

General information	
Academic subject	<i>Equipment, structures and modelling for sustainable buildings in urban agriculture</i>
Degree course	<i>Choice exam for three-year degrees of the L-25 degree class</i>
Academic Year	<i>II and III</i>
European Credit Transfer and Accumulation System (ECTS)	<b>6 ECTS</b>
Language	<b>Italian</b> <i>Didactic material in English will be given to foreign students if requested</i>
Academic calendar (starting and ending date)	<i>I semester</i>
Attendance	<b>Optional attendance</b>

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Virtual headquarters	<b>TEAMS code for tutoring activities: z061s8i</b>
Tutoring (time and day)	<b>by appointment set by e-mail</b>
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Syllabus	
Learning Objectives	<i>Provide theoretical principles of the main green systems in urban areas and applicative capacity for modeling green systems for buildings..</i>
Course prerequisites	<i>Knowledge of principles of Mathematics</i> <i>Knowledge of principles of Physics: Principles of Heat Transmission.</i>
Contents	<i>Classification of urban agriculture.</i> <i>Environmental, social, economic and human well-being benefits.</i> <i>Design criteria for vertical green factories.</i> <i>Design criteria for green walls and roofs for buildings.</i> <i>Energy exchanges in green systems applied to building.</i> <i>Visual modeling by software of green systems applied to buildings</i>
Books and bibliography	<ul style="list-style-type: none"> <li><i>Notes of the lectures and tables distributed during the course</i></li> <li><i>F. Orsini, M. Dubbeling, H. de Zeeuw, G. Gianquinto (Eds) Rooftop Urban Agriculture - Springer International Publishing 2017</i></li> <li><i>Pearlmutter, D., Calfapietra, C., Samson, R., O'Brien, L., Krajter Ostoić, S., Sanesi, G., Alonso del Amo, R. (Eds.). The Urban Forest: Cultivating Green</i></li> </ul>

	<i>Infrastructure for People and the Environment. Springer International Publishing 2017</i>
<b>Additional materials</b>	

<b>Work schedule</b>			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<b>Hours</b>			
<b>150</b>	<b>32</b>	<b>28</b>	<b>90</b>
<b>ECTS</b>			
<b>6</b>	<b>4</b>	<b>2</b>	
<b>Teaching strategy</b>			
<p><i>The teacher will use PowerPoint presentations.</i></p> <p><i>Practical exercises will take place with the use of a software for the visual simulation of green systems. Students are advised to install the software on their PC.</i></p> <p><i>Students will develop simulation projects to apply their knowledge.</i></p> <p><i>During COVID 19 health emergency, teaching is provided in blended learning mode (mixed: frontal and distance teaching).</i></p>			
<b>Expected learning outcomes</b>			
<b>Knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding of urban green infrastructures applied to buildings</i></li> <li>• <i>Knowledge and understanding of a software for the visual simulation of green systems applied to buildings</i></li> <li>• <i>Knowledge and understanding of the energy exchanges in the green systems applied to buildings</i></li> </ul>		
<b>Applying knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>• <i>Capacity to create a visual simulation project for green systems applied to buildings</i></li> </ul>		
<b>Soft skills</b>	<p><b>Making informed judgments and choices</b></p> <ul style="list-style-type: none"> <li>• <i>Ability to plan a green system applied to buildings</i></li> <li>• <i>Evaluation of the energy aspects in a green system integrated in a building</i></li> </ul> <p><b>Communicating knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• <i>Ability to communicate information, ideas, problems and solutions to specialist and non-specialist interlocutors</i></li> <li>• <i>Ability to use information technology to support one's work: use of calculation software and PC presentations</i></li> </ul> <p><b>Capacities to continue learning</b></p> <ul style="list-style-type: none"> <li>• <i>Ability to continue learning by consulting books, papers and computerized catalogs</i></li> </ul>		

Assessment and feedback	
Methods of assessment	<p><i>A visual simulation project for green systems applied to buildings is assigned. The elaboration of the project can be individual or in group and takes place during 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 examination, a visual simulation project for green systems applied to buildings is also discussed. 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><b>Knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>○ Knowledge and understanding skills of the urban agriculture.</li> <li>○ Knowledge and understanding skills on the principle green systems applied to buildings</li> <li>○ Knowledge and understanding skills on energy exchanges in green systems applied to buildings</li> <li>○ Knowledge and understanding skills of a software for modelling green buildings</li> </ul> <p><b>Applying knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>○ Design of a green system applied to buildings</li> <li>○ Visual modelling of green building systems</li> </ul> <p><b>Autonomy of judgment</b></p> <ul style="list-style-type: none"> <li>○ Ability to make different choices in the design of green systems</li> <li>○ Ability to evaluate the effectiveness of green systems for buildings, in relation to the visual aspect</li> </ul> <p><b>Communication skills</b></p> <ul style="list-style-type: none"> <li>○ Ability to communicate clearly and without ambiguity the knowledge and the ratio to specialists and non-specialists</li> </ul> <p><b>Capacities to continue learning</b></p> <ul style="list-style-type: none"> <li>○ Ability to learn and deepen in a self-directed and autonomous way</li> </ul>
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	