



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Scienze Agrarie, Alimentari e Forestali		
<b>ACADEMIC YEAR</b>	2022/2023		
<b>MASTER'S DEGREE (MSC)</b>	AGRICULTURAL PRODUCTIONS AND TECHNOLOGIES		
<b>INTEGRATED COURSE</b>	GREEN AREAS IMPLANTATION AND MAINTENANCE - INTEGRATED COURSE		
<b>CODE</b>	16810		
<b>MODULES</b>	Yes		
<b>NUMBER OF MODULES</b>	2		
<b>SCIENTIFIC SECTOR(S)</b>	AGR/09		
<b>HEAD PROFESSOR(S)</b>	CATANIA PIETRO	Professore Ordinario	Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	CATANIA PIETRO	Professore Ordinario	Univ. di PALERMO
<b>CREDITS</b>	6		
<b>PROPAEDEUTICAL SUBJECTS</b>			
<b>MUTUALIZATION</b>			
<b>YEAR</b>	1		
<b>TERM (SEMESTER)</b>	2° semester		
<b>ATTENDANCE</b>	Not mandatory		
<b>EVALUATION</b>	Out of 30		
<b>TEACHER OFFICE HOURS</b>	<b>CATANIA PIETRO</b> Monday 11:00 13:00 Dipartimento SAAF Stanza n. 135 Wednesday 11:00 13:00 Sede CdL Viticoltura e Enologia		

**DOCENTE:** Prof. PIETRO CATANIA

<b>PREREQUISITES</b>	Basic elements of mathematics and agricultural mechanics.
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding.</p> <p>Knowledge and understanding of technical and functional characteristics of machines for green management, as well as the methods for their safe utilization. Acquisition of fundamental technical-scientific knowledge on machines for greenery, as well as on the risks associated with their use. Knowledge and ability to use the specific language of cars.</p> <p>Ability to apply knowledge and understanding.</p> <p>Ability to apply the knowledge acquired to the identification of solutions optimal for eco-sustainable and safe interventions. Ability to independently choose machines and activities and technical assistance in this area.</p> <p>Autonomy of judgment.</p> <p>Acquire the ability to find data and identify the methodologies of survey to define solutions to the technical problems that arise</p> <p>in the use of machines for green management. Acquire the ability to critically evaluate the implications and results of planned interventions. Being able to evaluate the choice problems and the costs for machine purchase.</p> <p>Communication skills.</p> <p>Ability to translate one's own technical-scientific language into a port informative and, therefore, to communicate with technicians of equal and different backgrounds, as well as illustrating the technical-functional characteristics of the machines and their methods of use, in order to improve their efficiency and work capacity. Effectively communicate your theses and choices to a non-public specialist, conveying the importance of the proposed choices. Capacity of translate their choices into project drawings. Ability to expose the types, characteristics, main components, the operation, performance and management of machines for the management of green, as well as the basic principles of analysis and choice of the same, even to a non-expert audience.</p> <p>Learning ability.</p> <p>Ability to update through participation in technical seminars and scientific publications and / or the consultation of scientific publications related to this teaching. Ability to follow, using the acquired knowledge in teaching, in-depth courses and specialist seminars. Capacity of understand the machines for the management of the green, as well as the techniques and newly acquired methods developed in research fields.</p>
<b>ASSESSMENT METHODS</b>	<p>The oral exam is finalised to verify the disciplinary skills and knowledge included in the syllabus; the assessment is expressed into thirty out of thirty. The minimum number of questions is four and aims to verify the gained knowledge, the elaboration abilities, as well as the possess of an adequate speaking ability. Final assessment will be based on the average of marks awarded for the two modules. The threshold for sufficiency (18/30) will be gained when the student shows knowledge and understanding of topics, at least in their guidelines, and has minimum levels of applied skills concerning the solution of specific case studies; he should be in possess of talking abilities and of a correct use of language for the specificity of the course. Below this threshold the exam will be assessed as insufficient. The more the student shows argumentative and talking capacities, besides knowledge going into details of the discipline, the more his assessment will be positive till the grade of excellence (30/30 cum laude).</p>
<b>TEACHING METHODS</b>	Frontal lessons, classroom / laboratory exercises

## MODULE SAFETY AND ERGONOMICS

*Prof. PIETRO CATANIA*

### SUGGESTED BIBLIOGRAPHY

Materiale didattico distribuito durante le lezioni.  
Principali norme di riferimento.

<b>AMBIT</b>	21005-Attività formative affini o integrative
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

### EDUCATIONAL OBJECTIVES OF THE MODULE

The formative objectives of the module are:

- provide students with the knowledge on the legislative, technical and organizational aspects necessary for a correct management of the safety on construction sites and for a correct assessment of the various risk factors for accidents and occupational diseases for workers operators;
- make students acquire the ability to evaluate and design optimal construction sites from the point of view of safety, in order to be able to act as a consultant on these sites.

