria and criteria for awarding marks	The final assessment is based on the content of all the exercises according to the following criteria: on the student's work developed during the course and on the final presentation. <u>Attending</u> 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 <u>Non-Attending</u> 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 the server and/or on Microsoft Teams. Microsoft Teams of the class: Attending students Recommended Links will be provided Non - Attending students Mandatory Links will be provided
Supplementary readings	Supplementary readings and information will be uploaded in the reserve collection and/or on the server and/or on Microsoft Teams