



Short Profile

Democritus University of Thrace



DEMOCRITUS
UNIVERSITY
OF THRACE

The Democritus University of Thrace (DUTH) is one of the top universities in Greece. It was established by Legislative Decree No. 87 on 27th July 1973. DUTH is headquartered in the city of Komotini, the capital of the Administrative Region of Eastern Macedonia and Thrace. With more than 29,000 students, 8 Faculties, 18 Departments and other institutions, the Democritus University of Thrace plays an important role in strengthening the national and cultural identity of the region of Thrace. The mission of the Democritus University of Thrace is to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

The Mechanical Design Lab. (MeDiLab©)

The globalized economy and research, the minimization of cost per unit produced and the increased demand for high quality, contribute to the creation of new products and services pushing for innovation, competitiveness and industry growth forward both the past and the upcoming decades.

MeDiLab© offers series of undergraduate courses designed to prepare engineers for the future developments, focusing on the needs and technological advancements of today while taught from past experience.

In parallel, MeDiLab©'s mission is to pursue fertile industrial research cooperation with a variety of businesses operating across various productive sectors, promoting innovation, competitiveness and business growth.

MeDiLab© offers services in design, study / research, construction, diagnostics, and innovative technologies. Its highly educated personnel, modern equipment and the established collaborations, guarantee effective and prosperous collaborations.

MeDiLab©'s special focus on innovative technological developments and business growth through increased competitiveness has contributed to the development of the University's Innovation and Entrepreneurship Unit (IEU). The IEU aims to develop the entrepreneurial culture and mindset of the young people through actively supporting and equipping students and graduates with the necessary knowledge, skills and capabilities to develop entrepreneurial careers. The IEU offers educational training in entrepreneurship; practical training on entrepreneurship using innovative tools and techniques, mentoring, coaching, networking and technology transfer services connecting academia with industry actors.

Me Di Lab@ Topics of Interest

■ Local Energy Communities

■ Renewable Energy/Thermal Energy Storage

■ Designed Methods and Certification/BIM/DT

■ Maintenance

■ Energy trading

■ Decision making/feasibility studies on industrial installations



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Selected National and EU Projects



The SEEDS project aims to reduce buildings' thermal energy demand and enable energy flexibility to increase the RES share, enhancing grid stability in a cost-effective way with low life cycle environmental impact.



The main objective of REHOUSE is to develop and demonstrate renovation packages fully designed for a wide range of building renovation actions following circularity principles, including multifunctionality through active/passive elements integration, prefabrication and off-site construction of components. Respect of buildings aesthetics, architectural and historic value are considered of great importance. REHOUSE also implements an inclusive people-centric social engagement strategy to endow the renovation wave with a resident and owner perspective towards affordability, satisfaction and attractiveness of sustainable renovation.



MiniStor stand for Minimal Size Thermal and Electrical Energy Storage System for In-Situ Residential Installation. This is a project funded by the European Union's Horizon 2020 research and innovation programme to offer a sustainable solution to harness the energy efficiency potential of the European building stock.



RENAISSANCE aims to demonstrate an easily replicable approach to design and operate local integrated energy systems that have a high and stable level of social acceptability.

The project will demonstrate local energy systems that meet or exceed the EU target of 27% of RES across energy sources, at equal or lower cost of energy in comparison with current solutions and reach a critical mass of participation of 15-20% of citizens and businesses.



Fostering the use of low temperature geothermal sources through the development of operational exploitation guidelines and green energy solutions of enterprising.

The project promoted the wise use of low temperature geothermal fields as strategic energy sources for green development in Greece & Bulgaria. The project focused on the enhancement of geothermal systems component research & analysis through pilot applications and the development of operational application guidelines and cost effective techno-economic models of green energy use at both public and commercial level.

Covenant of Mayors

Sustainable Energy Action Plans (SEAPs) for Municipalities of Kavala, Alexandroupoli, and Orestiada. A Sustainable Energy Action Plan (SEAP) is the key document in which the Covenant signatory outlines how it intends to reach its CO₂ reduction target by 2020. It defines the activities and measures set up to



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*Sustainable Energy Action Plans,
(SEAPs)*

achieve the targets, together with time frames and assigned responsibilities. The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories.



Europe Direct Ξάνθης
Δημοκράτειο Πανεπιστήμιο Θράκης

The Europe Direct Information Centre of Xanthi operates under the Employment and Career Office of DUTH benefited by the latter's experience, know-how, highly skilled personnel and infrastructure in several Thracian cities. The Europe Direct of Xanthi provides:

- immediate answers to general questions related to the EU
- directions to the best sources of information/advice regarding the EU
- information on rights and opportunities of EU citizens and how to exercise them
- access to EU publications
- specific EU documents (legislation, publications, press releases etc.)
- factsheets, reports, statistics, working documents etc. on specific EU policies.

Information about European integration, history, symbols, institutions, etc.



