



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2021/2022
BACHELOR'S DEGREE (BSC)	BUILDING ENGINEERING, INNOVATION AND RETROFITTING
SUBJECT	ELEMENTS OF ROAD DESIGN FOR SETTLEMENTS AND RESIDENTIAL AREAS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50108-Edilizia e ambiente
CODE	20410
SCIENTIFIC SECTOR(S)	ICAR/04
HEAD PROFESSOR(S)	CELAURO CLARA Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	103
COURSE ACTIVITY (Hrs)	47
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	CELAURO CLARA Monday 09:00 11:00 Stanza privata del docente Viale delle Scienze al Parco d'Orleans Edificio 8 - DICAM Area infrastrutture viarie

DOCENTE: Prof.ssa CLARA CELAURO

PREREQUISITES	Knowledge of engineering drawing and topography
LEARNING OUTCOMES	Knowledge and understanding Acquisition of knowledge, methods, criteria and specific advanced instrument in order to be able to: - identify, at the design phase of urban roads, solutions that are adequate and optimized from the technical, economic and environmental point of view, - recognize, during the execution of the works, the conditions ensuring the correct execution with reference to construction equipment, production plants and construction processes; - formalize reliable judgments on the execution phases as carried out by the contractor, as well as on their fulfilment of the technical requirements Applying knowledge and understanding Ability to properly applying knowledge, problem solving skills in the field of design, construction and maintenance of urban roads, traffic calming activities and parking areas. Making judgments Ability in integrating knowledge, managing the complexity of the topic as well as to formulate reliable judgements on the quality of infrastructures'projects or works Communication skills Ability to communicate, in a clear and unambiguous way, both in oral and written form, judgments and technical counselling, including the related reasons, in an accessible way to a target audience, both specialist and not. Learning ability Capability of autonomous improving and updating knowledge, for professional purposes, in the field of road at urban scale.
ASSESSMENT METHODS	The final examination consists of an oral exam only. The criteria for evaluation are as follows: Grade: Excellent. Rating: 30-30 with distinction. 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. Grade: Very good. Rating: 26-29. Good grasp of the topics. Sound language skills. The student is able to use the knowledge he/she has acquired to solve problems. Grade: Good. Rating: 24-25. Basic knowledge of the main topics. Fair language skills with limited ability to independently use the knowledge acquired to solve problems. Grade: Satisfactory 21-23. 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. Grade: Sufficient 18-20. Minimum basic knowledge of the main topics and technical language. Very low ability to independently use the knowledge acquired. Fail: The student does not have an acceptable knowledge of the topics.
EDUCATIONAL OBJECTIVES	Adequate knowledge of the methodological aspects of the topics of the course and the ability to use that knowledge to interpret and describe engineering problems in the field of design, construction of urban roads and parking areas.
TEACHING METHODS	The course consists of both lectures and of numerical exercises.
SUGGESTED BIBLIOGRAPHY	Santagata F.A (a cura di), Celauro C. et alii. (2016) Strade, Pearson. ISBN: 9788891903044 (qualsiasi edizione).

SYLLABUS

Hrs	Frontal teaching
3	The road in the territory: ideas, design and execution. Design levels for public works. Road traffic code: official rules and classification for road networks: type of road, type of vehicles, type of traffic in urban and rural environment
3	Geometric design: design of the transversal section.
4	Geometric design: available sight distance, characteristics of the planimetric and altimetric elements of the axis
4	Urban roads: Traffic rules and related laws: functional definition in urban and residential areas. Interconnections in urban area. Parking areas
3	Infrastructures for vulnerable road users. Restricted traffic area and traffic calming activities
3	Materials and construction of cycleways
2	Materials for roads and pavement construction. Type of layers, functions and components
2	Characteristics of soils and unbound materials for road construction
2	Characteristics of the aggregates for road construction

SYLLABUS

Hrs	Frontal teaching
2	Characteristics of bitumens and bituminous emulsions for road construction
2	Characteristics of the bituminous mixtures for road construction
3	Traditional paving and modern road pavement in stone element
2	Colored and light-colored microsurfacing and road treatments
Hrs	Practice
3	Soils and granular materials for unbound layers: tests and controls during and after the execution of the works
3	Aggregates for pavement layers: tests and controls during and after the execution of the works
3	Bitumens and bituminous emulsions for road construction: tests and controls during and after the execution of the works
3	Bituminous mixtures for road construction: tests and controls during and after the execution of the works