



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2020/2021
BACHELOR'S DEGREE (BSC)	MECHANICAL ENGINEERING
SUBJECT	SAE FORMULA LABORATORY
TYPE OF EDUCATIONAL ACTIVITY	F
AMBIT	10812-Tirocini formativi e di orientamento
CODE	14509
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	INGRASSIA TOMMASO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	3
INDIVIDUAL STUDY (Hrs)	0
COURSE ACTIVITY (Hrs)	0
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	SAE FORMULA LABORATORY - Corso: INGEGNERIA MECCANICA SAE FORMULA LABORATORY - Corso: MECHANICAL ENGINEERING
YEAR	3
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Pass/Fail
TEACHER OFFICE HOURS	<b>INGRASSIA TOMMASO</b> Wednesday 10:00 - 12:00 Il ricevimento avviene, previa prenotazione, presso l'ufficio del docente sito al 1° piano dell'edificio 8 - Dipartimento di Ingegneria.

**DOCENTE:** Prof. TOMMASO INGRASSIA

<b>PREREQUISITES</b>	Basic knowledge of construction science and machine construction
<b>LEARNING OUTCOMES</b>	<p>Knowledge and ability to understand: At the end of the course the student will have knowledge of the problems inherent to the design of the frame and of the main mechanical elements of a formula vehicle.</p> <p>Ability to apply knowledge and understanding: The student will be able to distinguish the opportunity to apply the different possible solutions according to the type of vehicle and the required performances.</p> <p>Autonomy of judgment: The student will be able to interpret the correct behavior of the vehicle on the road.</p> <p>Communication skills The student will acquire the ability to communicate and express problems concerning the subject of the course. Will be able to support conversations on constructive issues.</p> <p>Learning capacity: The student will have learned the interactions between the design issues and the construction problems of the particular type of vehicle, and this will allow him to continue his engineering studies with greater autonomy and discernment.</p>
<b>ASSESSMENT METHODS</b>	<p>A written test aims to assess the student's ability to solve problems and exercises developed during the course.</p> <p>Rating: Suitable Good command of the arguments; the student is able to solve the proposed problems.</p> <p>Rating: Not Suitable The student does not have an acceptable knowledge of the contents developed during the course.</p>
<b>EDUCATIONAL OBJECTIVES</b>	At the end of the course the student will have knowledge on CAD and numerical simulation FEM used for vehicle design.
<b>TEACHING METHODS</b>	laboratory
<b>SUGGESTED BIBLIOGRAPHY</b>	Materiale fornito dal docente

## SYLLABUS

Hrs	Workshops
4	Introduction to the FSAE; Study of the rules
14	3D CAD modeling using PTC Creo Parametric software of the main formula SAE components.
8	Presentation of the ANSYS software and related applications. Use of FEM techniques for the analysis of the integrity of structural components.
4	Structural optimization of tubular frames