



University
of Cyprus



Department of MECHANICAL and MANUFACTURING ENGINEERING

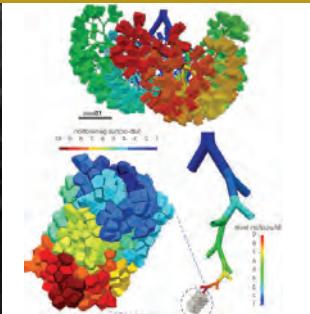
Faculty of Engineering

Introduction

Mechanical and Manufacturing Engineering is one of the broadest and most versatile branches of Engineering. It is part of almost every aspect of daily life and is at the heart of all technological developments. Simply put, it deals with the study of moving objects and systems, from small particles to large aircraft, and even the human body, which is a complex machine. Mechanical and Manufacturing engineers combine ingenuity, knowledge, and analytical, experimental, and computational tools to develop, from initial concept to implementation, solutions to technological problems, that affect every aspect of modern society.

The Department of Mechanical and Manufacturing Engineering (MME) is one of the four Departments of the School of Engineering of the University of Cyprus.

The first undergraduate students were admitted in September 2003, while the postgraduate programme accepted the first students in January 2005. The Department is staffed with experienced and distinguished teaching and research staff, with specializations covering a wide range of research fields. The undergraduate programme is four years long, designed according to international standards, and emphasizes cutting-edge sectors and technologies. The educational system in the Department provides high quality education and cultivates the entrepreneurial spirit in the graduates, aiming to give them confidence in promoting innovative ideas, with the goal of creating in Cyprus a new industry based on high technology, but also for them to acquire the knowledge and skills that will enable a successful career abroad, if desired.



UNDERGRADUATE STUDIES

The Department, at undergraduate level, offers the following degrees:

- Degree in Mechanical and Manufacturing Engineering, and
- Secondary Degree in Biomedical Engineering.

The study programme at the University of Cyprus is based on the European Credit Transfer and Accumulation System (ECTS). To obtain a Degree in Mechanical and Manufacturing Engineering, the minimum number of credits required is 240 ECTS, and the normal duration of study is 4 years. During the first three years, students acquire the basic knowledge and skills of the science of Mechanical and Manufacturing Engineering, while in the fourth year the students conduct their final year project leading to their diploma thesis, while at the same time they attend five Elective Courses (30 ECTS) from the list of Elective Compulsory Courses, which belong to the fields of Mechanical Engineering, Manufacturing, Biomedical Engineering, and Materials Science and Technology. The curriculum is designed to produce highly qualified graduates, with a strong background in the fundamentals of the field, with the social sensitivity and independence of thought needed for a successful career in Mechanical and Manufacturing Engineering.

POSTGRADUATE STUDIES

The purpose of the Department's postgraduate programmes is: (a) to provide higher and specialized knowledge to students in order to improve their scientific and professional training, and (b) to promote high-level academic research leading to discovery, innovation and scientific results in the wider field of Mechanical and Manufacturing Engineering, as well as in other related fields. The Department offers two-year Master of Science (M.Sc.) programmes, which focus on research, and Master of Engineering (M.Eng.) programmes, which focus on providing high-level specialized knowledge. It also offers four-year Ph.D. programmes. More specifically, the following postgraduate degrees are offered:

- Master of Science (M.Sc.) and Master of Engineering (M.Eng.) in "Mechanical and Manufacturing Engineering".
- Master of Science (M.Sc.) in "Advanced Materials and Nanotechnology".
- Doctor of Philosophy (Ph.D.) in "Mechanical and Manufacturing Engineering".
- Doctor of Philosophy (Ph.D.) in "Advanced Materials and Nanotechnology".

The Department also participates in the Interdepartmental Programmes:

- Master of Science (M.Sc.) and Master of Engineering (M.Eng.) in "Energy Technologies and Sustainable Design".

RESEARCH AREAS

Research and innovation are achieved in an environment that promotes collaboration between professors, students, industry and research institutes. The MME Department is staffed by internationally renowned and experienced academics, with specializations that cover a wide range of research fields. The research activities of the Department focus on the following areas:

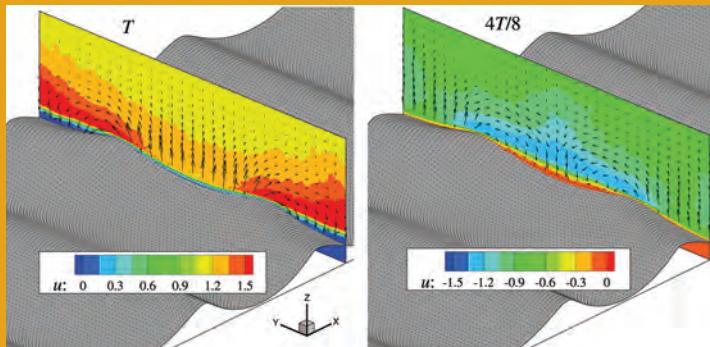
- Manufacturing
- Dynamic and Intelligent Systems
- Energy
- Biomedical Engineering
- Computational Mechanics and Artificial Intelligence Technologies
- Advanced Materials and Nanotechnology.

