



ΠΑΝΕΠΙΣΤΗΜΙΟ
ΠΕΛΟΠΟΝΝΗΣΟΥ
UNIVERSITY of the PELOPONNESE



CultTech

MSc Cultural Heritage Materials and Technologies

Information for applicants and registered students

Student guide
2023-2024

culttech.uop.gr

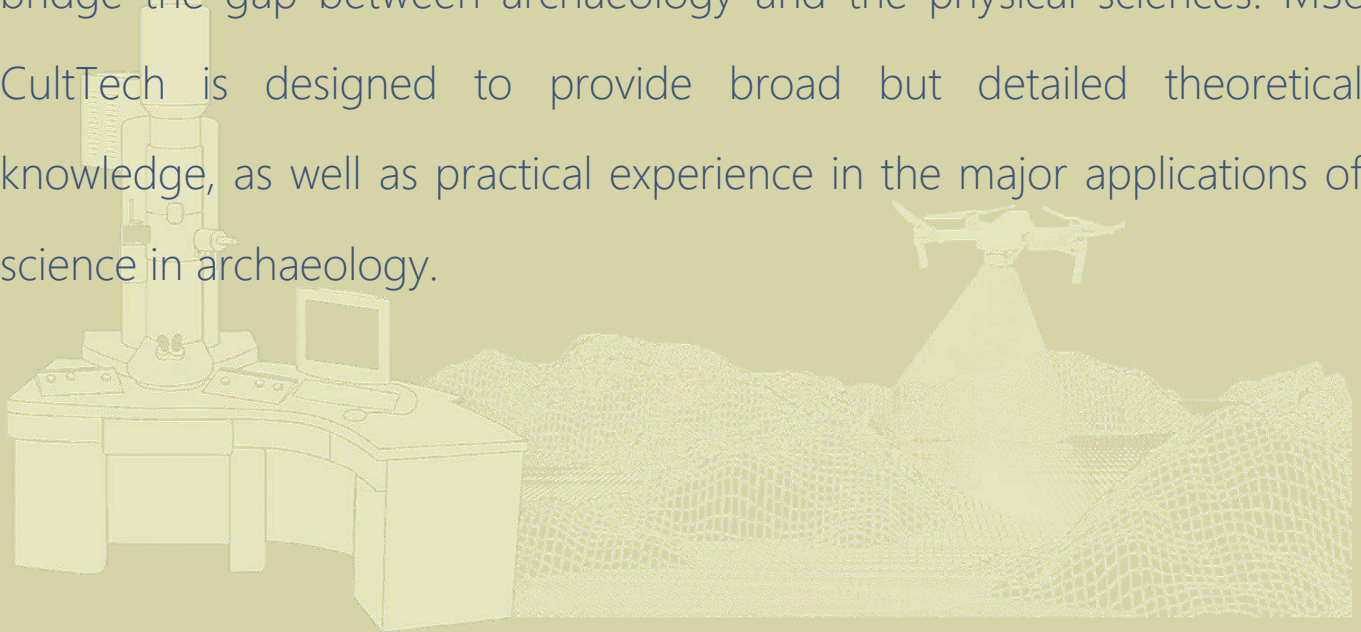


DEMOKRITOS
NATIONAL CENTRE FOR SCIENTIFIC RESEARCH



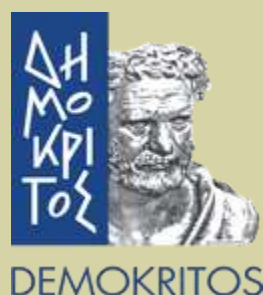
THE PROGRAMME

Studies in the interdisciplinary field of Archaeological Science aim to bridge the gap between archaeology and the physical sciences. MSc CultTech is designed to provide broad but detailed theoretical knowledge, as well as practical experience in the major applications of science in archaeology.



