



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>SCHOOL</b>	POLYTECHNIC SCHOOL		
<b>ACADEMIC YEAR</b>	2016/2017		
<b>FIRST CYCLE COURSE</b>	CIVIL AND BUILDING ENGINEERING		
<b>SUBJECT</b>	TECHNIQUES OF CONSTRUCTION AND RECOVERY IN BUILDING INDUSTRY		
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	B		
<b>AMBIT</b>	50282-Ingegneria della sicurezza e protezione civile, ambientale e del territorio		
<b>CODE</b>	18081		
<b>SCIENTIFIC SECTOR(S)</b>	ICAR/11		
<b>HEAD PROFESSOR(S)</b>	PENNISI SILVIA	Professore Associato	Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>			
<b>CREDITS</b>	12		
<b>INDIVIDUAL STUDY (Hrs)</b>	192		
<b>COURSE ACTIVITY (Hrs)</b>	108		
<b>PROPAEDEUTICAL SUBJECTS</b>			
<b>YEAR</b>	3		
<b>TERM (SEMESTER)</b>	2° semester		
<b>ATTENDANCE</b>	Not mandatory		
<b>EVALUATION</b>	Out of 30		
<b>TEACHER OFFICE HOURS</b>	<b>PENNISI SILVIA</b> Thursday 10:00 12:00 Edificio 8 2° piano stanza 40		

<b>TEACHING METHODS</b>	The lessons will be conducted with the aid of slides with images and examples. During the course an exercise will be developed. It will be finalized to apply and to consolidate the concepts exposed during the course and to improve the capacities to relate theory and technical practice.
<b>ASSESSMENT METHODS</b>	<p>The oral examination, during which the student will be invited to answer on questions related to the developed program and practical cases, will be finalized to the evaluation of the level reached about:</p> <ul style="list-style-type: none"><li>- knowledge of the treated themes</li><li>- competence in the practical application to specific cases of such concepts</li><li>- ability of expression and technical language</li><li>- abilities of synthesis and data processing.</li></ul> <p>Besides the student will be valued on the exercise, conducted during the course, both for the final result and for the quality of the share and the run of knowledge developed.</p> <p>Therefore the general evaluation it will be furnished by the average among the two components of evaluation of the oral test and the exercise it turns.</p>
<b>LEARNING OUTCOMES</b>	<p><b>Knowledge and understanding</b></p> <p>At the end of the course students will be expected to have acquired knowledges about the technical organization of a yard, in the globality of the problems connected, from the logistics to the safety; they will be expected to have acquired besides knowledge of the definitions, the techniques and the materials of the building recovery through the descriptions of the materials used (physical ownership and mechanics) more commonly and of the constructive techniques and of recovery of constructive elements, both of the buildings in masonry and in reinforced concrete.</p> <p>Students will be expected to have acquired knowledges on the principal dynamics of patogenesis that interest the existing buildings and on the methodologies of intervention to eliminate its conclusive causes, as well as the methodologies of planning of the maintenance of the buildings. It will learn to understand the relationships that tie the phenomena studied in the course and many matters and thematic treated in the courses preliminarily followed.</p> <p><b>Applying knowledge and understanding</b></p> <p>Through the carrying out of an exercise, the student will be solicited to develop a capacity of evaluation of the phenomenologies of the diseases and of formulation of hypothesis on the causes and the dynamics of patogenesis. With the aid of the teacher, the contribution of the theoretical study and the exchange of profitable informations on the cases of study with the colleagues he should be able to choose the typology of intervention adjusted to the case in examination and to the specific context, besides compiling useful documents for intervention in housebuilding.</p> <p><b>Making judgments</b></p> <p>At the end of the course students will be expected to have acquired: 1) the ability to identify, in an autonomous way, the main decays of a building 2) the capacity "to read" a building and its context and to autonomously appraise its state of maintenance 3) the capacity of criticism that conducts him to choices suitable about the techniques of intervention and their realization in the yard.</p> <p><b>Communicative skills</b></p> <p>Students should be able to report (in a clear and certain way) on the topics dealt with during the course and related about them</p> <p><b>Learning skills</b></p> <p>This course aims at developing students awareness of the acquired competences for self-directed learning of content and methods necessary and required in their professional lives.</p>
<b>EDUCATIONAL OBJECTIVES</b>	At the end of the course students will be expected to have acquired and implemented the capacity of identification of the problems and resolution of the same with suitable planning solutions. This will implicate the development of the capacity of analysis of data and informations. Besides students will be expected to have acquired competences regarding the thematic faced and the capacity of synthesis of the data.
<b>PREREQUISITES</b>	The knowledges related to the construction materials, to the constructive elements and the traditional constructive techniques are recommended. Also knowledges related to the solicitations on the structures and to the principal static schemes, with the ability to apply concepts already learned within different courses successions (chemistry, physics, technical architecture, science of the constructions, sketch) in relationship to the themes of the course
<b>SUGGESTED BIBLIOGRAPHY</b>	

	<ul style="list-style-type: none"> <li>- Dispense del Corso di Tecniche del cantiere e recupero edilizio</li> <li>- Rocchi P., Piccirilli C., Manuale della diagnostica, Edizioni Kappa, Roma, 1999.</li> <li>- Di Giulio R., Manuale di manutenzione edilizia, Maggioli editore, S. Marino, 2003.</li> <li>- Mecca S., Comprendere il cantiere, verso nuovi paradigmi per l'organizzazione del cantiere edile, ETS, Pisa, 2002</li> </ul>
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## SYLLABUS

Hrs	Frontal teaching
2	Introduction in the course: Matters, methodology of the lessons and the exercises, objective of the course, necessary knowledges to face the course, formality of carrying out of the examination
5	The relief in the building recovery: the relief as tool of knowledge of the building , criterions of representation of the pathologies, Recommendations Normal, technical cards and abaci
13	Techniques of the yard: legislative and normative organization, machineries and fittings of yard, operational techniques, management safety, peculiarity of the construction yard of building recovery
10	The constructive elements: the foundations, the masonry structures, the attics, the coverages, the arcs and the vaults. Characteristics, dynamics of patogenesys, signs of degrade, interventions.
5	The moisture in the structures: typologies of moisture, characteristics, diagnosis and interventions
10	The materials of the constructions: the stone, the wood, the reinforced concrete. Characteristics, dynamics of patogenesys, signs of the degrade, interventions.
10	The diagnosis finalized to the project of recovery and retraining of a building: meaning and routine from the anamnesis to the detailed diagnosis. The diagnostic investigations on buildings in masonry and armed cement, in situ (termografia, endoscopy, flat martinetti, ultrasounds, sclerometer, magnetometer) and in the laboratory (physical tests, chemists and mechanics)
5	The maintenance: definitions, routine, documentation
Hrs	Practice
48	The exercise consists in the preliminary study to a project of rehabilitation of a building and the study and the editing of elaborate technical finalized to the execution of the same project. The object of study will be select with the students that will singly develop the exercise or in group. After the phase of knowledge the pathologies of the materials and the constructive elements and the causes of the same will be deepened, therefore they will be appraised and they will choose the suitable interventions with the purpose to get an improvement of the building in its qualities technological and environmental. Tables and the elaborate ones will be compiled related to the execution of the project