

Technical University of Crete

<http://www.tuc.gr>

(summary of the talk given during the NatRisk study visit, June 10, 2017, based on material prepared by Mrs Thelma Mavridou, from the Public and International Relations Department)

Professor Georgios E. Stavroulakis (gestavr@dpem.tuc.gr)

Deputy Rector of Infrastructures, Accreditation and Lifelong Learning

Location: Chania, Crete, GREECE



The CAMPUS: Region Akrotiri

Facts & Figures

State university, established in 1977

- 5-year undergraduate program leading to a Diploma of Engineering
- Graduate study programs leading to Master of Science and Ph.D. Degrees
- Students: 5,129
- Postgraduate students: 902
- Doctoral students: 301
- Professors: 121
- Schools: 5
- Degree Programs: 5
- Doctoral Programs: 5
- Research Institutes: 1



(Figures as per 2015-2016)

University's Profile

TUC is a small, young and dynamic University with a clear mission:

- To expand **knowledge** and **benefit society** through **research** integrated with **education**
- The pursuit of **excellence** in education and research



2016

The highest possible rank, **“Worthy of Merit”**, was awarded to TUC, according to the External Evaluation Report by the Hellenic Quality Assurance & Accreditation Agency

2015

The School of Environmental Engineering is ranked among the places 251-300 for the Environmental Sciences (QS TOP Universities Ranking | by Subject category)

2014

The Technical University of Crete was among the 400 top Universities (QS TOP Universities Ranking | by Faculty 2014 | in Engineering & Technology)

2013

TUC ranks first among all Greek Universities in research publications marking the highest citation score and exceeding the world average

(National Documentation Centre of Greece | Study Title: *Greek Scientific Publications 1996-2010: Bibliometric analysis of Greek publications in international scientific journals-Scopus*)



**TECHNICAL
UNIVERSITY
of CRETE**

Academics

Schools & Academic Structure

- School of Production Engineering & Management (1984)
- School of Mineral Resources Engineering (1986)
- School of Electronic & Computer Engineering (1990)
- School of Environmental Engineering (1997)
- School of Architectural Engineering (2004)



Objectives

- 5 year Engineering Diploma
- M.Sc. & Ph.D. Graduate programs
- Basic & Applied Research

Academics - Degrees offered

(1) Diploma of Engineering

- 5-year undergraduate program leading to a Diploma of Engineering
- Total duration of ten semesters
- Nine semesters are allocated for coursework
- Final semester for Diploma Thesis

(2) M.Sc. and M.Eng.

- All Schools offer postgraduate programs.
- The duration of postgraduate studies at the Master's level is two semesters (minimum).
- Overall grade point average of 7,5 as well as very good knowledge of English.
- Scholarships/research assistantships are offered.

(3) Doctoral degree

- Are awarded by each School upon the completion of a PhD thesis and an open defense.



School of Production Engineering & Management



Divisions

- Science Division
- Production Systems
- Decision Sciences
- Management and Administration

Graduate Program - fields

- Engineering management
- Production systems
- Operations Research
- Applied mathematics

School of Mineral Resources Engineering



Divisions

- Mineral Exploitation and Positioning
- Mineral Exploitation
- Mineral Technology

Graduate Programs

(1) Geotechnology and the Environment

- Exploration & Positioning in the Management of the Geo-environment
- Exploitation of Mineral Resources and Geotechnical Construction
- Exploitation of Industrial Minerals, Materials, and Energy Resources

(2)



**petroleum engineering
MSc course**

<http://www.mred.tuc.gr>

School of Electronic & Computer Engineering



Divisions

- Computer Science and Engineering
- Electronics
- Control Systems
- Telecommunications

Graduate Program

Electronic and Computer Engineering

School of Environmental Engineering



Divisions

- Environmental Hydraulics & Geoenvironmental Engineering
- Environmental Management
- Environmental Process Design & Analysis



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Graduate Programme

Environmental Engineering

- Water Resources and Climate Change
- Water and Waste Treatment
- Environmental Management, Sustainable Energy and Climate Change

<http://www.enveng.tuc.gr>

School of Architectural Engineering



Divisions

- History and Theory of Architecture & Fine Arts
- Architectural Design & Restoration of Monuments
- Urban Planning
- Architectural Technology