COLLABORATORS

MSc CultTech is a collaboration between the **Department of History, Archaeology and Cultural Resources Management** (University of the Peloponnese), the **National Center for Scientific Research "Demokritos"**, and the **National Observatory of Athens**.



COURSES

CultTech is composed of two semesters and a 6-month master thesis. Each semester includes four taught courses taught fully in English. All courses provide 60 ECTS and the thesis is credited with 30 ECTS.

Total MSc. Credits: *90 ECTS*

A1. CULTURAL LANDSCAPES AND ARCHAEOLOGICAL MATERIALS

This course is an introduction to the archaeology of ancient landscapes and material culture (with a focus on ceramics, metal, and stone). It begins with an overview of Landscape Archaeology and its focus: settlement establishment and distribution, transformation of the rural landscape, communication and interaction, the role of landscape in the construction of social identities and ideology, the formation of symbolic landscapes. Case studies are drawn from Aegean Prehistory and ancient Greece (Iron Age-Hellenistic). The second part addresses the production, economic role, and social significance of ceramics, metals, and stone in the Prehistoric, Greek (Archaic-Hellenistic), and Late Roman-Byzantine periods in the Aegean and the Eastern Mediterranean.



A2. ARCHAEOOMETRY I - APPROACHES FOR ARCHAEOLOGY AND CULTURAL HERITAGE

Studies on Archaeological and Geo-Archaeological Materials (Pottery, Glasses, Stones, Mortars, Metals, Organics): Production, Technology, Use and Provenance. Absolute Dating in Archaeology and Cultural Heritage, Statistical Evaluation of Analytical Data / Chemometrics.



A3. ARCHAEOOMETRY II - NON-DESTRUCTIVE AND INNOVATIVE METHODOLOGIES FOR CULTURAL HERITAGE

X-Ray Fluorescence Analysis, Portable and Handheld XRF Analyzers, MicroXRF Analysis of Ancient Metal Alloys, In-situ XRF Analysis of Ancient Pigments and Wall Paintings, Synchrotron Radiation Techniques, Analytical Applications and Advanced Topics to Ion Beam Technology, Spectroscopic and Laser Analytical Techniques in Cultural Heritage Materials Analysis, UV-Vis-IR, Imaging and Spectroscopy Techniques.

A4. LABORATORY TRAINING AND CHEMOMETRICS

This lab course aims to provide students with a solid practical know-how on the use of the most common analytical techniques in the field of Cultural Heritage Analysis (Stereo Microscope, FOM, Petrography, RAMAN, SEM, p-XRF, XRD). Additionally, practical training will be provided on the Statistical Evaluation of Analytical Data / Chemometrics, which is necessary to evaluate the large data sets produced by analytical techniques.



B1. CULTURAL HERITAGE MANAGEMENT AND INFORMATION COMMUNICATION TECHNOLOGIES FOR CULTURAL HERITAGE

The course provides an overview on issues of Cultural Heritage Management and discusses the most significant Information Communication Technologies applied in the field of Cultural Heritage: Sustainable Heritage Management, Interpreting Heritage, Enhancement of Visitor Experience, Visitor Requirements, Digital Presence, Multimedia Applications, Digitalization and Management, E-Research, Synergies, Cultural Heritage in the City, Building on Existing Technologies.



B2. CLIMATE CHANGE AND ENVIRONMENTAL STUDIES FOR CULTURAL HERITAGE

The course will discuss issues of climate, weather and climate change, highlighting the vulnerability of Cultural Heritage to climate change impact. Additionally, an overview will be provided on the Environmental Studies employed for Cultural Heritage (basics of environmental Chemistry and Physics, societal and cultural dimension of climate variability, impacts of air pollution on cultural heritage, introduction to environmental measurements and techniques). Finally, the basics of Geochronology will be addressed.