FUNDING

Over the past five years, members of the Department have participated in more than 100 research projects (including ERC Starting, Proof-of-Concept, and Consolidator Grants, Marie Curie Initial Training Network (ITN) and Transfer of Knowledge – Development (ToK-DEV) grants, etc.), funded by external funding sources such as the European Commission, research promotion foundations in Cyprus and the United States, etc., attracting total funding of over 20 million euros.

FUTURE EMPLOYMENT

Mechanical and Manufacturing Engineers are engaged in a wide range of industrial and business activities. Graduates can work as freelancers or seek employment, in areas such as the study of the energy efficiency of buildings and structures, the generation and transmission of electricity, the installation and operation of renewable energy systems, the design, installation and operation of desalination systems, environmental studies, the transportation and storage of natural gas, industrial design, design of new devices and methods in Biomedicine, design of improved products using new materials, automation of production and control of new products, environmental technology industry, workplace safety and hygiene, the design and management of heating, air conditioning and energy management systems in buildings, the design, construction and management of means of transport, and many others.



Interconnection with Industry

The academic members of the Department maintain close cooperation with companies both in Cyprus and overseas, e.g.

- Nicolaides and Kountouris Metal Company Ltd.
- Elysée Irrigation Ltd.
- EPOS-Iasis Research & Development Ltd.
- CYPET Technologies Ltd.
- SWEL (Sea Wave Energy Ltd.)
- Elcora Ltd.
- CyRIC - Cyprus Research and Innovation Center Ltd.
- Medochemie
- Vassiliko Cement Works
- Electricity Authority of Cyprus
- Cyprus Telecommunications Authority (Cyta)
- Hellenic Copper Mines Ltd.
- PWC
- Telmen Ltd.
- Novatex Solutions Ltd.
- Bosch
- Airbus, Germany
- Centro Ricerche FIAT, Italy
- Termo-Gen AB, Sweden
- TEGMA, Norway
- Smoltek AB, SWEDEN
- Engys, U.K.
- Aptar Pharma GMBH, Germany
- ELPEN Pharma, Greece
- Astra Zeneca, Sweden
- PureIMS, Netherlands

This provides the opportunity for students to access a real work environment and information on current technologies, by participating in group visits to companies, as well as internships during the summer months.

Testimonials of Students/Alumni

ATHENA ECONOMIDES, Ph.D., Post-doctoral researcher at ETH Zurich University and at University-Hospital Zurich, Switzerland. Harvard Associate in Applied Mathematics. Graduate of the Undergraduate and Postgraduate (M.Sc.) degrees from the Department of Mechanical and Manufacturing Engineering.



As a high school student, I chose the MME Department for the wide range of directions covered by the courses. During my studies, I attended excellent lectures by the professors, which provided deep insight in the various fields of Engineering. Through these lectures, I learned about the field of Computational Fluid Dynamics, and I was thrilled with its capabilities and applications. As a result, I chose this field as a "specialization" in the 4th year and then in the Master. The knowledge I gained, as well as the high academic training of the professors of the Department, helped me to enter the Doctoral

programme in one of the best universities in the world, ETH Zurich in Switzerland - the University where Einstein studied and taught! There, building on the foundations I gained at the UCY, I recently completed my Ph.D. in Blood Flow Modeling. During my Ph.D., I had the incredible opportunity to meet and collaborate with great people from around the world, and to attend workshops and lectures at the top universities Harvard and MIT in Boston. I am currently working as a postdoctoral researcher at ETH Zurich and the University Hospital Zurich, on the development of computational methods in neuropathology. I will always be grateful to my teachers at the MME Department for the valuable knowledge, advice and opportunities they gave me during my studies at UCY, which marked the beginning of an eternal journey of knowledge!

CHRYSOVALANTIS VOUTOURI, Ph.D., Marie Skłodowska-Curie Post-doctoral Fellow. Graduate of the Undergraduate, Postgraduate (M.Sc.) and Doctoral (Ph.D.) Programmes of the Department of Mechanical and Manufacturing Engineering.



My undergraduate studies at the MME Department of the University of Cyprus were the starting point for my later career. The cultivation of critical thinking and the foundations that I acquired at the undergraduate level, helped me advance my studies at the Ph.D. level in the Department, in a different field such as Biomedicine. During my Ph.D., I had the opportunity not only to attend classes and lectures by renowned professors, but also to collaborate with distinguished scientists from around the

world, within joint research projects. The good work done in the Department and, in particular, the experience and the research work of the professors, gave me the appropriate experiences and skills, so as to proceed with my research activities abroad. In particular, they have enabled me to receive a three-year Marie-Curie Individual Fellowship scholarship, for further training and collaboration with professors from Harvard Medical School.

