UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Architettura
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	ARCHITECTURE AND PROJECT IN BUILT SPACE
SUBJECT	STATICS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50107-Ingegneria della sicurezza e protezione delle costruzioni edili
CODE	06636
SCIENTIFIC SECTOR(S)	ICAR/08
HEAD PROFESSOR(S)	BENFRATELLO SALVATORE Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	8
INDIVIDUAL STUDY (Hrs)	136
COURSE ACTIVITY (Hrs)	64
PROPAEDEUTICAL SUBJECTS	04872 - MATHEMATICS
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**BENFRATELLO SALVATORE** Monday 12:00 13:30 Ufficio al II piano della sezione strutture del Dipartimento di Ingegneria (ex DICAM). Tuesday 12:00 13:30 Ufficio al II piano della sezione strutture del Dipartimento di Ingegneria (ex DICAM). Wednesday 12:00 13:30 Ufficio al II piano della sezione strutture del Dipartimento di Ingegneria (ex DICAM). Thursday 12:00 13:30 Ufficio al II piano della sezione strutture del Dipartimento di Ingegneria (ex DICAM). Friday 12:00 13:30 Ufficio al II piano della sezione strutture del Dipartimento di Ingegneria (ex DICAM).

DOCENTE: Prof. SALVATORE BENFRATELLO

PREREQUISITES	Basics understanding of elementary physics: equilibrium, kinematics, rigid body
LEARNING OUTCOMES	Knowledge and understanding Acquisition of the fundamental instruments for the knowledge of the behavior of stratically determined structures and for their design. Applying knowledge and understanding Ability to apply the physical-matematical models through which sketching the statically determined structures in order to learn how to model and design them. Making judgements Acquiring a critical approach to independently evaluate the bearing ability of a statically determined structure. Communication skills Ability to exhibit the fundamentals for the safety evaluation of an existing statically determined structure and for the design of a new one. Learning skills Ability to recognize the critical aspects of a statically determined structure.
ASSESSMENT METHODS	Written test preparatory to oral examination. In order to pass the exam, i.e. to get a grade not lesser than 18/30 the student must illustrate a basic achievement of the educational objectives, that is a basic knowledge of the topics reported in the programas well as the ability to explain them. Further, the student has to demonstrate, as well in basic way, the awareness of the basic principles of bodies equilibrium, the material mechanical behavior and of the evaluation of the stress acting in a cross structural section. In order to get the maximum grade 30/30 with honors the demonstration of this awareness has to happen in excellent way. Specifically, the final grading is defined in the following way: excellent (30-30 with laude), very good (26-29), good (24-25), satisfactory (21-23), passing grade (18-20). During the semester two intermediate written skill are also planned.
EDUCATIONAL OBJECTIVES	To develop an experience of structural education by the knowledge of the appropriate hypotheses and physical-matematical models through which sketching the structures. To learn the ability to identify and to design structures with critical approach.
TEACHING METHODS	Frontal lectures and excercises.
SUGGESTED BIBLIOGRAPHY	F. Giambanco, Lezioni di statica, Dario Flaccovio, EAN 9788877582294 C. Comi, L. Corradi Dell'Acqua, Introduzione alla meccanica strutturale, McGraw Hill, ISBN: 8838615411

SYLLABUS

Hrs	Frontal teaching
2	Recall of basic concepts of mathematics and phisics
6	Centroids and moments of inertia
12	Kinematics of free and constrained rigid bodies.
4	The Principle of Virtual Works for rigid bodies and its application for equilibrium conditions of systems
6	Constraints reactins, internal actions and their diagrams.
10	Continuum mechanics.

Hrs	Practice
6	Kinematics of free and constrained rigid bodies.
4	Applications of PLV for equilibrium conditions of systems
14	Evaluation of constraints reactions, of internal actions and their diagrams.