UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali
ACADEMIC YEAR	2021/2022
BACHELOR'S DEGREE (BSC)	VITICULTURE AND OENOLOGY
SUBJECT	HYDRAULIC PLANTS AND MEASUREMENTS LABORATORY
TYPE OF EDUCATIONAL ACTIVITY	F
AMBIT	10861-Altre conoscenze utili per l'inserimento nel mondo del lavoro
CODE	19155
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	PAMPALONE VINCENZO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	3
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Pass/Fail
TEACHER OFFICE HOURS	**PAMPALONE VINCENZO** Tuesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E-Dipartimento SAAF e Piattaforma Teams Wednesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E-Dipartimento SAAF e Piattaforma Teams Friday 11:00 13:00 Sede del corso di Studi in Viticoltura ed Enologia e Piattaforma Teams.

DOCENTE: Prof. VINCENZO PAMPALONE

PREREQUISITES	Having basic knowledge of hydraulics related to pressure pipes. Basic knowledge of excel software.
LEARNING OUTCOMES	Knowledge of the ancillary works of a drip irrigation system. Knowledge of the measurement tools for pressure pipes. Ability to analyze the measurements and to explain the results of the measurements. Ability to draft the preliminary design of a microirrigation system
ASSESSMENT METHODS	The exam consists of an oral test based on the discussion of a written report dealing with the addressed topics, practical training and experimental measurements. To pass the exam, the student has also to be able to analyze the experimental results and compare them with those obtained theoretically.
EDUCATIONAL OBJECTIVES	After completing the course, the student should know the ancillary works of the modern microirrigation systems for a vineyard, including the hydraulic measurement instruments. The student should also be able to carry out and analyze the common hydraulic measurements in the microirrigation field.
TEACHING METHODS	Lectures and practical training in classroom, in laboratory, in field
SUGGESTED BIBLIOGRAPHY	Fondamenti di idraulica – tratti da Appunti sinottici delle lezioni di “Irrigazione e drenaggio” prof. D. Pumo “Progettazione e gestione degli impianti di irrigazione”, A.Capra, B.Scicolone, EDAGRICOLE Appunti e diapositive delle lezioni del docente

SYLLABUS

Hrs	Frontal teaching
3	Filtration systems: centrifugal separator, sand filter, screen filter and disk filter. Plant monitoring and maintenance. Field measurements of emitter discharge. Fertigation.
3	Instruments for measuring discharge and pressure. Volumetric counters. Valves. Pumping systems and hydraulic equipment for oenological systems.

Hrs	Practice
3	Design of a pumping system and choice of the pump.
3	Applications regarding instruments for measuring discharge and pressure.

Hrs	Workshops
10	Preliminary design of a microirrigation system for a vineyard.
2	Materials, tools, emitters for on-farm irrigation systems. Using of instruments to measure flow rates and pressures. Volumetric counters.
2	Field measurements of emitters’ discharges. Hydraulic characterization of drip emitters: determination of the flow rate-pressure head relationship and of the manufacturer’s coefficient of variation for emitters. Field evaluation of uniformity of water application.
4	Technical visit at on-farm irrigation facility.