LYSIMACHI IONA, Undergraduate Student.



After four years of studying at the MME Department, I can say with confidence that the knowledge and skills I have received so far, are much more than I could have ever imagined. When I was still in high school, I could not imagine that choosing this particular undergraduate programme of studies would involve dealing with so many different fields of Engineering, which surprised me very positively, giving me the opportunity to discover which fields I am interested in, so that I can pursue them either in my postgraduate

studies or, later, in my professional career. During the third year of my studies, I participated in a summer internship in an organization, through the Department and the Industry Liaison Office of the University of Cyprus, thus having the opportunity to put my knowledge into practice. Through the Department, I also have the opportunity to be a member, and for the last year the leader, of the FRTUCY Team. This group consists mainly of Mechanical Engineering students, and aims to build an original Formula Student Type Vehicle and to participate in international university races abroad. Joining the Team, was the perfect opportunity for me to face the challenges and problems that a mechanical engineer has to manage in real life, before I even complete my undergraduate studies.

THERESIA GIALOUROU, Ph.D., Bill & Melinda Gates Foundation, Graduate of the Undergraduate Programme in Mechanical and Manufacturing Engineering.



I graduated from the MME Department of the University of Cyprus in 2010. My journey from back then until today includes crucial stations: Ph.D. from the Bioengineering Institute/Laboratory of Hemodynamics and Cardiovascular Technology of the École Polytechnique Fédérale de Lausanne, Switzerland; then, to the Department of Product Development of the Omeros Pharmaceutical Company in Seattle, USA, to the BDO International Consulting/Auditing Company as a member of the Research and Development Department in the Life Sciences sector, and, finally, to the Bill and Melinda Gates Foundation, as Financial Investment Portfolio Manager in the Global Health Product Development

sector, in Seattle. The past, however, provides an identity to each of us, so, the four years of my undergraduate studies in the MME Department of the UCY are the ones that have defined and determined, to a significant extent, my course so far. The high quality education, the enlightened teachers, who inspired me, as well as the multifaceted knowledge that I have acquired, contributed to the formation of my way of thinking and led me to the transition from idea to implementation. Finally, studying in the excellent academic environment of the Department, gave me the opportunity to succeed in a competitive international environment.

FANIS PITTALIS, Undergraduate Student.



In the last three years that I have been studying at the MME Department, I have noticed a significant change in my way of thinking. A big part of becoming a mechanical engineer is the way you approach the problems you have to face, in order to arrive at the optimal solution. Each course has contributed to the gradual formation of my way of thinking, but also to the further understanding of the environment around me. The basic but important principles, I have learned, are the tools I use even in my

daily life. Through these courses, I also learned how to seek and pursue the acquirement of knowledge on my own. At the same time, however, I realize how little I know so far, which, however, further enhances my curiosity about learning. At the same time, my active participation in the FRTUCY Team of the University, in the context of designing a formula racing car, gave me the opportunity to realize that every course I am taught is a necessary pillar of knowledge, that enables me to properly address the various processes of the formula racing car development.

SOTIRIS PANTELI, Engineering Validation Specialist, Graduate of the Undergraduate Programme in Mechanical and Manufacturing Engineering.



Always fascinated by the concept of Engineering, I chose the undergraduate programme in Mechanical and Manufacturing Engineering of the University of Cyprus, as the first step for the expansion of my knowledge and my introduction to a field that requires deep knowledge of the subject. Due to the structure, the teaching modules and the previous research projects involved, the Programme provided me with the best way to achieve my goals. Always, of course, with the help and guidance of my teachers, who

had as their ultimate goal to create the right foundations through anthropocentric teaching, I managed to finish my Degree with distinction. Later, I continued with postgraduate studies (M.Sc. in Composites: The Science, Technology & Engineering Applications of Advanced Composites) at the Department of Aeronautics of Imperial College, one of the best universities in the world. There, I realized how high the level of the UCY undergraduate programme in Mechanical and Manufacturing Engineering was, which later helped me to complete my Master degree with Distinction. Not only were I not in any disadvantage compared to any of my fellow students at Imperial College, but in many cases I realized that, due to the strong background I acquired in the UCY, my knowledge often exceeded theirs. Finally, I believe that the undergraduate programme in Mechanical and Manufacturing Engineering was the best preparation to enter the labor market. With the emphasis given on strengthening the skills and practices of Engineering, I acquired the right foundations to be able, for the last 5 years, to work as an Engineering Validation Specialist in one of the largest pharmaceutical companies in Cyprus. Without a doubt, the knowledge and opportunities I have gained are innumerable and attending the UCY undergraduate programme in Mechanical and Manufacturing Engineering has been an unforgettable and unique experience.

CONTACT US

<http://ucy.ac.cy/mme/en/>

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