*Energy efficiency in Low-income Housing in the
Mediterranean*



ELIH-Med is a strategic project co-financed under the MED Programme. The project focuses on energy efficiency in low income housing (LIH) in the Mediterranean area and on the involvement of residents in energy retrofit in LIH in order to help the MED area to reach EU2020 objectives.



*Maintenance and Life Asset Management: The
Cornerstones for Sustainable Development*



MainCODE aims to create a competitive cross-border economic zone, attractive for national and international investments, through the implementation of Life Cycle Asset Management and Maintenance Policies.

Innovation and Entrepreneurship Unit



Μονάδα Καινοτομίας &
Επιχειρηματικότητας
Δημοκράτειο Πανεπιστήμιο Θράκης

DUTH's Innovation and Entrepreneurship Unit (IEU) aims at promoting entrepreneurial culture and thinking of the young people through actively supporting and equipping students and graduates with the necessary knowledge, skills and capabilities to develop their entrepreneurial careers.



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CRAFT

“Solar Air Conditioning System Using Very Low Cost Variable Plastic Ejector, with Hybrid potential for different markets”

CRAFT project focused on increasing competitiveness of SMEs, creating networks and utilizing ICT technologies. The project was funded by Interreg IIIA.

MeDiLab© Research Team

Professor Pantelis N. Botsaris (M) is an electrical and computer engineer with a specific areas of interest in environmental conscious mechanical design for sustainable manufacturing and energy savings, diagnostics and prognostics of electromechanical systems and structures (especially renewable energies), structural health monitoring, experimental measuring systems and techniques for the development of smart meters especially for energy consumption, Non Destructive Techniques (NDT-thermography), CAD/CAM/CAE. P. Botsaris is former Deputy Rector of Research and Innovation of DUTH as well as Head of SARF (since 2013), responsible managing national EU projects, research and development of the university. Major responsibilities included: management of SARF yearly budget (about 17 million EURO per year), management of research funding from any type of source, acquiring new sources of funding for the university. Pantelis is the Head of the Mechanical Design Laboratory (MeDiLab ©, <http://medilab.pme.duth.gr>) of the Department of Production Engineering and Management, School of Engineering, which has developed in recent years series of collaborations with a range of local and regional institutional actors and businesses leading to the operation of an open space lab for new product development. He has also implemented as a scientific coordinator two large pilot project of installing innovative RES technologies within the university systems. Pantelis was (2013-2018) the Scientific Coordinator of the Innovation and Entrepreneurship Unit of DUTH that aims to develop the employability competences and entrepreneurial culture, skills and attributes of students and graduates. He has coordinated actions designed for providing real practice-based experience of students to existing enterprises solving real challenges. He holds a Patent (No.1005235) and of a Utility model certificate (No. 20060200084) from the Industrial Property Organization of Hellas (O.B.I.) and he has long teaching and management experience of national and EU projects. Email: panmpots@pme.duth.gr

Dr. Anastasios Orfanidis (M) Anastasios Orfanidis was born in Thessaloniki, Greece in 1966. He received his Diploma from the Department of Electrical & Computer Engineering, of Democritus University of Thrace in 1990 and his PhD in microwave antennas design from the same department in 2002. In 1995, he joined Space Engineering spa, Rome, Italy, where he worked on the development of an electromagnetic simulator for the analysis of waveguide horn antennas. In 1997 he joined the Microwaves Laboratory of the Department of Electrical & Computer Engineering, of Democritus University of Thrace, as a Research Engineer. He joined the Hellenic Aerospace Industry in 1998, where he was involved in telecommunications and electronic warfare projects. Since October 2000, he is with the Network Administration Center (NAC), of Democritus University of Thrace, in Xanthi, Greece, and he is the Director of NAC since 2011. He is involved in deploying secure data networks, routing protocols using OSPF and BGP, web application development in PHP, JAVA script, AJAX, SQL as well as C, C++ and Bash scripts. From 2003 he serves as a visiting Lecturer at the departments of Production Management Engineering and Electrical & Computer Engineering, of the same University. His research interests include computer aided design, numerical techniques and electromagnetic cad-tools.

Konstantinos Lymperopoulos (M) is a MSc Mechanical Engineer in the background and currently a PhD Candidate at the Department of Production and Management Engineering (DUTH). His research focuses on application of medium temperature solar thermal systems in industrial processes. He holds an M.Sc. from Cardiff University, UK, in the subject of ‘Sustainable Energy and Environment’. He has worked in energy projects specializing in decentralized renewable energy systems for collective energy generation and consumption of building complexes and has successfully accomplished studies for the development of geothermal district heating networks and hybrid solar/biomass and solar/geothermal innovative energy systems. He has five years working experience as an expert in collaborative international projects. Email: klympero@pme.duth.gr

