



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2022/2023
MASTER'S DEGREE (MSC)	CIVIL ENGINEERING
SUBJECT	THEORY AND TECHNIQUE OF CIRCULATION
TYPE OF EDUCATIONAL ACTIVITY	D
AMBIT	20558-A scelta dello studente
CODE	07446
SCIENTIFIC SECTOR(S)	ICAR/05
HEAD PROFESSOR(S)	SALVO GIUSEPPE      Professore Associato      Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	9
INDIVIDUAL STUDY (Hrs)	128
COURSE ACTIVITY (Hrs)	97
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>SALVO GIUSEPPE</b> Monday 10:00 12:00 Dipartimento di Ingegneria (area Trasporti piano 2°) Wednesday 10:00 12:00 Dipartimento di Ingegneria (area Trasporti piano 2°) Thursday 12:00 14:00 Dipartimento di Ingegneria (area Trasporti piano 2°)

**DOCENTE:** Prof. GIUSEPPE SALVO

<b>PREREQUISITES</b>	knowledge of transportation techniques and economics: locomotion mechanics of the road vehicle. Performance of road vehicles, the theory of flow, level of service. Basic knowledge of Construction of Road: Composition and organization of the roadway. The road intersections
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding: After completing the course, student will have acquired knowledge and methodological tools for the study and solution of the movement of vehicles.</p> <p>Applying knowledge and understanding: The student will be able to use the knowledge and methods acquired for the analysis of emerging issues in the field of road and railway transport.</p> <p>Making judgments: The student will have acquired knowledge for the management of transport systems, with emphasis on urban mobility sustainable plans.</p> <p>Communication skills: The acquired skills make the student likely to have a capacity to communicate with organizations, companies who have responsibilities in the organization and delivery of transport services.</p> <p>Learning ability: Update capability by consultation of its scientific publications. Ability to attend, using the knowledge acquired in the course. Ability to learn, using the knowledge acquired in the course, topics related to the development of transport systems</p>
<b>ASSESSMENT METHODS</b>	oral examination will deal all the topics covered during the course
<b>EDUCATIONAL OBJECTIVES</b>	The objective of this course is to provide theoretical basis for studying the main transportation systems fundamental knowledge in traffic engineering. A particular attention is paid to transportation policy, planning and development. At the end of this course, participants will be able to understand principles applied in the traffic engineering as well as related engineering studies.
<b>TEACHING METHODS</b>	Teaching takes place in the second half of the 2nd year and consists of lectures and of numerical exercises. Classroom exercises are performed to simulate the final examination.
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Olivari M. Tecnica del traffico e della circolazione, F. Angeli, Milano, ISBN: 8854838683</p> <p>AA.VV. Ingegneria dei sistemi ferroviari, Dicembre 2013 ISBN: 978-88-8482-545-2</p> <p>AA.VV. Trasporto Pubblico Locale Novembre 2015 ISBN: 978-88-8482-631-2</p> <p>Highway Capacity Manual, TRB Sp. Report 209 , 3rd Ed., Natnl. Res. Council, Washington, D.C.,</p> <p>AA.VV. Sicurezza dei trasporti, 2019 ISBN: 978-88-8482-971-9</p> <p><a href="https://www.egaf.it/iter">https://www.egaf.it/iter</a></p>

## SYLLABUS

<b>Hrs</b>	<b>Frontal teaching</b>
1	introduction to traffic studies and summary of available resources
6	railway and airways traffic flow control.
4	Traffic flow theory
2	transportation data sources and surveys, fundamentals of travel demand and network modeling
2	Hierarchy of roads
2	design of car parking system
2	traffic calming and local traffic management
7	theoretical techniques to control intersection
2	local and federal regulations and policies
<b>Hrs</b>	<b>Practice</b>
20	Traffic Impact Analysis: definition Step-by-step of a project through an example analysis to illustrate the application process.
14	Overview of theoretical and experimental techniques to characterize and analyze intersection control
10	design of car parking system
4	Big data in transport system
<b>Hrs</b>	<b>Workshops</b>
20	Uninterrupted Flow, Interrupted Traffic Flow Introduction Macroscopic traffic Models, Microscopic Simulation Theory, Software packages