## SYLLABUS

Hrs	Frontal teaching
1	Presentation and objectives of the discipline.
2	Regulatory landscape: from the Presidential Decree 547/55 to the Consolidated Law.
2	Criteria for risk assessment.
1	Accident, injury and occupational disease concept. Injury genesis: modality of occurrence and analysis of the causes.
1	Workplace and temporary or mobile construction sites.
2	Physical risks: noise. Physics of sound. Noise measurement and risk assessment; prevention and protection.
2	Physical risks: vibrations. Vibration physics. Vibration measurement. Reference legislation and risk assessment; prevention and protection. Powders: definitions, modalities of sampling and risk assessment, prevention and protection. Dust sampling.
2	Biological and carcinogenic risk in the agro-forestry sector. Risk assessment; prevention and protection.
4	Risks induced by adverse microclimatic conditions. Risk assessment, prevention and protection. Measurement and evaluation of microclimatic parameters and comfort indices.
2	Chemical risk: substances and preparations, health aids, reference legislation, prevention and protection. Machines for the distribution of pesticides.
2	Risks in the manual handling of loads and in repetitive gestures. Reference legislation, risk assessment, prevention and protection.
1	Personal protective equipment: reference legislation, selection criteria.
Hrs	Practice
2	Risk analysis (noise, dust, vibrations, etc.) on a construction site.
2	Machine safety: D.P.R. 547/55 and Legislative Decree 459/96. Security risk analysis on some agricultural and forestry machines (safety data sheets).
Hrs	Workshops
4	The ergonomics and safety applied to the design of the driver's seat of the machines and the jobs.

## MODULE MACHINERY FOR GREEN AREAS CREATION AND MAINTENANCE

*Prof. PIETRO CATANIA*

### SUGGESTED BIBLIOGRAPHY

In aggiunta al materiale fornito dal docente si consiglia la consultazione dei seguenti:

a) libri

Pietro Piccarolo. Creazione e cura del verde: macchine e tecniche per la manutenzione e gestione. Calderini Edagricole, ISBN 88-206-4534-3.

Franco Agostoni, Carlo Maria Marinoni. Manuale di progettazione di spazi verdi. Zanichelli, ISBN 88-08-02354-0.

b) riviste

Acer, Milano; L'Informatore Agrario, Verona; Macchine & Motori Agricoli, Bologna; Rivista di Ingegneria Agraria, Bologna; Terra e vita, Bologna; Transaction of the ASAE, USA.

c) siti web

<http://www.unacoma.com>

<http://www.eima.it>

<b>AMBIT</b>	21005-Attività formative affini o integrative
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

### EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims to provide basic knowledge, theoretical and practical, sustainable furnishing public and private management, through the use of mechanical management tools.

## SYLLABUS

Hrs	Frontal teaching
2	AGRICULTURAL MECHANIZATION: Basic elements of agricultural mechanization for the proper management of urban green and peri-urban. Definition of yard work and its operating characteristics. Criteria for optimal use of the machines and the appropriate work organization in the management of urban green and landscape.
2	CAR DRIVE: ordinary Tractors (single and double axis, wheeled and tracked) and specifications used in the management of urban green (riders and lawn tractors). Criteria for selection, management and proper use.
2	Equipment for the acquisition of geo-referenced data of the site identified for the establishment of a green area: the Global Positioning System or Global Positioning System (GPS) and geographical information system (GIS) and Geographic Information System (GIS).
2	MACHINES FOR WORKING SOIL, THE SEEDING AND TRANSPLANT - Specific equipment for primary processing, secondary and consecutive soil in urban areas and peri-urban agriculture. specific machines used in the management of turfgrass. Production and plant grass in rolls carpets and tiles. Machines for hydroseeding. forest machinery for the plant on untilled ground of different types tree crops. Criteria for selection, management and proper use.
2	MACHINES FOR THE DISTRIBUTION OF FERTILIZERS AND PESTICIDES - Specific equipment for the distribution of mineral and organic fertilizers in urban areas and peri-urban agriculture. Techniques and equipment for the distribution of plant protection products in the urban area. Means for non-chemical crop protection. Strategies and machine tools for the sustainable management and not the chemistry of natural flora in non-agricultural areas and hard surfaces (flame weeding). Criteria for selection, management and proper use.
2	MACHINES FOR MANAGING Grass Crops - equipment for mowing and management of "green." Lawnmowers of different types. Use appropriate and differentiated selection of cutting units. Brushcutters. Selection and safe use in urban areas. Equipment for maintenance of lawns. Management criteria and choice.
2	MACHINES FOR THE MANAGEMENT OF TREE CROPS - equipment for the planting of tree crops. Felling and pruning. Chainsaw. Choice and use safely. work sites for the management of road and ornamental trees. Machines for zollatura of trees. Machines for deciocamento. Management criteria and choice.
3	MACHINES FOR WASTE MANAGEMENT - equipment for cleaning and collecting leaves and other plant debris. Techniques and equipment for the composting of green waste management.
3	ERGONOMICS AND SAFETY: Safety regulations and accident prevention regarding activities to be carried out and the machines to be used on work sites necessary for the ordinary management of urban green.
Hrs	Workshops
8	Visit to the laboratory of mechanics and practical testing of machine adjustment
Hrs	Others
2	Exercise practical realization of the project of maintenance and management of complex mechanized green furniture