Dimitriadou Paraskevi (F): Paraskevi is a Civil Engineer (MEng, 2003) with an MSc in Hydraulics Engineering (2007) focused on Renewable Energy, both acquired from DUTH, Engineering Scholl of Xanthi. Currently she is a PhD candidate of the Department of Environmental Engineering, DUTH focused on Knowledge Management, Sustainability and Corporate Social Responsibility. She has worked for the private sector for ten years where she was involved in the structural design of residential and industrial buildings. For the past seven years she is involved with the implementation of European Funded projects



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Alexandros G. Pechtelidis (M): Alexandros recently got his MEng in Production & Management Engineering and in the past he got his diploma in “Environmental Engineering” and an MSc in “Hydraulic Engineering” emphasized in “Hydraulic Structures & Environment”, as well. Meanwhile, he gained more than five-year experience in European Research Projects, concerning novel renewable energy technologies and the optimal way of hybridization between different energy sources. At the same time, as a freelance engineer, he carried out environmental impact studies and as an energy inspector, he undertook autopsies and issued energy performance certificates for buildings. He recently boosted his professional experience by supervising the construction of two RES projects, utilizing different energy sources and technologies and being an external research partner/consultant of DUTH’s SARF & Technical Project Directorate.

Dr. Adamantios Papatsounis (M): has a degree in Production Engineering and Management (MEng) (2014 -2019), which was attended at DUTH. He is proficient in maintenance, failure analysis and risk assessment of complex electro-mechanical systems which was the main area of his postgraduate thesis. He recently obtained his PhD from the Department of Production and Management Engineering DUTH.

Dr. Eleftherios J. Lygouras (M): was born in Xanthi, Greece in 1986. He received his first degree (Diploma) from the Department of Production and Management Engineering of Democritus University of Thrace in 2014 and the MSc from the Department of Electrical and Computer Engineering of Democritus University of Thrace in 2016, in the field of Energy Systems Technologies and Renewable Energy Sources with specialization in Electric Machines. In January 2020, he received his PhD degree in the fields of Unmanned Aerial Vehicles (UAVs), Search and Rescue (SAR) operations and Computer Vision from the Department of Production and Management Engineering-Laboratory of Robotics and Automation- of Democritus University of Thrace.

Athanasios Papavasiliou (M): has a degree in Production Engineering and Management (MEng) (2017 -2022), which was attended at DUTH. Also, Athanasios is currently working on his PhD thesis at the Mechanical Design Laboratory entitled "Design, development and management of an intelligent thermal/cooling energy storage and distribution system in a distributed energy network".

Niki Efstratiou (F): Geologist, graduated from Aristotle University of Thessaloniki, specialized in Environmental Geology and environmental issues. Experience in European Research Projects, concerning Renewable Energy Sources. She is currently on the second year of a two-year postgraduate programme in Education Sciences in Hellenic Open University, focusing on research skills as well as the cultivation and development of scientific thinking.

Eleni Chatzianastasiou: She holds a Bachelor’s degree in Forest Science and an MSc in Environmental Management. She has professional experience working with natural ecosystems and has contributed to studies assessing the environmental impacts of renewable energy developments in natural environments.

Collaborations with Public and Private Institutions

Educational and Research Institutions

ATHENA, Research and Innovation Center in Information, Communication and Knowledge Technologies

CRES, Center for Renewable Energy Sources and Savings

NTUA, National Technical University of Athens

AUTH, Aristotle University of Thessaloniki

UWM, University of West Macedonia (Mater lab)

CERTH-Εθνικό Κέντρο Ερευνών και Τεχνολογικής Αναπτυξίας

CEA-Commissariat à l’Énergie Atomique et aux Énergies Alternatives, France

Local and Regional Authorities

Region of East Macedonia and Thrace

Regional Council of Innovation and Entrepreneurship of East Macedonia and Thrace

Region of Central Macedonia

Municipality of Kavala

Municipality of Xanthi

Municipality of Komotini

Municipality of Alexandroupolis

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Municipality of Drama

Municipality of Orestiada

Technical Chambers of EMTh

Chambers of Commerce and Industry of EMTh

Private Actors

GMC, Kampakas S.A. Design and production of metal parts and components for industrial and defense applications

BIMEKAT S.A. – Metal Constructions

Prisma Electronics – High tech products in the field of electronics, Information Technology, Telecommunications and Energy.

Dasteri, LED lighting manufacturing for indoor and outdoor spaces

Municipality of Samothrace

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KRITON Energy – Engineering and Construction

DQS – Certification of quality management solutions

Vergina, Macedonia Thrace Brewery S.A.

Rodopi, Dairy Products

More than Themes, Website Solutions

Scigen, Digital Design Solutions for Research Posters

Menexes, Office and Furniture Solutions

Sunlight, Energy Storage Solutions S.A.

COSMOTE S.A

SEEMs S.A, High-tech company focusing on the development of Digital Transformation solutions employing advanced technologies