

General Information	
Academic subject	Integrated Course: Agro-industrial Buildings and Hydraulics Module of Livestock and Agro-industrial Buildings
Degree course	Agricultural Science and Technology
Curriculum	
ECTS credits	6 ECTS
Compulsory attendance	No
Language	Italian Didactic material in English will be given to foreign students if requested

Subject teacher	Name Surname	Mail address	SSD
	Giovanni RUSSO	giovanni.russo@uniba.it	AGR/10

ECTS credits details			
4	4 ECTS Lectures [L]	2 ECT Lab & field cl [L&Fcs])	

Class schedule	
Period	I semester
Year	III year
Type of class	Lectures, 4 ECTS (32 hours) Laboratory classroom, working groups, study case, and transferring of stakeholders' experiences 2 ECTS (28 hours) E-learning using public (eg Teams) and dedicated (Agripodcast) platforms can be used, on demand as learning facilities for students with disabilities and for working students, student athletes and students with babies

Time management	
Hours	150
In-class study hours	60
Out-of-class study hours	90

Academic calendar	
Class begins	2020 September 28
Class ends	2021 January 22

Syllabus	
Prerequisites/requirements	Knowledge of principles of Mathematics Knowledge of principles of Physics: Principles of Heat Transmission.
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> • Knowledge and understanding of the stability test of a straight-beam, subject to simple and composite solicitations • Knowledge and understanding of materials and building elements used in rural buildings • Knowledge and understanding of the design criteria of livestock and agro-industrial buildings • Basics of using Autocad 2-D CAD software <p><i>Applying knowledge and understanding</i></p>

	<ul style="list-style-type: none"> • Capacity to identify the most suitable structure, structural element and material for a rural building • Capacity to identify the technical characteristics of the technological equipment for livestock and agro-industrial buildings • Design of a livestock or agro-industrial building using CAD <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> • Ability to plan an integrated sustainable design of a livestock and agro-industrial building in relation to the choice of structures, materials and equipment considering energy and production efficiency • Ability to analyze all possible environmental hazards that can be produced from all the productive activities within a livestock and agro-industrial buildings <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> • Ability to use informatics (drawing, simulation, graphic representation, and so on) <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> • Ability to continue learning by consulting books, papers and computerized catalogues. <p>Expected learning outcomes in terms of knowledge and skills are listed in Annex A of the Study Guide Course Guidelines (expressed through the European Degree Program Title</p>
Contents	<ul style="list-style-type: none"> • Tasks, competences and responsibility of the designer. Designing of rural structures and administrative duties. • The design and the stability verification of a structure. • Tensile, compressive and bending stress. Stresses simple and composed of a rectilinear axis structure. • Construction materials: steel, reinforced concrete, prestressed concrete, wood, stone materials. • Selection criteria use and methods of construction of: foundations, walls, flat roofs and curved roofs, beams and pillars. • Importance of monitoring of microclimate conditions inside livestock and agro-industrial buildings. • Criteria for the design of livestock buildings: dairy cows, calves, beef cattle, pigs, poultry and sheep. • AUTOCAD. Plan of a livestock or agro-industrial building
Course program	
Bibliography	<ul style="list-style-type: none"> • Notes of the lectures and tables distributed during the course • Lindley J.A., Whitaker J.H. (1996) "Agricultural Buildings and Structures". ASAE. St Joseph, Mi, USA
Notes	
Teaching methods	<p>The teacher will use PowerPoint presentations. Sample materials of building materials will be shown during lessons.</p> <p>Practical exercises to explain the use of Autocad two-dimensional CAD software will be provided using the multimedia classroom and students will be divided into groups. Student assistance will be provided during the drafting of the project.</p>

	Each student is advised to install the software on their own PC by downloading the student version from http://www.autodesk.it/education/country-gateway
Assessment methods (indicate at least the type written, oral, other)	<p>A project of a rural building is assigned and students must develop it using CAD software. The elaboration of the project can be individual or in group and takes place during the course of lessons.</p> <p>For students attending the course there will be a partial exam after the first part of the course. This partial exam consists of an oral test on the subjects developed during the hours of lecture and exercise. The outcome of this test contributes to the evaluation of the examination of profit and is valid for one academic year. The test is passed with a vote of at least 18/30.</p> <p>The exam consists of an oral exam on the topics developed during the course. During the oral exam the design work will be a topic of discussion. The test is passed with a vote of at least 18/30.</p> <p>For students who have stood the first part of the exam, the final vote is expressed by the average of the votes obtained in the two oral tests.</p> <p>The oral examinations are public.</p> <p>For foreign, the exam can be done in English</p>
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	<p>Knowledge and understanding skills</p> <ul style="list-style-type: none"> • Knowledge and understanding skills of the stability test of a straight-axis beam subject to simple and composite stresses. • Knowledge and understanding skills of the structures and construction materials used for livestock and agro-industrial buildings. • Knowledge and understanding skills of the design criteria for a livestock and agro-industrial buildings. • Knowledge and understanding skills of two-dimensional CAD Autocad software <p>Knowledge and understanding skills applied</p> <ul style="list-style-type: none"> • Designing a livestock and agro-industrial buildings using AUTOCAD by choosing the different structural elements <p>Autonomy of judgment</p> <ul style="list-style-type: none"> • design of a livestock and agro-industrial buildings.in relation to different types of structures, materials and equipment <p>Communicative Skills</p> <ul style="list-style-type: none"> • Ability to communicate clearly the knowledge to specialists and non specialists • CAD design capabilities <p>Ability to learn</p> <ul style="list-style-type: none"> • Ability to learn and deepen in a self-directed and autonomous way
Further information	<p>Visiting hours</p> <p>Official visiting hours: Day and time are agreed according to an established appointment requested by phone or e-mail. Tutoring could be also on e-learning platforms.</p>