INTERNATIONAL HELLENIC UNIVERSITY,
SCHOOL OF ENGINEERING,
SERRES CAMPUS,
2022-23

Department of Mechanical Engineering

Mechanical Engineering is probably the broadest and most versatile of all the engineering professions!...

This is most prominently reflected in the activities of the **IHU Mechanical Engineering Department** (at Serres Campus), as well as in the curricula of both the undergraduate and the postgraduate studies programs offered!... This is a journey to **the current activities and the curricula of our Department.** We really hope that you will enjoy the ride!..

The **Mechanical Engineering Department** is part of the Engineering School of the International Hellenic University, Greece. It was founded in 1983 and assumed its present form in 1990. Since then, the Dept's faculty members have been involved to (and accomplished) a large number of both educational and research projects funded by the European Union, the Ministry of Education, and the General Secretariat of Research & Technology of Greece, as well as other financial resources (national industry units, municipalities, etc.).

Contact Details:

Department of Mechanical Engineering, International Hellenic University, Serres Campus, 621.24 Serres, Greece.

tel.: +30-23210-49124 & -49125
fax: +30-23210-49285

e-mail: info@mech.ihu.gr
web: https://mech.ihu.gr

Currently, the staff of the IHU Mechanical Engineering Dept. consist of **fourteen (14) faculty members** at all levels, two people in the administration office, and six members of technical staff. Ten (10) external associates (teaching and laboratory assistants) are also employed, under one- to three-year contracts, so as the educational needs of the Department are met. One more faculty member, at the Assistant Professor level, is expected to join us within 2023.

The main **research activities** of the IHU Mechanical Engineering Department faculty members involve the following topics:

- ✓ Computational mechanics & structural optimization
- ✓ Manufacturing technologies & robotics
- ✓ Modeling of machining processes
- ✓ Reverse engineering
- ✓ Composite mechanics
- ✓ Materials' properties
- ✓ Design development and optimization of renewable energy systems
- ✓ Heat and mass transfer in multi-phase systems
- ✓ Computational fluid dynamics, et c..

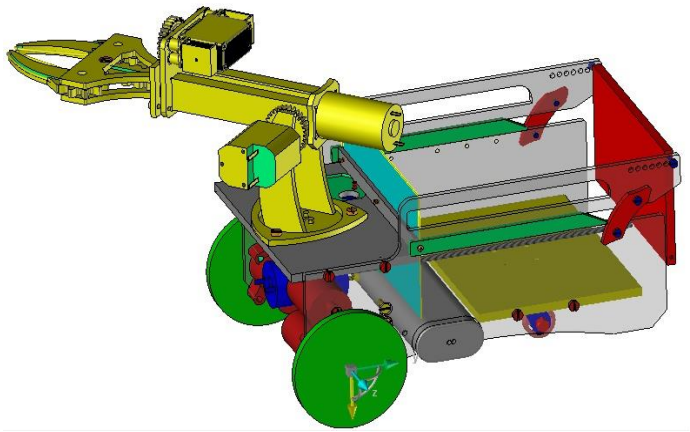
Most of research is performed using the infrastructure that is currently available in the IHU Department of Mechanical Engineering. Our University, being one of the most elaborated academic units in Greece, possesses, a **very well-equipped library** and, as member of the HEAL-Link (Hellenic Academic Library Link), provides access to the majority of international scientific journals, as well as to books of other libraries in Greece!...

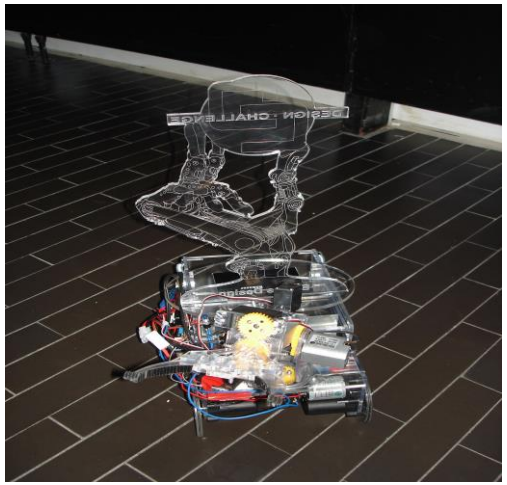
A glimpse into History – May 2012:

18th International Student Contest *"Design Challenge"*, May 7 – 8, 2012, at Jade Hochschule – Wilhelmshaven – Germany:

1st Prize to the team ROBOSER of our Department, for designing and developing a remotely controlled ROBOT that constitutes an integrated solution of readiness level 8 (i.e., ready for production)!...