B3. GEOARCHAEOLOGY AND COMPUTING TECHNOLOGIES FOR CULTURAL HERITAGE

The course discusses Geoarchaeology and the most significant Computing Technologies employed in Cultural Heritage (Field Prospection Techniques, GIS, UAV for Cultural Heritage, Monitoring Cultural Heritage from Space, Data, Information Visualization for the Environment, Reconstructing Archaeological Objects and Sites, Structural Modelling of Archaeological Materials).



B4. COMPUTING APPLICATIONS: GIS, PHOTOGRAMMETRY & COMPUTER AIDED DESIGN

This lab course aims to provide students with a solid practical know-how on the most significant computing applications applied in the field of Cultural Heritage: GIS, Photogrammetry, CAD, 3D Scanning applications, 3D printing applications, Multimedia Application Development, Visualization & Modelling Practices.



THESIS (SEPTEMBER - JANUARY)

In the third semester, **CultTech** students will work on their Master thesis with guidance from their supervisors. The thesis can be conducted at any of the collaborating institutes of the programme in Kalamata and Athens. The implementation of the thesis project is commonly closely related to or within ongoing research projects. A strong encouragement is given towards working with materials and sites from the exceptionally rich Cultural Heritage of the Peloponnese.

The courses of the MSc CultTech are taught by renowned academics and researchers from the 3 collaborating institutions (University of the Peloponnese, National Center for Scientific Research 'Demokritos', National Observatory of Athens).

DIRECTOR OF GRADUATE STUDIES



Nikos Zacharias

Professor

University of the Peloponnese

COORDINATORS



Maria Xanthopoulou

(Course A1)

Assistant Professor

University of the Peloponnese



Vasilis Kilikoglou

(Course A2)

Research Director

NCSR Demokritos



Andreas Karydas

(Course A3)

Research Director

NCSR Demokritos



Angeliki Antoniou

(Course B1)

Assistant Professor

University of West Attica



Nikolaos Mihalopoulos

(Course B2)

Professor (University of Crete)

Director of the IERSD (N.O.A)



Evangelos Gerasopoulos

(Course B3)

Research Director

National Observatory of Athens

The main part of the taught and laboratory courses takes place in the campus of the University of the Peloponnese in Kalamata. During their thesis project, students can work at the facilities of all collaborating partners.

SCHOOL FACILITIES

- Computer room with 25 personal computers
- Library with study room for 20 students
- Free access to electronic journals through Heal-link, ProQuest, etc.
- Free Wi-Fi
- Student restaurant



LABORATORY FACILITIES

- Laboratory of Archaeometry, University of the Peloponnese (Kalamata)
- Institute of Nanoscience and Nanotechnology, National Center for Scientific Research "Demokritos" (Athens)
- Institute of Nuclear and Particle Physics, National Center for Scientific Research "Demokritos" (Athens)
- Institute for Environmental and Sustainable Development Research, National Observatory of Athens (Athens)



ANALYTICAL INFRASTRUCTURE

LED Optical Microscopes

Polarized Microscope, PC connected & software-controlled

Scanning Electron Microscopy/Energy Dispersive Analyzer

Transmission Electron Microscopy

Benchtop X-Rays Diffractometry (XRD)

Portable X-Rays Fluorescence (XRF)

Portable Raman Spectroscopy



REMOTE SENSING, GIS & DIGITAL TECHNOLOGIES

Proton Magnetometer

GPS

Total GPS Station

Multi-purpose GPS GNSS Base & Rover

Optical Level System with Tripod & Laser Stave

GIS Software

UAVs (drones)

Octocopter

LiDAR

3D Laser Scanner, Scanners & Printer

VR Headset



OTHER

Sample preparation rooms with controlled light

Fume Cupboards

Coring Devices, hand drill and gas operated

Laboratory Standards (glasses, soils, metals)

Digital Cameras

PC units



ENTRY REQUIREMENTS

CultTech is mainly addressed to graduates of schools of **heritage conservation, archaeology, cultural heritage, material science and engineering**. Graduates of similar or relevant fields are also welcome to apply.

