

General information	
Academic subject	Integrated Course Agricultural Buildings and Hydraulics Module: Agricultural Buildings
Degree course	Agricultural Science and Technology
Academic Year	III
European Credit Transfer and Accumulation System (ECTS)	6 ECTS
Language	Italian Didactic material in English will be given to foreign students if requested
Academic calendar (starting and ending date)	I semester
Attendance	Optional attendance

Professor/ Lecturer	
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Virtual headquarters	TEAMS code for tutoring activities: z061s8i
Tutoring (time and day)	by appointment set by email

Syllabus	
Learning Objectives	Provide theoretical principles and applicative skills in the design of a rural building.
Course prerequisites	Knowledge of principles of Mathematics Knowledge of principles of Physics: Principles of Heat Transmission
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. • Design criteria for farm buildings: rural houses, sheds, livestock for dairy cows, greenhouses, retaining walls. • AUTOCAD. Plan of a rural building.
Books and 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
Additional materials	

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours

Hours			
150	32	28	90
ECTS			
6	4	2	
Teaching strategy			
		<p><i>The teacher will use PowerPoint presentations. Sample materials of building materials will be shown during lessons.</i></p> <p><i>Practical exercises to explain the use of Autocad two-dimensional CAD software will be provided. Student assistance will be provided during the drafting of the project.</i></p> <p><i>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</i></p> <p><i>During COVID 19 health emergency, teaching is provided in blended learning mode (mixed: frontal and distance teaching).</i></p>	
Expected learning outcomes			
Knowledge and understanding on:		<ul style="list-style-type: none"> • <i>Knowledge and understanding of the stability test of a straight-beam, subject to simple and composite solicitations</i> • <i>Knowledge and understanding of materials and building elements used in rural buildings</i> • <i>Knowledge and understanding of the design criteria of rural buildings</i> • <i>Basics of using Autocad 2-D CAD software</i> 	
Applying knowledge and understanding on:		<ul style="list-style-type: none"> • <i>Capacity to identify the most suitable structure, structural element and material for a rural building</i> • <i>Capacity to identify the technical characteristics of the technological equipment for rural buildings</i> • <i>Design of a rural building using CAD</i> 	
Soft skills		<p>Making informed judgments and choices</p> <ul style="list-style-type: none"> • <i>Ability to plan an integrated sustainable design of a rural building in relation to the choice of structures, materials and equipment considering energy and production efficiency</i> • <i>Ability to analyze all possible environmental hazards that can be produced from all the productive activities within a rural building</i> <p>Communicating knowledge and understanding</p> <ul style="list-style-type: none"> • <i>Ability to use informatics (drawing, simulation, graphic representation, and so on)</i> <p>Capacities to continue learning</p> <ul style="list-style-type: none"> • <i>Ability to continue learning by consulting books, papers and computerized catalogs</i> 	

Assessment and feedback	
Methods of assessment	<p><i>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.</i></p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>For foreign, the exam can be done in English</i></p>
Evaluation criteria	<p>Knowledge and understanding</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 a rural building ○ Knowledge and understanding skills of the design criteria for a rural building ○ Knowledge and understanding skills of two-dimensional CAD Autocad software <p>Applying knowledge and understanding</p> <ul style="list-style-type: none"> ○ Designing a rural building using AUTOCAD by choosing the different structural elements <p>Autonomy of judgment</p> <ul style="list-style-type: none"> ○ design of a rural building in relation to different types of structures, materials and equipment <p>Communication skills</p> <ul style="list-style-type: none"> ○ Ability to clearly communicate the knowledge to specialists and non-specialists ○ CAD design capabilities <p>Capacities to continue learning</p> <ul style="list-style-type: none"> ○ Ability to learn and deepen in a self-directed and autonomous way
Criteria for assessment and attribution of the final mark	<p><i>Ability to present knowledge in a technical way and to apply it.</i></p> <p><i>The mark is expressed out of thirty, the exam is passed with a mark of at least 18/30.</i></p>
Additional information	

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