The ROBOSER Team with the Prize





June 2012:

Department's external evaluation by a Committee (EEC) of experts from abroad, namely, from **England** (Brunel University), **USA** (University of Illinois and Texas A&M University), and **Canada** (Concordia University), under the auspices of the Hellenic Quality Assurance Agency.

The associated EEC Final Report was particularly **laudatory and positive,** especially, as regards the Department's laboratory equipment, as, e.g.,

"The manufacturing labs are equivalent to the ones of good schools of Mechanical Engineering in the world, and, in general, most of the teaching laboratories are of exceptionally good quality…"
Mechanical Engineering external evaluation report, p. 9 (July 6, 2012).

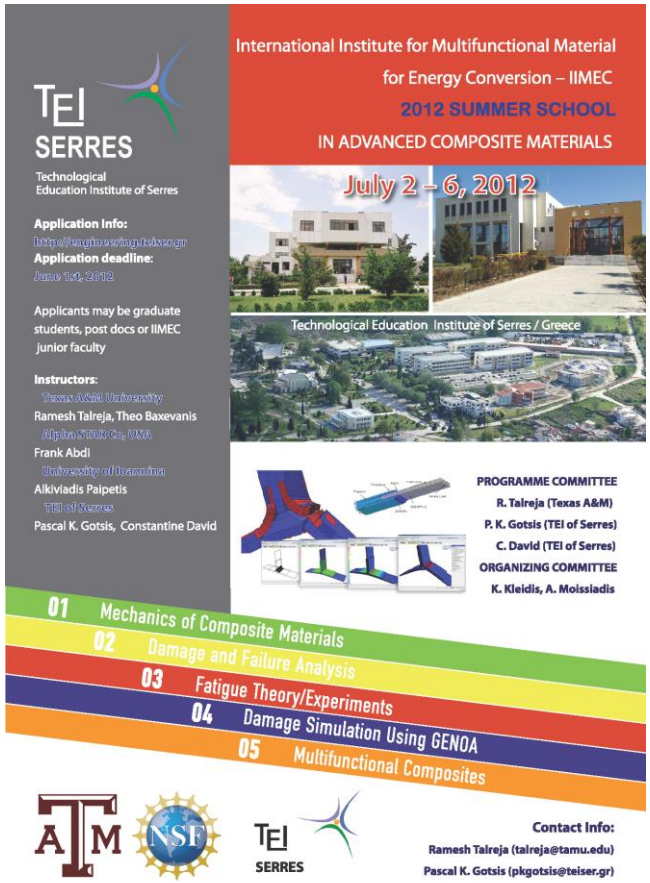
July 2012:

International Summer School on **"Advanced Composite Materials",** in collaboration with:

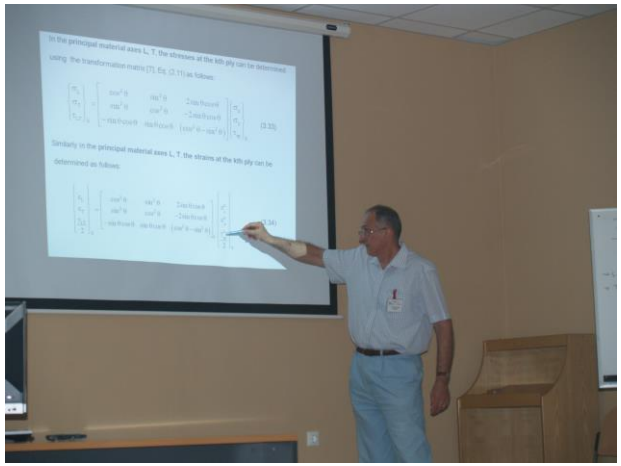
- ✓ Texas A&M University (Houston, TX, USA),
- ✓ The scientific software company Alpha Star Co (San Diego, CA, USA),

all, under the auspices of the **USA National Science Foundation (NSF)!...**

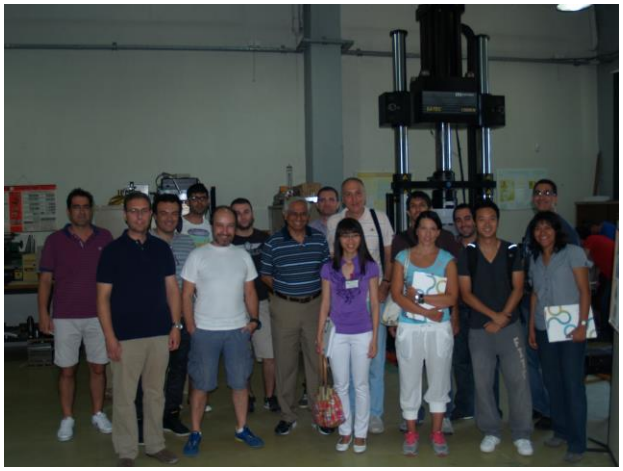
The Summer School was attended by post-graduate students and post-doctoral fellows from eight (8) Countries around the world, namely, China, Cyprus, Greece, Italy, Mexico, Puerto Rico, USA, and Vietnam!...



