*1-> Syllabus in lingua italiana*

**Syllabus**
**Course description**

| Course title | Drawing 3D CAD 1 and 2 |
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| Course code | 97096 |
| Scientific sector | ICAR/17 |
| Degree | Bachelor in Design and Art (L-4) |
| Semester | 1st semester |
| Year | 1st year |
| Credits | 8 |
| Modular | No |

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| 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 200 |
| Attendance | not compulsory but recommended |
| Prerequisites | None |
| Maximum number of students per class | |

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| Course description | *The course belongs to the class "di base" in the curriculum in Design.*<br><br>The course Drawing 3D CAD 1 and 2 will introduce the students to the most advanced digital design techniques for 3D modeling and visualization.<br><br>The students of the 1st year will be introduced 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 Rhinoceros, Grasshopper and KeyShot.<br><br>Aim of the course is to provide all the knowledge from basic to advance digital design as part of the design processes and strategies.<br><br>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.<br><br>The second semester will be focussed 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. |
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| **Specific educational objectives** | **Knowledge and understanding** <br> - have acquired their own project methodology in the field of 3D CAD. This methodology includes the ability to oversee all phases of design, from the generation of ideas to the realisation of the finished project. Through the teaching of subjects of a technical nature, 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. |

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| **Lecturer** | Cecilia Sannella, <br> Office F3.04, <br> e-mail Cecilia.Sannella@unibz.it, <br> lecturer's page: https://www.unibz.it/en/faculties/design-art/academic-staff/person/38303-cecilia-sannella |
| **Scientific sector of the lecturer** | ICAR/17 |
| **Teaching language** | English |
| **Office hours** | Thursday 11:00-12:00 |
| **List of topics covered** | 3D modeling, visualization, parametric design, digital 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. |

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| **Expected learning outcomes** | **Disciplinary competence** <br><br> *Knowledge and understanding* <br> - have acquired the basic technical 3D CAD knowledge necessary to realise a project. <br> - 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 knowledge in the field of 3D CAD

*Applying knowledge and understanding*
- use the basic knowledge acquired in the technical, fields to realise a mature project to recognise the main phenomena of contemporary.
- make use of the skills acquired during the course of study in the event of continuing studies in a Master's degree programme in the field of design 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 with an attention to 3D CAD and in relation to all those decisions (technical, scientific and theoretical) that are necessary to bring a project to completion.

*Communication skills*
- present an independently realised project in the form of an installation, orally as well as in writing in a professional manner.

*Learning skills*
- have learned a design methodology at a professional level - in the sense of being able to identify, develop and realise solutions to complex design problems by applying the acquired knowledge in the technical, scientific and theoretical fields, in the fields 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 subjects of 3D CAD as well as a study methodology suitable for continuing studies with a Master's degree programme.

| 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. 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.<br><br>*Attending Students* |
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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, questions and test finalized to prove the knowledge and understanding of algorithm definitions developed during the course.

| **Assessment language** | The same as the teaching language |
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| **Evaluation criteria and criteria for awarding marks** | The final assessment is based on the content of all the exercises according to the following criteria:<br><br>- student's works developed during the course<br>- final presentation.<br><br>*Attending*<br>Final mark will be the average of the marks from partial evaluations (intermediate presentation and final presentation)<br>50% intermediate – 50% final presentation<br>Threshold: 18/30<br><br>*Non-Attending* |

| | Only one final mark. |
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| | Relevant for semester 1 will be the ability to think critically and observe reality, clearly 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 representation, 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, clearly communicate the design strategies and the steps of design processes, demonstrate familiarity with algorithm definition. |

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| **Required readings** | Handouts of the different topics will be provided and loaded on the server and/or on Microsoft Teams. Server: *Attending students* Recommended //ubz01dfs.unibz.it/Projects/Drawing 3D Cad 1 and 2 – 2021-22 - Sannella/Handouts *Non - Attending students* Mandatory //ubz01dfs.unibz.it/Projects/Drawing 3D Cad 1 and 2 - 2021-22- Sannella/Handouts Microsoft Teams: Links will be provided |
| **Supplementary readings** | Supplementary readings and information will be loaded in the reserve collection and/or on the server and/or on Microsoft Teams |