Graduate Programme

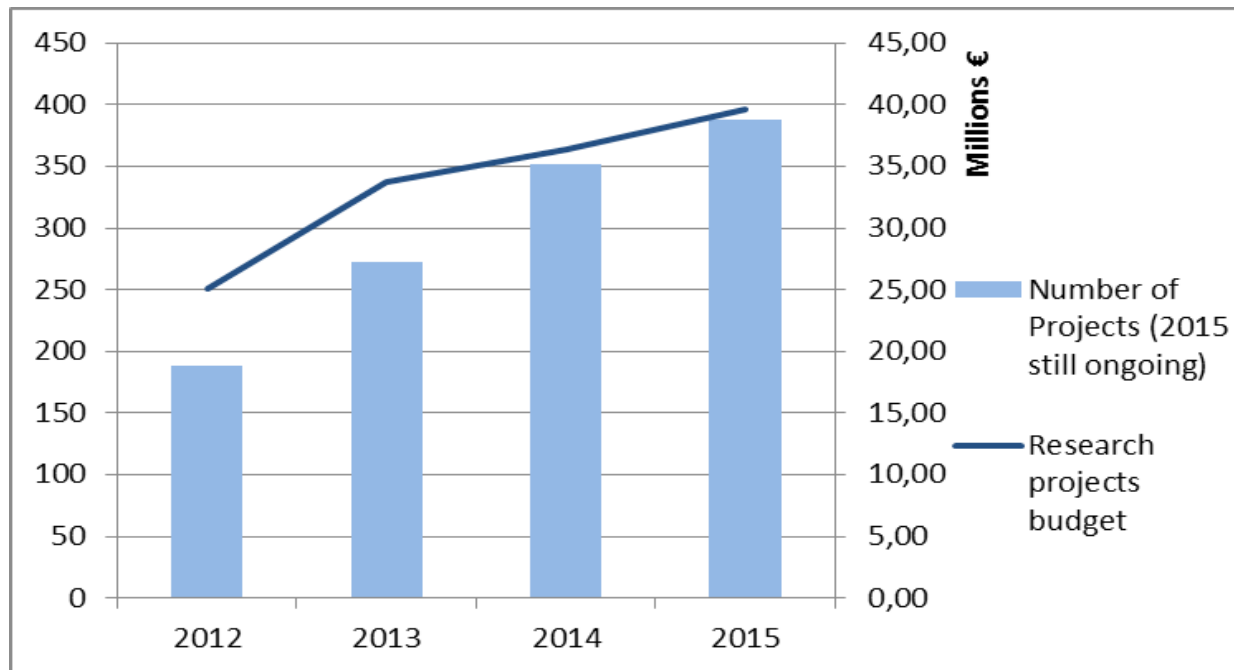
MSc in
Space, Design and Built Environment



Research

Research Projects

- The number of research projects under management has doubled between 2012 and 2015 (from 188 to 388).
- Research projects are currently budgeted to almost 40M€ vs 25M€ in 2012, a cumulative increase of 60%.
- Almost 520 researchers and 40 administrative employees are appointed yearly in order to work on, or support these projects
- During the last 3 years almost 1000 contracts have been signed with Professors involved in these projects, creating a strong incentive for high quality personnel retention.



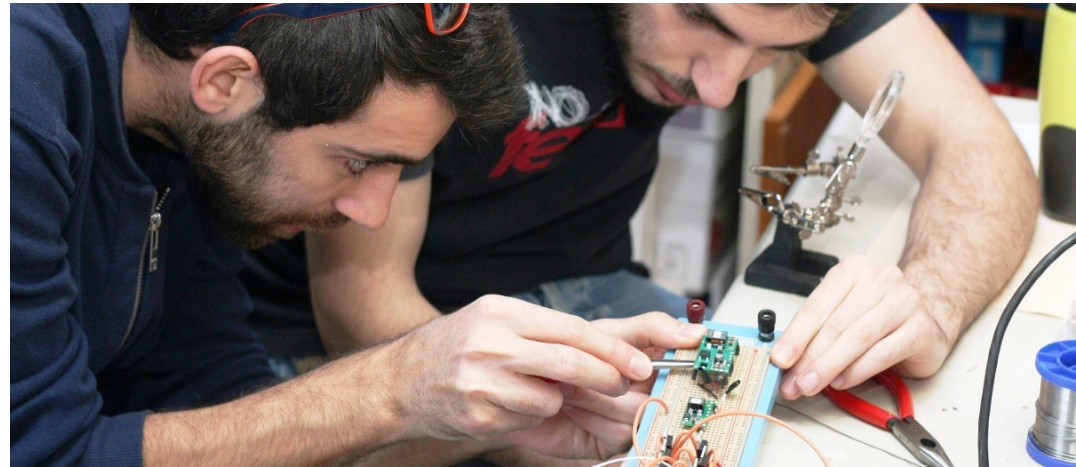
Key Research Areas

- Information science, telecommunications, telecommunication networks and computer communications, electronics and optoelectronics, voice, image and - video processing, speech and telecommunications systems, robotics and automation
- production and management systems, traffic monitoring systems, high risk investments
- extraction of mineral resources, mining technology, exploration & positioning
- protection of water resources, coastal engineering, environmental structures-natural disasters, sustainable energy and climatic change, environmental sciences
- restoration and protection of monuments.