Highlights:



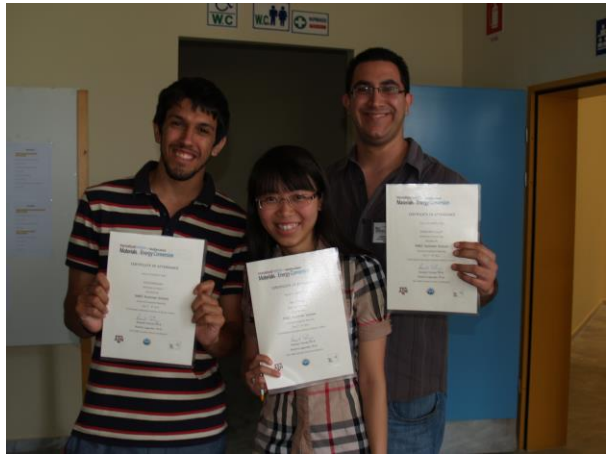
Professor Gotsis in action!...



At the Department's Labs!…

Chilling out on a music event!…

Attending lessons!…



Graduation!...

Excursion to Alistrati's Cave!…

Besides of all the above, the primary target of our Department is to **inspire the next generation of young people,** of every educational background, to comprehend that science, mathematics, and engineering can give them the exhilarating power to participate, not passively, as spectators and consumers, but as the active explorers and the innovators who will design the future!..

UNDERGRADUATE STUDIES PROGRAM

Title awarded: Bachelor of Science (B.Sc.) in Mechanical Engineering

Typical duration: Five (5) years, commencing in October.

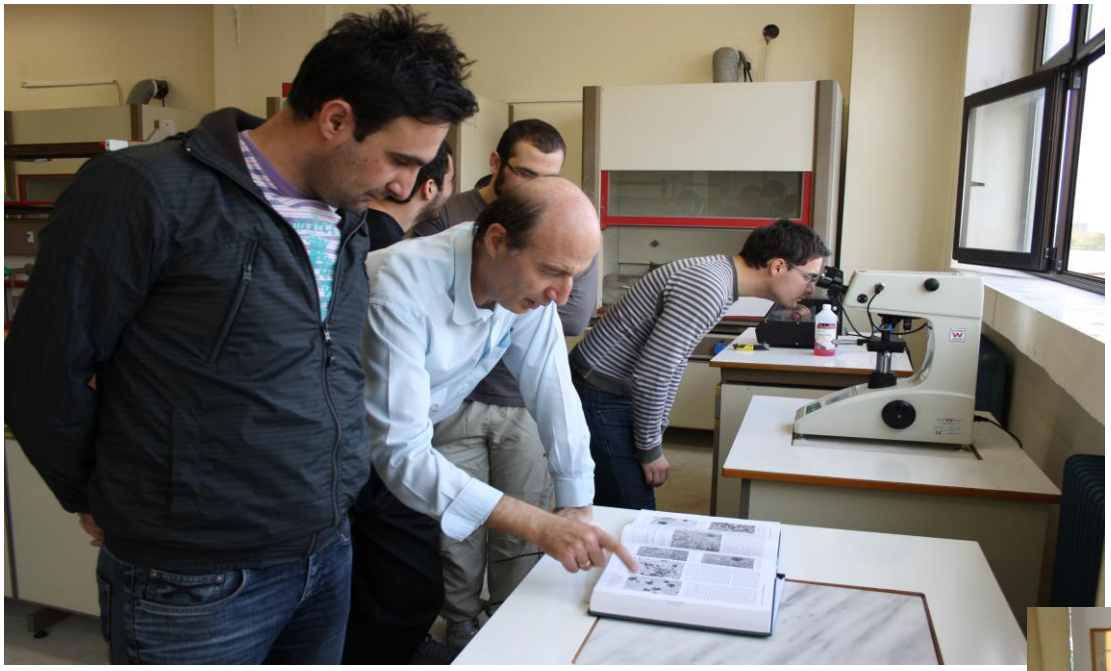
The **undergraduate studies** in the Department of Mechanical Engineering of the International Hellenic University fully cover the discipline of Mechanical Engineering, in terms of the design, development, construction and operation of engines, mechanical equipment and processes, as well as systems for power-production and management, driven by efficiency, environmental sustainability and social sensitivity!..

