



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Architettura
ACADEMIC YEAR	2017/2018
BACHELOR'S DEGREE (BSC)	ARCHITECTURE AND BUILT ENVIRONMENT
SUBJECT	TECHNICAL ARCHITECTURE STUDIO
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50056-Discipline tecnologiche per l'architettura e la produzione edilizia
CODE	18952
SCIENTIFIC SECTOR(S)	ICAR/10
HEAD PROFESSOR(S)	CORRAO ROSSELLA Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	10
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	160
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	CORRAO ROSSELLA Thursday 9:00 11:00 Dipartimento di Architettura (ex DPCE), Ed. 8, piano secondo, Stanza Docente n.35

<p>PREREQUISITES</p>	<p>It isn't a required prior condition but it should be better to have knowledge related to the following disciplines: History of Contemporary Architecture and History of Modern and Contemporary Art; Urban planning; English language (A/2); Architectural Design Studio; Technology of Architecture and Building Recovery; Building and Environmental Physics</p>
<p>LEARNING OUTCOMES</p>	<p>Knowledge and ability of understanding:</p> <ul style="list-style-type: none"> - Knowledge of existing relationships among different technological unities that constitute the building system and among the single elements and functional layers that characterize the technical elements of the technological system; - Knowledge of the relapses in the building sector and for the Architecture of the technical innovations related also to other sectors (mechanical, chemical and so on); - Knowledge of buildings as systems of spatial elements with different characteristics derived from the performance of innovative technical elements used to build them, particularly for the building envelope; - Conceptual, methodological and operational knowledge useful to understand the contemporary design that allow the construction of meaningful contemporary, innovative and energy efficient buildings; - Ability to detect specific relationships among structure, function and shape of buildings, as well as their technological, functional and distributive complexities and knowledge of technical innovations related to the building system; <p>Ability to apply knowledge and understanding</p> <ul style="list-style-type: none"> - Ability to analyse buildings selected as case studies in order to understand the different functional elements/layers that can be used for the construction of technical elements related to different technological units classes; - Knowledge and understanding of materials used for the construction of functional elements/layers and their mutual relations; - Ability to adopt a "dynamic" design approach in order to define the internal structure of technical elements; - Ability to evaluate benefits derived from technical innovations applied to the building sector and the Architecture; - Ability to design buildings or parts of them, by using innovative techniques and materials useful to reduce the energy consumption and to preserve the environment; - Through the analysis of case studies, in the field of practical class, students will acquire conceptual, methodological and operative knowledge useful to understand <p>Independent judgment</p> <p>At the end of the course, students will be able to:</p> <ul style="list-style-type: none"> - evaluate the performance of technical elements, in relation to connoting requirements derived from the analysis of users' needs, building typologies; - validate the technical solutions offered by building companies/industries to solve specific design problems with the aim to save energy and to preserve the building environment, by exploiting the opportunity to test them in the field of Studio activities, thinking about the professional field; - acquire an independent and critical ability to judge in order to easily interact with different professionals by exploiting the opportunity to design in the field of Studio activities, by simulating the activities that will be usually performed during the professional life. <p>Communication ability</p> <p>In the Studio, students will develop multimedia presentations related to the case studies assigned by the professor in order to communicate to colleagues useful information about the technologies used by designers (architects/engineers) with the aim to solve specific problems (environmental/functional/and so on). These multimedia presentations will be related to short reports that will allow students to acquire the ability to communicate -also in a written way- technical information about specific subject.</p> <p>Learning Ability</p> <p>The professor will try to develop the learning abilities of students through different urges:</p> <ul style="list-style-type: none"> - suggestion of handbooks, technical/scientific journals, videos; - site visits -if it will be possible- or to the building companies/industries; - using Internet for searching technical information; - design of buildings and/or details related to one or more technical elements. <p>This last activity will be developed by using "trial and error" method, with the aim to allow students to "learn by doing"; by solving problems.</p>
<p>ASSESSMENT METHODS</p>	<p>Oral examination; Design presentation</p> <p>Oral examination. The interview is aimed to evaluate the knowledge acquired by the students and their ability to solve problems. Moreover, the ability to speak</p>

	<p>about technical questions specifically related to the discipline, by using technical terms will be evaluated too.</p> <p>Design presentation. The description of the design drawings will allow to appraise the abilities developed by the students to work also in team with the aim to analyse/understand/show –through the use of adequate informatics tools- the design of an existent building, even technologically advanced, and to design a “simple building” through detailed drawings (plants, fronts, sections) and technical details, preliminarily selected in accordance with the teacher.</p> <p>The final mark is out of 30, eventually "cum laude".</p>
EDUCATIONAL OBJECTIVES	<ul style="list-style-type: none"> - to guarantee the acquisition of knowledge and abilities for the design of "simple buildings", in relation to: technology, structure, environment, users' needs, indoor comfort, energy consumption, technology innovation; - to know configuration, conformation and distribution of buildings as derived from users' needs and the characteristics of technical elements used for designing them; - to deeply know technical-scientific, methodological, operational aspects of Architectural Engineering and to be able to use them to identify/define/solve problems that require an interdisciplinary approach
TEACHING METHODS	Lectures, Studio
SUGGESTED BIBLIOGRAPHY	<ul style="list-style-type: none"> - Corrao, Rossella, <i>Forme e Funzioni degli Elementi Tecnici nell'Architettura Contemporanea</i>, Alinea Editrice, Firenze, 2007. - Deplazes, Andrea, <i>Constructing Architecture. Materials, Processes, Structures. A Handbook</i>, Birkhäuser, Basilea, 2005. - Staib, Dörrhöfer, Rosenthal, <i>Components and Systems. Modular Construction. Design, Structures, New Technologies</i>, Birkhäuser, Berlino, 2008. - AA VV, <i>Manuale di progettazione edilizia</i>, Voll. 1°, 4°, Hoepli, 1997. - Campioli, Andrea , Lavagna Monica, <i>Tecniche e Architettura</i>, CittaStudi, 2013. - Dassori, Enrico, Morbiducci, Renata, <i>Costruire l'architettura. Tecniche e tecnologie per il progetto, Tecniche Nuove</i>, 2010.

SYLLABUS

Hrs	Frontal teaching
2	The Building System
2	Building Environmental System
2	Building Technology System
2	Building System and Legislation
6	Needs, Requirements, Performance. Expressive, Functional, Technical potentialities of innovative building materials in relation to users' needs
16	Building Technology System classification. Technological units: structure, closing, internal partition, external partition, equipments, building envelope, etc. Possible solutions.
2	Technology evolution: Technical Innovation and Contemporary Architecture
2	The relapses of IT on technology design and Architecture
1	New building materials
2	Principles of Bio/Eco Architecture
1	Sustainable Building envelopes
4	Assembly systems among different technical elements. Mechanical connections among functional elements/ layers of technical elements: building forks for tensile structures; connections for cladding façade systems, for tie-beams, for glass structures, for curtain walls...
1	Innovative Materials and Technologies for buildings. Composite-marble panels
1	Innovative Materials and Technologies for buildings. Translucent cement
2	Innovative Materials and Technologies for buildings. BIPV - Building Integrated Photovoltaics products
2	Innovative Materials and Technologies for buildings. BIV - Building Integrated Vegetation products
Hrs	Workshops
16	Analysis of a contemporary building and of its technological and environmental systems
16	Analysis and redesign of a complex building assembly system that connects different building technical elements and description of its functional elements and layers
64	Design of a "simple construction" and of a detail useful for the construction of a sustainable architecture