



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Ingegneria
<b>ACADEMIC YEAR</b>	2020/2021
<b>MASTER'S DEGREE (MSC)</b>	CIVIL ENGINEERING
<b>SUBJECT</b>	MANAGEMENT OF ROAD INFRASTRUCTURES
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	B
<b>AMBIT</b>	50353-Ingegneria civile
<b>CODE</b>	13472
<b>SCIENTIFIC SECTOR(S)</b>	ICAR/04
<b>HEAD PROFESSOR(S)</b>	DI MINO GAETANO      Professore Associato      Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	6
<b>INDIVIDUAL STUDY (Hrs)</b>	96
<b>COURSE ACTIVITY (Hrs)</b>	54
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	2
<b>TERM (SEMESTER)</b>	1° semester
<b>ATTENDANCE</b>	Not mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<b>DI MINO GAETANO</b> Wednesday 15:00 - 17:00    da definire

DOCENTE: Prof. GAETANO DI MINO

<b>PREREQUISITES</b>	knowledge on mechanical behaviour of materials, statistics and notes of economy; good understanding of English language
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding - Acquisition of knowledge and methods to address and resolve outside box their problems of the maintenance and the management of transport asset, such as road and airport. To develop the skills in order to address the themes of the course by following an approach which that favors user safety as top priority, and the protection of environmental resources under pressure of economic costs.</p> <p>Applying knowledge and understanding - Acquisition of knowledge and methodologies to identify and put in place the solutions, technical and managerial requirements relating to the transport asset with particular regard to the road and airport pavement .</p> <p>Autonomy of judgment - Acquisition of analysis methods, both in the design and in the management of the transport asset in order to allow a complete and integrated view of the various aspects. According to this view, it is able to autonomously analyze any problem concerning the topics of the course and deal with a good baggage of skills, the result of the examination of case studies and research.</p> <p>Communication skills - Development of specific communication skills consisting of written and verbal discussion, with adequate properties of language, of issues such as: the empirical mechanistic methods for road and airfield pavement design, the maintenance and the rehabilitation of the pavement and rail track bed; the decision making processes about the effectiveness of the treatments.</p> <p>Learning ability - Ability to update and investigation through consultation of its scientific publications focused on design, construction and management of both road and airport pavement . Using the knowledge base acquired during the course, for conscious participation in second-level master courses, training courses, professional workshop and seminars</p>
<b>ASSESSMENT METHODS</b>	<p>The candidate must deliver a project work within 10 days from the examination booked; such a work, including a report, is focused on the design, construction and maintenance of a road pavement belonging to a real Sicilian motorway. The paper will be evaluated on the basis of four key criteria: accuracy, completeness, text organization in terms of linguistic exposure and shape, deepening. The assessment of such processed contribute to the final evaluation, which will be' made on the basis of an oral examination by a score up to 30. The candidate must answer at least four questions that cover the entire syllabus; during the exam he/she also will have to make a power point presentation on road pavement distresses. The pivotal criteria of the oral exam are: knowledge and mastery of subject content; enforcement capacity and conceptual rigor; expressive and explaining capacity, multidisciplinary connection and original reworking.</p> <p>the evaluation in terms of 30/thirty is based on the following criteria within the voting range:</p> <p>18/21 overall sufficient knowledge, skills and expression;                  22/24 overall fair knowledge, skills and expression;                  25/27 overall good knowledge, skills and expression;                  28/30 overall very good knowledge, skills and expression;                  30 cum laude/excellent knowledge, skills and expression.</p>
<b>EDUCATIONAL OBJECTIVES</b>	<p>The aim of the course is to provide and train the technical skills on the design and the management for the engineer aimed at the professional activities such as a role in government, in the managing bodies of civil infrastructures such as road and airport, with particular reference to both road and airfield pavement. The approach to the study of various topics hinges on laboratory and in-field survey, accompanied by discussion on theories whose study is preparatory to applications which will be held during the course. In relation to the decision making process and criteria for the management the widely recognized Life Cycle Assessment and Life Cycle Cost Analysis whose treatment will be accompanied by case histories and research and professional experience of the teacher. The course therefore aims to provide the learner of the fundamental and strong theoretical background on the topics addressed not separate from knowledge of a broad application view.</p>
<b>TEACHING METHODS</b>	lessons (70%); exercises (15%); meeting e workshop (15%)
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Gaetano Di Mino: Dispense del corso 2016-17;                  Paolo Ferrari, Franco Giannini: Ingegneria stradale Volume II, ISEDI                  Yang H. Huang: Pavement and analysis design Pearson, Prentice Hall                  Di Mascio-Domenichini: Sistemi aeroportuali Aracne Editore                  Autori vari: STRADE teoria e tecnica delle costruzioni stradali // Capitoli 6,7,8,10,11,15,16</p>

### SYLLABUS

<b>Hrs</b>	<b>Frontal teaching</b>
2	summary of the course

## SYLLABUS

<b>Hrs</b>	<b>Frontal teaching</b>
8	the complex modulus, the resistance to fatigue, the resistance to permanent deformation of bituminous mixture by means of investigation laboratory
8	the pavement design of road and airport according to mechanistic empirical method
6	the indicators of the road and airport pavement
3	the diagnosis of road pavement distresses
6	maintenance and rehabilitation treatments
3	the decision making criteria for the maintenance and rehabilitation of road and airport pavement
6	design, maintenance and management of the airfield pavement
6	assessment methods of the maintenance and rehabilitation strategy
<b>Hrs</b>	<b>Practice</b>
11	road pavement design by software