Our Department provides extensive opportunities for undergraduate students to engage in **advanced studies** and to collaborate with our faculty members and external associates, and, therefore, to grow as engineers and professionals!

One of the main objectives of our undergraduate curriculum is to offer academic education with an emphasis on the **market application** level!

Accordingly, undergraduate education is well-balanced between the development of a solid theoretical background and the acquisition of technical skills, through workshop courses and training in **well-equipped laboratories,** thus enhancing the necessary link between academic know-ledge and application!

We expect that, in this way, our graduates can fill the gap between the growing industry demands for **specialized expertise** and the skills currently available in the job market!



Among the various activities of the IHU Department of Mechanical Engineering, the **promotion and transfer of modern technology** to various sectors of social & economic activity (as, e.g., commercial enterprises, industry, municipalities, et c.), is of fundamental importance. This is also reflected in the undergraduate education offered by our curriculum!

This task involves industrial placements, consultancy work, and development of customised applications by academics, researchers, and students. In this context, the students' **Fieldwork Practice** is of paramount importance!

Development and distribution of scientific and technological knowledge by the faculty members and the students, is also a scope of our Department's curriculum!

For this purpose, over the past few years, the Department of Mechanical Engineering of the International Hellenic University has developed **strong links with Universities and Institutes** throughout Greece and in the European Union, as well as with several national industrial units!

Having built on both the motive and the opportunity, **mobility of the Department's human capital** (especially of the students) is particularly favored!..

The undergraduate studies leading to the **bachelor's degree (B.Sc.) in Mechanical Engineering,** are organized on the basis of **ten-semesters courses**, which are classified as compulsory, compulsory-elective and elective courses.

They all are essential for Mechanical Engineering and must be attended by all students! Compulsory-elective courses, in particular, are related to the selection of a **specialization Section!..**

There are **two** specialization Sections in our Department, i.e., **Energy & Manufacturing.** At the beginning of the **seventh semester**, our students must choose one of these two Sections and attend the corresponding compulsory-elective courses. Elective courses, on the other hand, offer an in-depth study of specific fields in the chosen Section.

During the **last two semesters (9th & 10th),** the students may perform their **Fieldwork Practice** (the minimum duration of which is 12 weeks), along with their **B.Sc. Diploma Thesis**.

The Library installations of the IHU Serres Campus!

The **Diploma Thesis** is considered to be a keystone of the students' graduate experience; hence, it must be a subject related to actual industrial applications, performed under the supervision of a faculty member. In certain cases, it could involve original work and/or research!..

COURSES

Appendix (Codes in Greek Notation) C: Compulsory Course CE: Compulsory Elective Course

E: Elective Course O: Optional Course ΓΥ: Course of General Background

ΕΥ: Course of Special Background KK: Manufacturing Section EK: Energy Section

KA(KB): A(B) Manufacturing Specialization EA (EB): A(B) Energy Specialization

	1st Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΓΥ0101	Mathematics I – Calculus of one Variable	C	5	7,5
ΓΥ0102	Physics I – Dynamics	C	4	6,0
ΕΥ0103	Mechanical Engineering Design	C	4	6,0
ΓΥ0104	Introduction to Materials Science	C	4	6,0
ΓΥ0105	Technical Terminology – English	C	3	4,5
TOTAL			**20**	**30,0**

	2nd Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΓΥ0201	Mathematics II – Calculus of Several Variables	C	3	4,5
ΓΥ0202	Physics II – Electromagnetism	C	4	6,0
ΕΥ0203	Computer Aided Design I	C	3	4,5
ΕΥ0204	Mechanics I – Statics	C	4	6,0
ΓΥ0205	Computer Programming, I	C	3	4,5
ΓΥ0206	Occupational Safety – Ergonomics	C	3	4,5
TOTAL			**20**	**30,0**

	3rd Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΓΥ0301	Mathematics III – Differential Equations	C	3	4,5
ΕΥ0302	Thermodynamics I	C	4	6,0
ΕΥ0303	Computer Aided Design II	C	3	4,5
ΕΥ0304	Mechanics II – Materials Strength	C	4	6,0
ΓΥ0305	Computer Programming II	C	3	4,5
ΕΥ0306	Production Management	C	3	4,5
TOTAL			**20**	**30,0**

	4th Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΓΥ0401	Numerical Analysis	C	3	4,5
ΕΥ0402	Fluid Mechanics	C	3	4,5
ΕΥ0403	Engineering Materials Technology	C	3	4,5
ΕΥ0404	Machining Technology I	C	4	6,0
ΕΥ0405	Machine Elements I	C	4	6,0
ΕΥ0406	Production Units Administration	C	3	4,5
TOTAL			**20**	**30,0**

