Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	**Drawing 3D CAD 1 and 2**
Course code	97096
Scientific sector	ICAR/17 formazione di base nella rappresentazione
Degree	Bachelor in Design and Art (L-4)
Semester	Winter and summer semester 2019-2020
Year	1st
Credits	8
Modular	no

Total lecturing hours	winter semester 60 + 60 (2 groups); summer semester 60 + 60 (2 groups)
Attendance	Not compulsory but strongly recommended
Prerequisites	non

Specific educational objectives	Drawing 3D CAD 1 and 2 The course belongs to the class "di base" in the curriculum in Design. 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 introduce to the representation modeling of the objects in the three-dimensional space using the most cutting edge tools for modeling and representation with 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. In the first semester the students will be introduced to the software and the logics behind them. Simple objects of everyday life will be recreated in 3D, studying the forms, materials, and the different techniques and methods for their representation and visualization. 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. 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. *Educational objectives* The students will acquire: - Knowledge necessary to manage the design process from concept to final visualization - Tools necessary for the realization of design projects and interdisciplinary scientific knowledge

Lecturer	*Cecilia Sannella,* *Office F3.04,* *e-mail Cecilia.Sannella@unibz.it,* *lecturer's page: https://www.unibz.it/en/faculties/design-art/academic-staff/person/38303-cecilia-sannella*
Teaching language	English
Office hours	Thursday 14:00-15:00
List of topics covered	3D modeling, visualization, parametric design, digital advanced design, designs strategies and processes visualization, rendering and postproduction.
Teaching format	Frontal lessons based on handouts. The students will have individual exercises based on the topics covered and will be assisted through desk critics. Intermediate group discussion during the semesters (PIN-UP) based on individual tasks. Every lesson will cover a specific topic. Exercises based on the reproduction of objects applying the techniques learned in class.

Learning outcomes	*Learning Ability* The students will be able to apply knowledge linked to the design of: - design CAD (computer – aided design) - drawings CAD (computer - aided design) - 3D models - prototypes and models of virtual operation - virtual and physical visualization scenarios *Knowledge and understanding* The students will have acquired: - basic knowledge necessary to the realization of a project in the field of product design, visual communication and/or art, from a technical, scientific and theoretical point of view - basic knowledge necessary to operate a critical point of view regarding their work and to compare with the contemporary complexity - basic knowledge relative to design culture in all its components, but also to the technical, scientific

	and theoretical disciplines in order to proceed the further study with a master degree in an international environment. *Applying knowledge and understanding* The students will be able to: - create, develop, realize a design in the field of product design, visual communication, and /or visual arts - improve and develop what learned in the course field for a further study with a master degree in the design field *Making judgments* The students will have developed: - a good judgment autonomy finalized to the development of their own design skills and decisions (technical, scientific and theoretic) necessary to bring a project to its completion - a good judgment autonomy both in the critical evaluation of their work and in the ability to use correct interpretative tools in relationship to the contexts where they will apply their practice and/or to continue their studies also evaluating the ethical and social aspects *Communication skills* The students will be able to: - present at a professional level a project realized in the field of product design, visual communication and/or visual arts in the form of installation, orally and in writing - communicate and argue on a professional level the reasons for their choices and motivate them from a formal, technical, scientific and theoretical point of view - communicate and present at a professional level their own project in another language besides their own *Learning skills* The students will be have: - learned at a professional level a design methodology intended as the ability to identify, develop and implement solutions to complex design problems by applying the knowledge acquired in the technical, scientific and theoretical fields necessary to start a professional activity and/ or continue the studies with a master degree - developed a creative attitude and learned how to increase and enhance it according to their own

	inclinations - acquired a basic knowledge of theoretical, scientific and technical disciplines combined with a suitable study methodology in order to continue their study path with the master degree

Assessment	*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 review questions to test knowledge, application skills and evaluation of results. Questions regarding notions and topics covered in the handouts, and questions finalized to prove the knowledge and understanding of algorithm definitions developed during the course.
Assessment language	English
Evaluation criteria and criteria for awarding marks	The evaluation criteria will be based on the student's works developed during the course and on the final presentation. By the end of the semester, each student must upload on the Microsite of the faculty detailed documentation of the semester work. http://portfolio.dsgn.unibz.it/wp-admin

	Documentation is an integral part of the exam. The documentation must include visual documentation and an abstract of the project. *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 advance 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.

Required readings	Handouts of the different topics will be provided and loaded on the server. *Attending students* Recommended //ubz01dfs.unibz.it/Projects/Drawing 3D Cad 1 and 2 - 2019-20 - Sannella/Handouts *Non - Attending students* Mandatory //ubz01dfs.unibz.it/Projects/Drawing 3D Cad 1 and 2 - 2019-20 - Sannella/Handouts
Supplementary readings	Supplementary readings will be loaded in the reserve collection and on the server (https://eu.alma.exlibrisgroup.com/leganto/readinglist/lists