MINIMUM REQUIREMENTS FOR CANDIDATES

- Overall degree of Upper Second Class or above
- English language certificate, at a level of C1 or above



APPLICATION & SUPPORTING DOCUMENTS

The application form and instructions on how to complete it are available at our [website](#). Supporting documents include:

1. Fully completed electronic application form, which includes an academic CV, a personal statement and the contact details of two referees.
2. Scanned university or technological educational institute degree(s). The overall grade of the degree must be Upper Second Class or above. For degrees of foreign Higher Education Institutions, a formal recognition issued by the Hellenic National Academic Recognition Information Center («Δ.Ο.Α.Τ.Α.Π.») is also required.
3. English language certificate, at a level of C1 or above. Certificates issued by foreign institutions must be formally certified, according to the provisions of the Greek law.
4. Scanned passport or ID.
5. A recent photograph.

RESEARCH AND CAREER PROSPECTS

CultTech MSc has been running for the past 6 academic years, with over 50 graduates so far. The majority of CultTech graduates are currently working in positions related to Cultural Heritage and Archaeology in Greece or abroad (e.g. multiple Ephorates of Antiquities in Greece, Imperial War Museum North in Manchester, Landes Museum in Hannover etc.).

CultTech MSc is strongly oriented towards research, providing students with the necessary practical and theoretical tools to pursue an academic career. As a result, over 30% of the CultTech graduates are currently PhD candidates in universities of Greece or abroad.

Additionally, Indicative publications and conference presentations by CultTech students and graduates (based on the research carried out during the implementation of their thesis) can be found in our [website](#).



SCHOLARSHIPS

Each academic year, scholarships based on academic and social criteria may be awarded to students. The number of scholarships, the financial amount rewarded and the process for the award of scholarships is determined in detail by the Special Cross-Institutional Committee of the MSc. The criteria for the award of scholarships must be mentioned in the call for expressions of interest each academic year.

FEES

The total cost of fees for all students will amount to 4,000€, which will be paid in two installments. The first instalment must be paid upon acceptance to the programme and the second instalment at the beginning of Semester B.

STUDENT ID

All graduate students are issued a Student ID. The Student ID is used for access to all academic facilities as well as benefits throughout Greece and the EU. These benefits include,

- Transportation fare discounts ranging from 25% on the normal price for bus tickets long distance travel, eq. 25% on the fare from Kalamata to Athens, to 50% for local to the city of study services and at least 25% discounts on ferry tickets.
- Discount student mobile and internet fees
- Discounts in cinemas, theaters, concerts, etc.
- Kalamata Municipal activities, gyms and clubs also offer discounts for students.

GETTING AROUND

CultTech is taught on the historic campus of the University in Kalamata, the second largest city in the Peloponnese. Kalamata is located at the center of the Messinian Bay and at the foot of the breathtaking Mount Taygetos. Students attending the **CultTech** MSc program have the opportunity to live and attend courses near the city centre and only a short walk from the iconic beachfront.



The city of Kalamata was awarded the 2018 Best City Award (Gold & Bronze) for its infrastructure, which includes a modern cycling and pedestrian network, making walking and cycling the best ways of getting around. Recently the Municipality began a bicycle sharing service using a phone app with 7 stations around the city including just outside the Kalamata campus.