	5th Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΓΥ0501	Probability Theory & Statistics	C	4	6,0
ΕΥ0502	Thermodynamics II	C	4	6,0
ΕΥ0503	Electrical Engineering	C	4	6,0
ΕΥ0504	Machine Elements II	C	4	6,0
ΕΥ0505	Machine Dynamics & Vibrations	C	4	6,0
TOTAL			**20**	**30,0**

	6th Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
ΕΥ0601	Heat Transfer	C	4	6,0
ΕΥ0602	Electric Machines	C	4	6,0
ΕΥ0603	Internal Combustion Engines	C	4	6,0
ΕΥ0604	Metrology – Quality Control	C	4	6,0
ΕΥ0605	Management & Implementation of Technical Projects	C	4	6,0
TOTAL			**20**	**30,0**

At this point, Section selection by the students takes place!...

	7th Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Manufacturing Section				
KK0701	Machining Technology II	C	4	6,0
KK0702	Electromechanical Installations	C	4	6,0
KK0703	Finite Elements I	C	4	6,0
KK0704	Casting & Welding	C	4	6,0
KK0705	1st COMPULSORY ELECTIVE COURSE (one of the Compulsory Courses EK0701 – EK0704 of the ENERGY Section)	CE	4	6,0
TOTAL (M)			**20**	**30,0**
Energy Section				
EK0701	Automation Control	C	4	6,0
EK0702	Vehicle Motion Systems	C	4	6,0
EK0703	Renewable Energy Sources	C	4	6,0
EK0704	Advances in Fluid Mechanics	C	4	6,0
EK0705	1st COMPULSORY ELECTIVE COURSE (one of the Compulsory Courses KK0701 – KK0704 of the MANUFACTURING Section)	CE	4	6,0
TOTAL (E)			**20**	**30,0**

	8th Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Manufacturing Section				
KK0801	Conveying & Elevating Machines	C	4	6,0
KK0802	Mechanical Configurations	C	4	6,0
KK0803	Industrial Robotics	C	4	6,0
KK0804	Computerized Numerical Control Systems	C	4	6,0
KK0805	2nd COMPULSORY ELECTIVE COURSE (one of the Compulsory Courses EK0801 – EK0804 of the ENERGY Section)	CE	4	6,0
TOTAL (M)			**20**	**30,0**
Energy Section				
EK0801	Heat – Ventilation – Air Conditioning	C	4	6,0
EK0802	Steam Boilers, Steam Turbines & Energy Systems	C	4	6,0
EK0803	Turbomachinery	C	4	6,0
EK0804	Techniques & Measurements of Natural Processes	C	4	6,0
EK0805	2nd COMPULSORY ELECTIVE COURSE (one of the Compulsory Courses KK0801 – KK0804 of the MANUFACTURING Section)	CE	4	6,0
TOTAL (E)			**20**	**30,0**

	9th Semester – MANUFACTURING Section			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Specialization A – Mechanical Design & Materials				
KA0901	Diploma Thesis I	C	10	15,0
KA0902	3rd Compulsory Elective Course	CE	4	5,0
KA0903	4th Compulsory Elective Course	CE	4	5,0
KA0904	5th Compulsory Elective Course	CE	4	5,0
KA0905	Fieldwork Practice I	O	-	5,0
TOTAL (M) – Specialization A			**22**	**35,0**
Specialization B – Manufacturing & Production Technology				
KB0901	Diploma Thesis I	C	10	15,0
KB0902	3rd Compulsory Elective Course	CE	4	5,0
KB0903	4th Compulsory Elective Course	CE	4	5,0
KB0904	5th Compulsory Elective Course	CE	4	5,0
KB0905	Fieldwork Practice I	O	-	5,0
TOTAL (M) – Specialization B			**22**	**35,0**

9th Semester – Manufacturing Section's ELECTIVE COURSES		
Code No	**Course Title**	**Type**
	Specialization A – Mechanical Design & Materials	
KA09E1	Structures Failure Analysis	E
KA09E2	Mechanical Design – Optimization	E
KA09E3	Electric, Hydraulic & Pneumatic Motion Systems	E

