

1st Winter School on Non-destructive Techniques for Cultural Heritage Preservation

The Winter School intends to promote the scientific competencies of Egyptian students, professors, scientists, and practitioners in the application of Non-destructive Testing (NDT) techniques for Cultural Heritage studies. Due to the possibility to investigate the structure and the conservation status of such complex and valuable objects in a non-invasive way, NDT methods have an enormous potential for the cultural heritage field.

The Winter School is jointly organized by the Center of Non-destructive Techniques, Faculty of Engineering Cairo University (CU) and the Chair of Non-Destructive Testing of the Technical University of Munich (TUM) thanks to the financial support of the German-Egyptian Progress Partnership Program of the German Academic Exchange Service (DAAD). Both partners are successfully collaborating since 2020 in the investigation of the Great Pyramids in the framework of the ScanPyramids Project.

The Winter School will be held at the Faculty of Engineering – Cairo University. It will be directed by Prof. Hany Halal (CU) and Prof. Christian Grosse (TUM). Researchers of both institutions will give lectures on the theoretical and practical aspects of the application of NDT techniques. In particular, the challenges and the boundary conditions for the application of such methods for the study of cultural heritage objects will be addressed and discussed.



The sessions are scheduled from the 3rd to 9th February 2022 and will cover the following topics:

- Introduction to Non-destructive Techniques,
- Test Concepts and Basics of Sensing Techniques,
- Ultrasound Measurements,
- Impact Echo,
- Seismic and Seismology,
- Ground Penetrating Radar,
- Electrical Resistivity Tomography,
- Acoustic Emission Analysis,
- Non-destructive Analytical Methods for Material Characterization (In Situ),
- Long Term Monitoring in Cultural Heritage.

The school will follow the 1st Winter School “Piero Gazzola” on Rock Mechanics for Cultural Heritage Preservation organized by the Cairo University, the Academy of Science and Technology, Egypt, the Sapienza University of Rome, and the Italian Institute for Culture in Cairo, which is scheduled from January the 29th to February the 3rd 2022.

The activities of the two winter schools will overlap for two days. After a first introduction to the NDT methods, the participants will be visiting the site of Saqqara planned on February the 3rd 2022. A second field trip is planned for February the 9th 2022 to provide a practical application of the theoretical aspects covered during the school.



The application should be sent by email (rocklab@eng.cu.edu.eg) with subject: NDT WINTER SCHOOL. The selection will be based on the following criteria: 1) enrollment in Engineering, Geophysics, Geology, Archeology or Architecture university program (maximum 20 points), 2) support letter from the institution of belonging (maximum 20 points), 3) English knowledge (maximum 20 points), 4) motivation letter (maximum 20 points) and 5) curriculum vitae (maximum 20 points).

All applications will be fairly treated and the top 30 candidates will be selected.

The deadline of application submission is **1st January 2022**.