UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	ENVIRONMENT ENGINEERING
SUBJECT	RIVER MORPHODYNAMICS - LABORATORY
TYPE OF EDUCATIONAL ACTIVITY	F
AMBIT	21272-Altre conoscenze utili per l'inserimento nel mondo del lavoro
CODE	17693
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	TERMINI DONATELLA Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	3
INDIVIDUAL STUDY (Hrs)	48
COURSE ACTIVITY (Hrs)	27
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Pass/Fail
TEACHER OFFICE HOURS	**TERMINI DONATELLA** Monday 11:00 13:00 Stanza propria Tuesday 09:00 13:00 Stanza propria Wednesday 09:00 13:00 Stanza propria Thursday 09:00 13:00 Stanza propria Friday 11:00 13:00 Stanza propria

DOCENTE: Prof.ssa DONATELLA TERMINI

PREREQUISITES	Hydraulics
LEARNING OUTCOMES	Knowledge and ability 'to understand The student will have all the knowledge needed to address and resolve in an original problems related to river hydraulics. In particular, the student will be 'able to analyze the current behavior and the basic phenomena that affect the morphodynamic evolution processes of a watercourse
ASSESSMENT METHODS	Presentation of a work
EDUCATIONAL OBJECTIVES	OBJECTIVES OF Laboratory: As part of the activities' laboratory will be analyzed real cases or played on scaled physical models or through numerical processing. The goal of the laboratory is to make the student capable of dealing with real cases having familiarity with the orders of magnitude of the measures to be used.
TEACHING METHODS	Frontal lessons, Esercitation, Laboratory esercitations
SUGGESTED BIBLIOGRAPHY	•Dispense didattiche della docente fornite sugli argomenti trattati durante il corso

SYLLABUS

Hrs	Workshops
30	Characterization of the solid material: average diameter and geometric standard geometry. dimensional analysis to evaluation of the fundamental groupings for the study of phenomena. Identification of the groupings X, Y, Z, W, u * / ws. characteristics of the sediment: analysis of the production basin scale, production speed and path. Effects of erosion. analysis steps. transportation capacity concept. Transportation type. Identification of sediment concentration, cs. Wash load, bed material. load transport and suspended load. Condition of incipient motion. Criterion of critical speed; criterion of critical shear stress criterion and the lifting force. Shields diagram. Description of the different transport mechanisms: sediment transport and bottom sediment transport in suspension. Analysis of the different trigger conditions. Formulas for the evaluation of the solid flow to the bottom; expressions for the evaluation of the solid flow in suspension. of solving equations System: equation of motion for the water and of continuity for the water and the sediment; in the case of fixed bottom resolution (hyperbolic system; parabolic and kinematic condition). Methods of analysis and prediction of the evolution of a river. Resolution of the equations. Identification of possible morphological changes in the channel degradation and aggradation process. Description of the phenomena that lead to planimetric formation of meandering patterns and braided channels. dimensionless parameters bottom shapes: ripples, dunes and antidune - Analysis of the effect on the kinematic characteristics of the current Resistance of river beds mobile bed.