KA09E4	Materials & Environment			E
KA09E5	Nanotechnology			E
KA09E6	Materials & Mechanical Design			E
	Specialization B – Manufacturing & Production Technology			
KB09E1	Computerized Numerical Control Machining			E
KB09E2	Mechatronics			E
KB09E3	Finite Elements II			E
KB09E4	Experimental Material Strength			E
KB09E5	Composite Materials Mechanics			E
KB09E6	Reverse Engineering & Rapid Prototyping			E
	9th Semester – ENERGY Section			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Specialization A – Thermo-Fluid Mechanics				
EA0901	Diploma Thesis I	C	10	15,0
EA0902	3rd Compulsory Elective Course	CE	4	5,0
EA0903	4th Compulsory Elective Course	CE	4	5,0
EA0904	5th Compulsory Elective Course	CE	4	5,0
EA0905	Fieldwork Practice I	O	-	5,0
TOTAL (E) – Specialization A			**22**	**35,0**
Specialization B – Power Generation & Management				
EB0901	Diploma Thesis I	C	**10**	15,0
EB0902	3rd Compulsory Elective Course	CE	4	5,0
EB0903	4th Compulsory Elective Course	CE	4	5,0

EB0904	5th Compulsory Elective Course	CE	4	5,0
EB0905	Fieldwork Practice I	O	-	5,0
TOTAL (E) – Specialization B			**22**	**35,0**
9th Semester – Energy Section's ELECTIVE COURSES				
Code No	**Course Title**			**Type**
	Specialization A – Thermo-Fluid Mechanics			
EA09E1	Environmental Technology			E
EA09E2	Industrial Refrigeration			E
EA09E3	Flow Networks			E
EA09E4	Computational Methods in Fluid Dynamics & Heat Transfer			E
EA09E5	Transport Phenomena			E
	Specialization B – Power Generation & Management			
EB09E1	Gas Turbines & Aero-engines			E
EB09E2	Electric Systems in Industry			E
EB09E3	Electric Systems in Renewable Energy Sources			E
EB09E4	Advances in Wind Energy			E
EB09E5	Advances in Solar Power			E

	10th Semester – MANUFACTURING Section			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Specialization A – Mechanical Design & Materials				
KA1001	Diploma Thesis II	C	10	15,0
KA1002	6th Compulsory Elective Course	CE	4	5,0
KA1003	7th Compulsory Elective Course	CE	4	5,0
KA1004	8th Compulsory Elective Course	CE	4	5,0
KA1005	Fieldwork Practice II	O	-	5,0
TOTAL (M) – Specialization A			**22**	**35,0**
Specialization B – Manufacturing & Production Technology				
KB1001	Diploma Thesis II	C	10	15,0
KB1002	6th Compulsory Elective Course	CE	4	5,0
KB1003	7th Compulsory Elective Course	CE	4	5,0
KB1004	8th Compulsory Elective Course	CE	4	5,0
KB1005	Fieldwork Practice II	O	-	5,0
TOTAL (M) – Specialization B			**22**	**35,0**

10th Semester – Manufacturing Section's ELECTIVE COURSES		
Code No	**Course Title**	**Type**
	Specialization A – Mechanical Design & Materials	
KA10E1	Advanced Materials	E
KA10E2	Tribology – Lubricants	E
KA10E3	Modern Welding Technologies	E

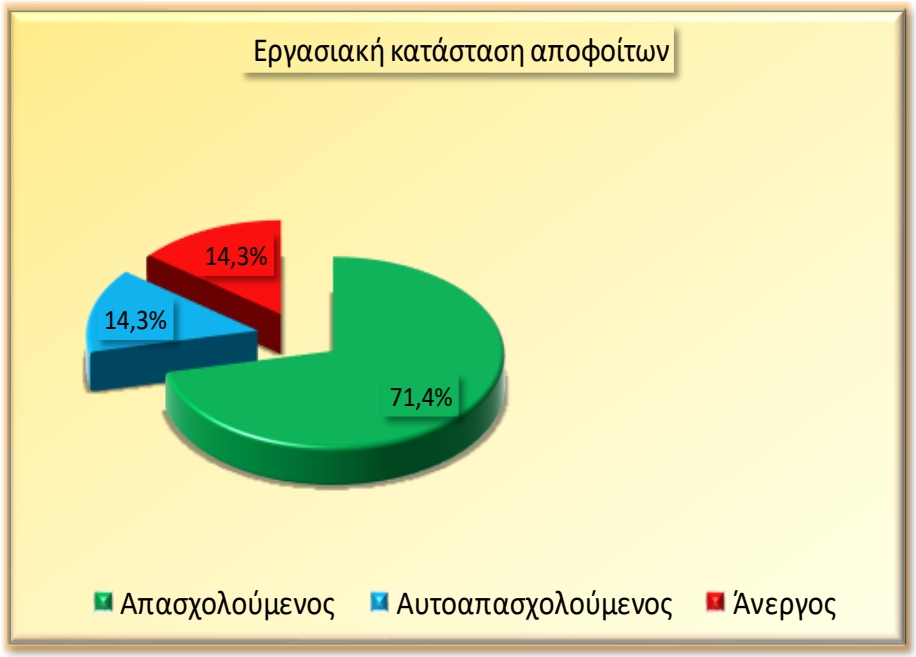
KA10E4	Thermal & Surface Metal Treatment			E
KA10E5	Dynamics of Systems			E
	Specialization B – Manufacturing & Production Technology			
KB10E1	Analysis & Synthesis of Mechanisms			E
KB10E2	Optimum Product Development			E
KB10E3	Industrial Measurements – Machine Diagnostics			E
KB10E4	Computational Methods of Metal Forming			E
KB10E5	Bioengineering			E
	10th Semester – ENERGY Section			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
Specialization A – Thermo-Fluid Mechanics				
EA1001	Diploma Thesis II	C	10	15,0
EA1002	6th Compulsory Elective Course	CE	4	5,0
EA1003	7th Compulsory Elective Course	CE	4	5,0
EA1004	8th Compulsory Elective Course	CE	4	5,0
EA1005	Fieldwork Practice II	O	-	5,0
TOTAL (E) – Specialization A			**22**	**35,0**
Specialization B – Power Generation & Management				
EB1001	Diploma Thesis II	C	10	15,0
EB1002	6th Compulsory Elective Course	CE	4	5,0
EB1003	7th Compulsory Elective Course	CE	4	5,0
EB1004	8th Compulsory Elective Course	CE	4	5,0
EB1005	Fieldwork Practice II	O	-	5,0