Clusters of Excellence

Institutional commitment to contribute towards solving grand societal challenges → to promote development

- Water Resources and Agricultural Development
- Smart Energy
- Oil Pollution
- Protection, Conservation and Restoration
- Imaging and Diagnostic Technologies and Services
- Digital Multimedia, Web and Mobile Services



Research quality: Impact

TUC ranks first among all Greek Universities in research publications marking the highest citation score and exceeding the world average

- According to a study by the National Documentation Centre of Greece (EKT) in 2013
- Study Title: *Greek Scientific Publications 1996-2010: Bibliometric analysis of Greek publications in international scientific journals-Scopus*
- Based on data from the internationally established Scopus Database
- A bibliometric analysis of Greek scientific publications in international scientific journals using established and reliable indicators
- TUC's citation score is the highest among all Greek Universities (citation score 1.26)
- TUC's citation score exceeds the world average

Telecommunication Systems Research Institute

- Independent Research Institute established by the Greek Ministry of Education in 1995.
- Operates within the framework of TUC.
- Financially self-sustained entity mainly funded by external research contracts and grants.
- It provides technical support, space, research infrastructure and access to cooperating faculty members and highly qualified R&D engineers with experience in project planning, execution and management.

Main objective

To promote postgraduate education, research and development in the areas of Telecommunications and Telecommunication Systems.

Research & Development interests

Digital Communication Systems, Communication Networks and Computer Networks, Broadband Networks, Wireless Communication Networks, Signal Processing for Physical Layer Communications, Speech and Language Processing and Automated Services over Communication Networks.



Academic Facilities

Directorate of Academic Affairs

Student Center

Hall of Residences

Can accommodate up to 78 students

University Restaurant

All University students may have breakfast, lunch and dinner at the student restaurant, which is open daily

University Cafeterias

Three cafeterias are open daily



Library



<http://www.library.tuc.gr/portal>



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Language Research & Resources Centre



ERASMUS+ Program



More than 80 inter-institutional agreements have been signed in the framework of the Erasmus+ Programme

Career Services Office

The Career Services Office a link to the academic institutions and the job market in Greece and abroad, aiming to assist the students and graduates of TUC in successful career planning and placement





In the spotlight

TUC Eco Racing Team

- **Develops** zero emission urban vehicles since 2007.
- **The first vehicle was built in 2008** and until 2015 four more one-seated urban concept vehicles followed.
- **The vehicles are constructed** entirely at Technical University of Crete labs.
- TUC Eco Racing Team (TUCer) participated for the 8th consecutive year at the International **Shell Eco Marathon 2015**, in Rotterdam, the Netherlands, in the Urban Concept – Hydrogen category.
- TUCer Team finished in the **4th place**. Taking part in the **Urban Concept-Hydrogen category**, TUCer Team presented a new low-weight vehicle using an innovative gear box and a new energy-control management system.

Energy consumption: 193 km/m³ H₂.



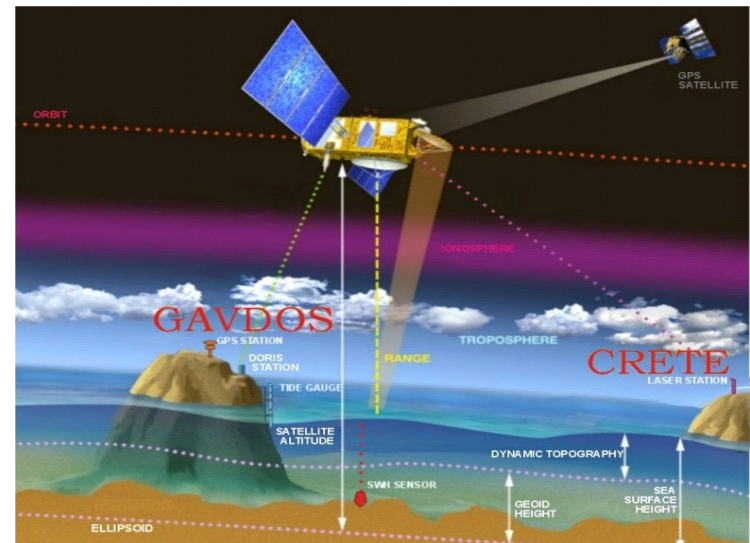
*Intelligent Systems & Robotics
Laboratory, School of Production Eng.
& Management, TUC
More info: <http://www.tucer.tuc.gr/>*

Satellite Station of TUC

- It is the third satellite station at international level, following the ones in California and Corsica, in altimeter satellite calibration.
- It is funded by the European Committee, the Technical University of Crete, the Space Agency of the United States, the Space Research Centre of France and the Space Research Centre of Austria.

