



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2022/2023
BACHELOR'S DEGREE (BSC)	BUILDING ENGINEERING, INNOVATION AND RETROFITTING
SUBJECT	TECHNICAL ARCHITECTURE
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50110-Architettura e urbanistica
CODE	01463
SCIENTIFIC SECTOR(S)	ICAR/10
HEAD PROFESSOR(S)	COLAJANNI SIMONA Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	9
INDIVIDUAL STUDY (Hrs)	147
COURSE ACTIVITY (Hrs)	78
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	COLAJANNI SIMONA Monday 10:00 12:00 Stanza docente - Piattaforma TEAM

PREREQUISITES	The teaching prerequisites regard general culture, such as that acquired at the end of the first year of the cycle with particular connections to logic, to the capacity for synthesis, flanked by the ability to work on written texts of various kinds and to the skills acquired during the drawing and technological material courses.
LEARNING OUTCOMES	<p>The organization of the course in lectures, exercises and seminar activities will contribute to obtaining the following results:</p> <p>Knowledge and understanding The student will become aware of the main problems concerning the building system, broken down into "technological system" and "environmental system". He will be led to examine the various components of the technological system (classes of technological units, technological units, classes of technical units, technical units). After a general framework, the traditional and usual construction techniques will be treated with an outline of the advanced ones. At the same time, the student will be accompanied in understanding the environmental spaces that make up the building organism and the performance that the latter must have to satisfy the needs of the user. Given the wide range of technological possibilities (due to the variety of materials and techniques) and the continuous changing of requirements, we will also mention the regulatory system (environmental and technological) through which the various services to which the building system must respond will be specified . At the end of the course the student will have at his disposal a wealth of conceptual, methodological and operational knowledge that will allow him to synthetically elaborate an adequate design solution in which the adopted technological solutions will be compatible with the environmental requirements.</p> <p>Ability to apply knowledge and understanding Through the illustration of the spaces that make up the building organization and the different classes of technological units and the related requirements (environmental and technological), and through the performance of graphic exercises and a design exercise, the student will be asked to develop a specific ability to apply traditional and usual materials and construction techniques and advanced useful for the design and construction of a simple building organization in respect and in the satisfaction of the needs of users and the environment. In particular, the design exercise is organized to put the student in a position to confront himself with a concrete professional case that will pass through the phases of the typological analysis, the normative references and the use of the most suitable materials and construction techniques. The course, through visits to construction sites and building industries, will make comprehension more immediate of the construction of a building organization.</p> <p>Judgment Autonomy At the end of the course the student will have developed a specific critical ability to identify the most relevant solutions in relation to the different situations in which the design and construction of a building operates. Above all through the illustration of case studies and the elaboration of the exercises it is led to understand, by analogy and differentiation, how the subjects covered by the building design do not lend themselves to standardized solutions, but rather need an autonomous capacity in the interpretation of environmental parameters and in the choice of solutions. He at the same time will include its own specific professional profile with respect to the plurality of skills that are required to tackle the issues of building design and construction in an integrated manner.</p> <p>Communication skills During the lectures, the exercises and the seminar activities the student is asked to interact with the speakers to develop his / her comparative skills on issues of a general and specific nature. He is also called upon to present, for stages of progress, the experiments conducted during the design exercise, and therefore to argue critically the results of the analysis activity and discuss the solutions adopted. To this end he is invited to adopt, from time to time, the most effective communication tools in a modern interpretation of the profession, as well as suitable graphic representations specifically for the purpose, multimedia presentations and the use of the most up-to-date Cad programs .</p> <p>Learning skills During the course the student will understand how the theoretical and conceptual foundations and the regulatory framework of the discipline are progressively updated with respect to the cultural and scientific debate and to the evolution of technologies and to the search for new materials and to the increasingly felt needs of the parameters energy and environmental. He will be accompanied in this a plurality of bibliographic and emerographic references that will convince him of the need for continuous updating to maintain good levels of competence and professionalism. In addition to being provided with the basic concepts necessary for their cultural and professional updating, the student will be directed to information and</p>