TOTAL (E) – Specialization B		**22**	**35,0**
10th Semester – Energy Section's ELECTIVE COURSES			
Code No	**Course Title**		**Type**
	Specialization A – Thermo-Fluid Mechanics		
EA10E1	Aerodynamics		E
EA10E2	Multiphase Flows		E
EA10E3	Advances in Heat Transfer		E
EA10E4	Combustion		E
EA10E5	Design of Thermal Turbomachine Elements		E
	Specialization B – Power Generation & Management		
EB10E1	Buildings Energy Assessment		E
EB10E2	Processing & Management of Solid Waste		E
EB10E3	Medium- & High-Power Electrical Substations		E
EB10E4	Electric Energy Storage & Demand Management		E
EB10E5	Power Electronics & Applications		E

Each and every one of the above Courses can be delivered not only in Greek Language, but also in English, and, therefore, all of them can be offered also to students from the European Union in the context of the ERASMUS or/and the ERASMUS+ Programs.

In view of the aforementioned curriculum, it is expected that, **upon graduation,** a student of the IHU Mechanical Engineering Dept. will have acquired all the necessary scientific and technological knowledge, as well as many practical skills, in order to work at his/hers scientific field, either as a freelancer or as an executive employee in associated companies and organizations!..

This is reflected also in the **job-market** statistics carried out by the Public Relations Office of our Institute. The corresponding data suggest that more than **85% of our graduates are entering in the work sector within the first twelve (12) months.** In this context, 71.4% work as executive employees either in the Private or/and in the Public Sector (green), while 14.3% work as self-employees or/and as freelancers (blue).

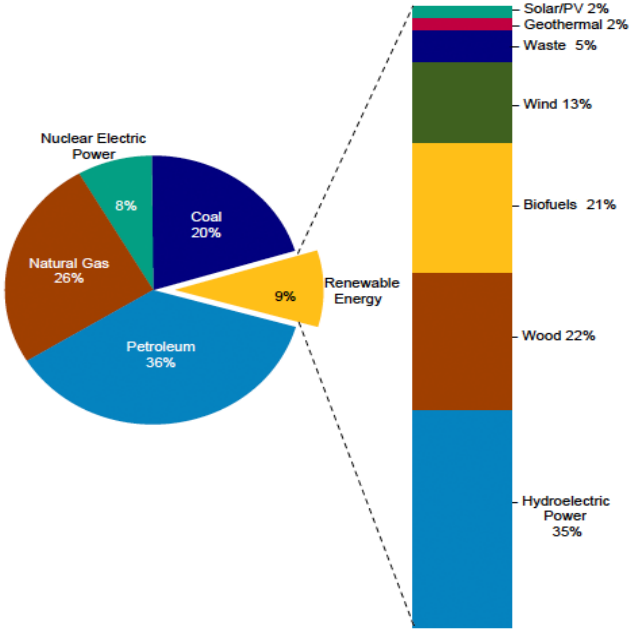


POSTGRADUATE STUDIES PROGRAM

Title awarded: Master of Science (M.Sc.) in Renewable Energy Systems

Typical duration: Three (3) semesters, commencing in October!

