



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Culture e società
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	ARCHAEOLOGY
SUBJECT	PRINCIPLES OF TOPOGRAPHY AND PHOTOGRAMMETRY
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50347-Archeologia e antichità classiche e medievali
CODE	02929
SCIENTIFIC SECTOR(S)	ICAR/06
HEAD PROFESSOR(S)	LO BRUTTO MAURO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	120
COURSE ACTIVITY (Hrs)	30
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	LO BRUTTO MAURO Monday 09:00 12:00 Dipartimento di Ingegneria - Area Geomatica - viale delle Scienze - Edificio 8 - scala F6 - secondo piano. Tuesday 09:00 12:00 Dipartimento di Ingegneria - Area Geomatica - viale delle Scienze - Edificio 8 - scala F6 - secondo piano.

DOCENTE: Prof. MAURO LO BRUTTO

PREREQUISITES	Ancient topography
LEARNING OUTCOMES	Knowledge and understanding The course provides the preliminary information necessary to a understanding the topography and photogrammetry techniques. In particular, the student will acquire the know on the topographic and photogrammetric methods for the representation and documentation of archaeological heritage. Applying knowledge and understanding The student will be able to use tools for topographic surveys in areas of limited extension, to perform photogrammetric surveys, to use photogrammetric software for archaeological applications. Making judgments The student will be able to evaluate surveying techniques for the possible professional applications for accuracy point of view and for limitations of approach. Communication skills The student will be instructed to present the results of surveys through technical and graphical representations. Learning skills During the course, the student will understand the evolution of the techniques as regards the theoretical and pratical aspects.
ASSESSMENT METHODS	Oral exam The test consists of a discussion on the topics covered during the course The evaluation is given according to the following criteria: - Excellent knowledge of the topics, excellent properties of language, good analytical ability, the student is able to apply knowledge to solve problems excellent evaluation - Good knowledge of the topics, full properties of language, the student is able to apply knowledge to solve problems very good evaluation - Basic knowledge of the main topics, discrete properties of language, the student has limited ability to independently apply the knowledge to the solution of the problems good evaluation - The student does not have full knowledge of the main topics but it has sufficient knowledge, satisfactory property of language, poor ability to independently apply the knowledge acquired satisfactory evaluation - Minimal knowledge of the main topics and of the technical language, very little or no ability to independently apply the knowledge acquired sufficient evaluation - The student does not have an acceptable knowledge of the topics insufficient evaluation
EDUCATIONAL OBJECTIVES	The aim of the course is to provide students with the theoretical and methodological knowledge for topographic and photogrammetric survey of Cultural Heritage. These operations are very common both during archaeological excavations and in documentation and cataloging phases. This course provides the basics of topography and photogrammetry and some information for the critical evaluation of the results obtained during all phases of survey.
TEACHING METHODS	Lectures, practices
SUGGESTED BIBLIOGRAPHY	Bianchini M., Manuale di rilievo e di documentazione digitale in archeologia. Copia online http://www.rilievoarcheologico.it/manualerilievo8index.htm Galetto R., Spalla A. – Lezioni di topografia. CUSL, Pavia 1998. Copia online http://geomatic.unipv.it/spalla/dispense.htm Bezoari G., Monti C., Selvini A. - La fotogrammetria per l'architettura. Liguori Editore, Napoli 1992. Bezoari G., Monti C., Selvini A. – Topografia generale con elementi di geodesia. UTET, Torino 2002. Materiale didattico messo a disposizione durante il corso.

SYLLABUS

Hrs	Frontal teaching
3	General informations of surveying. Measurement of angles, distances and height differences. Measuring the angles: definition of azimuth angle and zenith angle, definition of direction angle.
3	Characteristics of total station, operating procedures of topographic surveying, instrumental precision, measurement of vertical angles.
3	Measuring of distances, slope distance and topographical distance, electronic measurement with total station.
3	Measurement of height differences, trigonometric leveling, geometric leveling, structure and characteristics of a level.
3	Methods of topographic surveying, general concepts of topographical scheme, polar and cartesian coordinates.
3	Theoretical principles of photogrammetry, terrestrial photogrammetry, operating phases of a photogrammetric survey.
3	Photogrammetric network, photogrammetric camera, project of terrestrial photogrammetry (single, stereoscopic and convergent images), image scale, longitudinal and transversal overlap.
3	Ground control point, images orientation, photogrammetric triangulation, rectified imagery
3	Photogrammetric survey of archaeological sites
Hrs	Practice
3	Topographic survey of archaeological sites