	document sources and to websites that will be deemed more useful for carrying out design experiments and future activities.
ASSESSMENT METHODS	<p>Oral examination.</p> <p>The interview will be supported by the presentation of the exercises carried out during the course and will try to ascertain, through questions asked in order to describe the materials and technologies studied during the course, the student's ability to describe, using an adequate technical language, the possible technological solutions applicable in different conditions of use of the building, the requirements and the performance of the different building systems.</p> <p>The evaluation will be referred to the following criteria:</p> <p>excellent 30 – 30 with distinction</p> <p>Excellent knowledge of the topics and very good language skills. Good analytical skills. The student is able to use the knowledge he/she has acquired to solve problems.</p> <p>very good 26-29</p> <p>Good grasp of the topics. Sound language skills. The student is able to use the knowledge he/she has acquired to solve problems.</p> <p>good 24-25</p> <p>Basic knowledge of the main topics. Fair language skills with limited ability to independently use the knowledge acquired to solve problems.</p> <p>satisfactory 21-23</p> <p>The student lacks a firm grasp but has some knowledge of the main topics. Satisfactory language skills. Low ability to independently use the knowledge acquired.</p> <p>sufficient 18-20</p> <p>Minimum basic knowledge of the main topics and technical language. Very low ability to independently use the knowledge required.</p> <p>fail</p> <p>The student does not have an acceptable knowledge of the topics.</p>
EDUCATIONAL OBJECTIVES	<p>The training objective is to acquire mastery of the tools related to the construction and economic feasibility of the building work by identifying problems and seeking appropriate technological solutions. All this with critical attention to the cultural changes and needs expressed by contemporary society. Specifically, the acquisition of knowledge of the technological system will be pursued, consisting of classes of technological units, class of technical elements, aimed at designing simple building organisms.</p>
TEACHING METHODS	<p>Lectures, supported by multimedia projections, exercises conducted independently by each student or by work groups, according to the complexity of the topics covered. Educational visits on site or in industries producing building components.</p>
SUGGESTED BIBLIOGRAPHY	<p>LIBRI DI TESTO PRINCIPALI</p> <ul style="list-style-type: none"> - Arbizzani E., Tecnica e tecnologia dei sistemi edilizi. Progetto e costruzione. Con disegni, schemi funzionali, dettagli costruttivi e immagini di cantiere. Con CD-ROM, Maggioli Editore, 2015, ISBN-10 8891612863 ISBN-13 978-8891612861. - AA. VV., Quaderni del manuale di progettazione edilizia, ed. Hoepli, 2000. ISBN-10 : 8820336049 ISBN-13- 978-8820336042: - Caleca L., Architettura Tecnica, Flaccovio, Palermo, 2004, 4° EDIZIONE, ISBN 9788877583048. - De Vecchi A., Fiandaca O., Costanzo E., Il Progetto del Sistema Edilizio tra Continuità ed Innovazione, ed. Maggioli, Rimini, 1998. ISBN-10 2010-2021. - De Vecchi A., Fiandaca O., Tecnica del Disegno Architettonico, ed. Dario Flaccovio, Palermo, 1994. ISBN-10-8877582170, ISBN-13 978-8877582171 . <p>LIBRI CONSIGLIATI</p> <ul style="list-style-type: none"> - Campioli A., Il contesto del progetto, Franco Angeli, Milano, 1993, ISBN10 - 8820481820, ISBN13 - 9788820481827. - Dassori E., Morbiducci R., Costruire l'Architettura, HOEPLI, Milano, 2011. ISBN: 9788848140744. - Dassori E., La prefabbricazione in calcestruzzo, BE-MA Editrice, Milano, 2001. ISBN 88-7143-240-1. - Gavarini C., Beolchini C., Matteoli G., Costruzioni, vol. 1, 2, ed Hoepli, Milano, 1990 ISBN: 8820316625. - Boaga G., Dizionario dei materiali e dei prodotti, ed. UTET, 1889, ISBN-10 8802057761; ISBN-13 978-8802057767. - Galliani G., Dizionario degli elementi costruttivi, vol. 1, 2, 3, ed. UTET, Torino 2001. ISBN: 8802052077. - Torricelli M. C., Del Nord R., Felli P., Materiali e tecnologie dell'architettura, ed. Laterza, Bari, 2001. ISBN: 8842060534. <p>RIVISTE E PERIODICI</p> <p>Detail (ISSN: 2627-2598), L'industria delle Costruzioni (ISSN 0579-4900), The Plane (ISSN 0354-5180), Modulo (ISSN 0390-1025).</p>

SYLLABUS

Hrs	Frontal teaching
4	The building process and technological evolution
4	Building organization
4	Technological and environmental system
4	Foundation structure
4	Elevation structures
4	Technical elements: the vertical walls
3	Technical elements: the stairs
4	Technical elements: the horizontal internal partitions
3	Technical elements: the vertical external frames
4	Technical elements: the roof
4	Building materials for sustainable building
Hrs	Practice
4	Redesign of a simple building detail of structural foundation
4	Redesign of simple details of elevation structures.
4	Redesign of simple details of vertical walls.
4	Technical elements: the vertical internal partitions
2	Redesign of simple details of internal vertical wall.
2	Redesign of simple details of stairs
2	Redesign of simple details of internal horizontal partition.
2	Redesign of simple details of external vertical frames.
3	Redesign of simple details of roof.
4	Redesign of simple details using sustainable materials.
5	Processing of complex details