The data collected by the station is used to:

- monitor weather changes on Earth
- monitor the absolute changes in sea conditions (wave height, wind velocities etc)
- underpin pollution in Eastern Mediterranean
- monitor the geodynamic and tectonic micro-displacements of Crete





**KILL
SPILL**



- Removing leaks is hard...
- Waiting for microorganisms in the sea to remove them takes too long.
- What if the bacteria could eat faster?

That's the goal of the
European Research
Project FP7-KBBE:

KILL*SPILL

*Coordinator: Professor Nicolas Kalogerakis
School of Environmental Engineering, TUC*

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www.enveng.tuc.gr

Human Brain Project

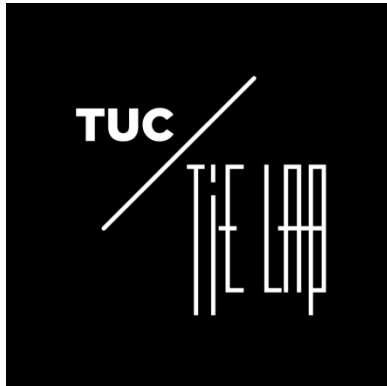


The School of Electronic & Computer Engineering of the TUC and the Software Technology & Network Applications Laboratory are partners in the Human Brain Project (2013-2023), one of the 2 EU FET Flagship Initiatives in the Future & Emerging Technologies sector in the European Union in the «Europe 2020» development strategy of the European Union for the decade 2010-2020.

Research Areas: Neuroscience, Medicine and future Computing Technology.

Many Happy re-Turns Project

Many Happy re--Turns PROJECT is the Silver Winner at the International Design Awards IDA-14



Products Designs Category



Many Happy re-Turns is a leading project of the Educational Playscapes research direction at the Transformable Intelligent Environments Lab in the Technical University of Crete.



Konstantinos -Alketas Oungrinis (Assistant Professor)
Marianthi Liapi (Research Associate), Elli Gkologkina (graduate)
Architectural Engineering School, TUC



<http://www.tielabtuc.com/>

TUC student creates the wristband NYMI which is based on a unique cardiac signature



Dr.Foteini AGRAFIOTI

- Graduated the Electronic & Computer Eng. School
- Is now **Post Doctoral Fellow** at the Dept. of Electrical & Computer Engineering, University of Toronto
- Co founder and CTO of Bionym, the manufacturer of Nymi. Nymi is a wristband that knows who is wearing it based on a unique cardiac signature!





Outreach policy-Campus Events

Science & Technology Day



TUC was the first and still remains the only University in Greece engaged to STEM philosophy

STEM=Science, Technology, Engineering and Mathematics

STEM



Science • Technology • Engineering • Math

Open Day



**Ανακαλύψτε
το Πολυτεχνείο
Κρήτης!**

**ΑΝΟΙΚΤΗ ΗΜΕΡΑ
ΓΝΩΡΙΜΙΑΣ**

ΔΕΥΤΕΡΑ 30 ΜΑΡΤΙΟΥ 2015
10:00 – 18:00 | ΠΟΛΥΤΕΧΝΕΙΟΥΠΟΛΗ

Ζήστε μαζί μας την εμπειρία της εκπαίδευσης Μηχανικών
για μια ημέρα στο Πολυτεχνείο Κρήτης!

- παρακολουθήστε «ανοικτά μαθήματα» σε αμφιθέατρα στην ειδικότητα μηχανικού που σας ενδιαφέρει
- γνωρίστε τα πρόσφατα επιτεύγματα τεχνολογίας των εργαστηρίων των Σχολών
- περιηγηθείτε στην Πολυτεχνειούπολη και γνωρίστε τις εγκαταστάσεις με την βοήθεια εθελοντών φοιτητών
- συναντηθείτε με το προσωπικό, τους καθηγητές και τους φοιτητές
- ελάτε σε επαφή με τις φοιτητικές ομάδες
- ενημερωθείτε για τις υπηρεσίες που παρέχει το Πολυτεχνείο Κρήτης
- ανακαλύψτε ποια Σχολή σας ενδιαφέρει



Πληροφορίες:
Τμήμα Δημοσίων &
Διεθνών Σχέσεων
Πολυτεχνείου Κρήτης,
τηλ. 28210 37047





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In the Spotlight



The Oslo Opera House—Condition analysis and proposal for protection and maintenance of exterior marble



Significant Paper at FPL London 2015 list



First prize at the POTY2k15 contest organized by Dassault

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<http://www.tuc.gr>

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www.tuc.gr



Thank you very much

See the official video of TUC at Youtube:

<https://www.youtube.com/watch?v=uzdpFTBLNhU>

Follow us in Facebook: <https://www.facebook.com/TUC.Chania>

Professor Georgios E. Stavroulakis (gestavr@dpem.tuc.gr)
Deputy Rector of Infrastructures, Accreditation and Lifelong Learning