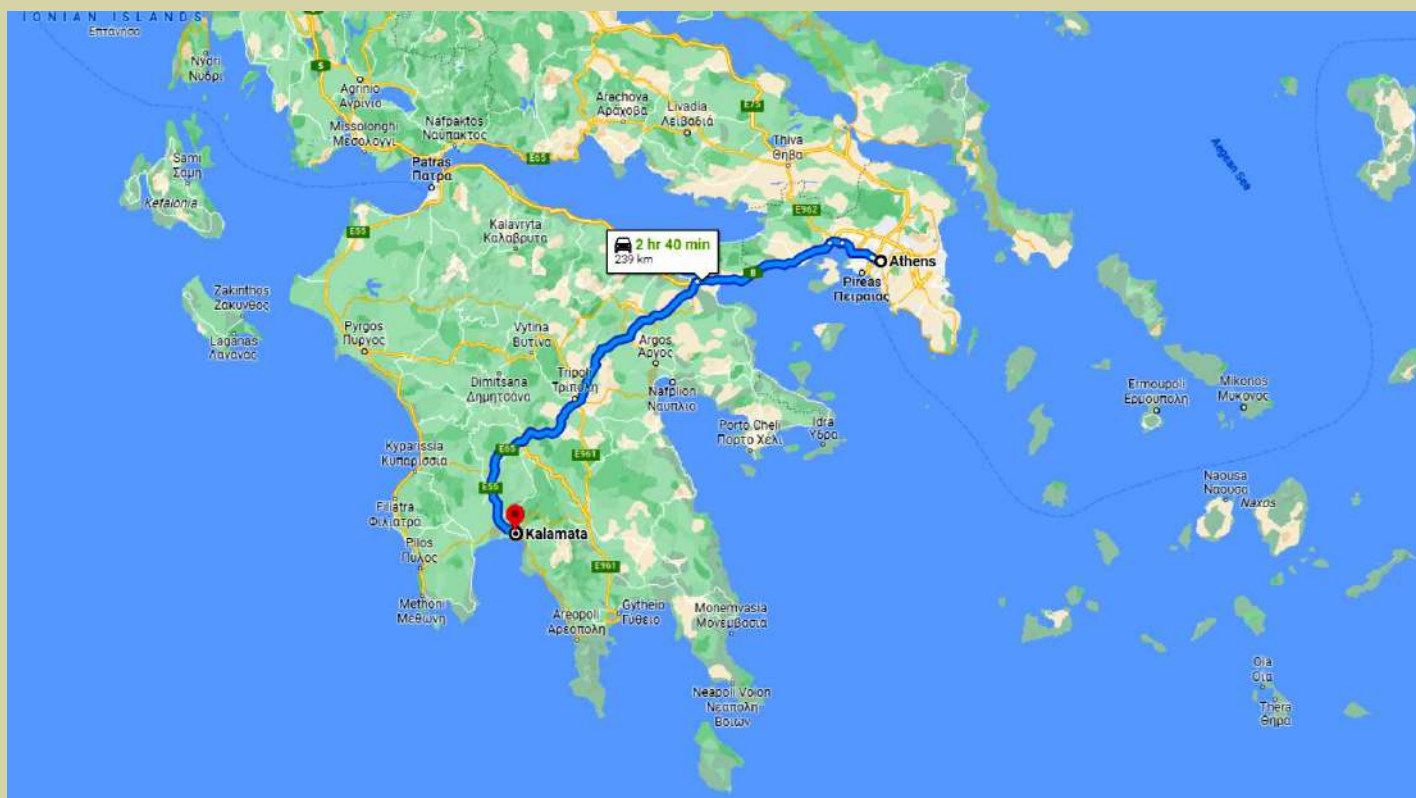
Local Buses run frequent services across the city with four different lines. Each bus line runs approximately every 30 minutes. The fare costs 1 euro. Tickets can be purchased at kiosks or inside the bus. Bus schedules at astikoktelkalamatas.gr (in Greek) and Facebook page.

GETTING HERE

The CultTech MSc classes are taught mainly at the University of the Peloponnese Kalamata Campus situated just east of the city center.

Only a two and half hour drive from Athens by car, three hours by bus from the Central Bus Station in Kifissos, Athens and a mere 9 km from the Kalamata International Airport, the city is easily accessible.

Bus services link Kalamata to Athens in under 3 hours and are frequent, up to every hour on some days. You can find more information about the bus schedules at ktelmessinias.gr.





For further information on the programme, please visit our [website](#) or contact us at:

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