Renewable energy (RE) refers to the form of energy, which is derived from natural processes, that are replenished also naturally. Currently, 9% of the total electricity generation worldwide is provided by RE sources. RE power generators are spread across many countries all over the world, offering a ***unique opportunity for professional award!...***



During the past few years, climate change concern in connection to high oil prices and the persistent threat of a worldwide energy crisis have led to a constantly increasing support for ***power generation from RE sources***. As a consequence, today, in most of the developed (and developing) countries new government policies arise (regarding both spending and legislation), helping RE industry and commercialization to grow in spite of the global economic crisis.

Nowadays, almost ***3.3 million people worldwide*** work either directly in RE industry (the large-scale hydroelectric power-plants not being considered) or indirectly in supplier industries. In particular, the wind power industry employs some 400,000 people, the solar photovoltaics sector accounts for an estimate of 300,000 jobs and the associated thermal industry for at least 700,000. More than one and a half million jobs are found in the biomass and biofuels sector. Small-scale hydropower and geothermal energy are smaller, but also active employers (source: World-Watch Institute, February 2021).

- ✓ The growth in the RE sector drives the ***demand for qualified engineers.*** It is now estimated that RE jobs will triple every ten years, thus yielding to almost ***10 million RE executives & employees*** by the year 2030!..

In an effort to respond to the increasing demand of domestic (and foreign) industry for ***specialized RE expertise***, the Department of Mechanical Engineering of the International Hellenic University, at Serres, Greece, offers a ***Graduate Studies Program***, aiming to:

- ⇨ prepare engineers for a truly global sector,
- ⇨ train professionals to be resourceful problem solvers, and
- ⇨ promote specialized competencies in the RE sector!...

Our Department provides ***extensive opportunities for graduate students***, to engage in advanced studies and collaborate with our faculty & colleagues, thus profoundly growing as RE executives and experts!...

The Graduate Studies Program in ***"Renewable Energy Systems"*** is completed in ***three semesters***:

1. In the ***first*** semester, the students acquire solid foundations in advanced Mechanical Engineering.
2. In the ***second*** semester, focus is set on the development of particular RE technologies.
3. In the ***third*** semester, the students work out their Master Thesis.

The ***M.Sc. Thesis*** is considered to be the keystone of a student's graduate experience; hence, it must be an ***original work*** in the design, development, and optimization of RE systems, performed under the supervision of a faculty member.

COURSES

Appendix: C: Compulsory Course E: Elective Course M: Mandatory Course

	1st Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
101	Applied Thermodynamics	C	3	6,0
102	Advanced Materials	C	3	6,0
103	Computational Mechanics	C	3	6,0
104	Engineering Economics & Cost Analysis	C	3	6,0
105	Advances in Heat Transfer	C	3	6,0
TOTAL			**15**	**30,0**

	2nd Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
201	Mechanical Engineering Design and Optimi-zation	C	3	6,0
202	Computational Fluid Dynamics	C	3	6,0
203	Energy Conversion Systems	C	3	6,0
204	Renewable Energy Systems I	C	3	6,0
205	Renewable Energy Systems II	C	3	6,0
TOTAL			**15**	**30,0**

	3rd Semester			
Code No	**Course Title**	**Type**	**Hours/Week**	**ECTS units**
301	Diploma Thesis	M	-	30,0
TOTAL			**-**	**30,0**

Each and every one of the above Courses can be delivered not only in Greek Language, but also in English, and, therefore, all of them can be offered also to European Union students, in the context of the ERASMUS or/and the ERASMUS+ Programs.

The M.Sc. Degree in Renewable Energy Systems offered by the IHU Department of Mechanical Engineering is received after the successful accumulation of ***ninety (90)*** European Credit Transfer System (ECTS) units (1 unit = 26 hours of study, according to ECTS).

Epilogue

Today, as we face another period of potentially transformative change, the Department of Mechanical Engineering of the International Hellenic University at Serres, Greece, has a crucial role to play and an important calling: To **demonstrate to our nation and the world** that progress is possible against the great problems of today and tomorrow - energy, climate, water, pandemia, poverty - through the wise treatment of science & technology. We believe that **we can set a path towards the future** for Greek manufacturing and energy sectors, through innovative systems, processes & materials, and, building on our spirit, we can deliver the professionals that **will drive the next wave of economic growth!...**

We are looking forward to welcoming and collaborating with you in the International Hellenic University Campus of Serres, located at the south-east corner of the homonymous city of Northern Greece!...

Professor (Associate) **Kostas KLEIDIS,**
Head of the Department of Mechanical Engineering,
International Hellenic University,
GREECE.