ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ
DEMOCRITUS UNIVERSITY OF THRACE

Study guide

Msc in Quality, Safety, Security, Health and Environmental Management

Καβάλα 2025

SCHOOL OF SCIENCE

DEPARTMENT OF CHEMISTRY

STUDY GUIDE

MSc IN QUALITY, SAFETY, SECURITY, HEALTH, AND ENVIROMENTAL MANAGEMENT

DEPARTMENT OF CHEMISTRY

KAVALA, 2025

Contents

1. THE DEMOCRITUS UNIVERSITY OF THRACE

1.1 General information

The Democritus university of thrace (IHU), based in Thessaloniki, was founded in 2005 (Law 3391/2005 Government Gazette 240/A΄) and is organized and operates as a Higher Educational Institution (HEI) in the university sector, in accordance with Law 4485/2017 (Government Gazette 114/A΄). With Law 4610/2019 (Government Gazette 70/A΄/7-5-2019) seven (7) Schools were established therein with corresponding Departments in each of them.

Additionally, inside the IHU, there is a University Center for International Studies, also based in Thessaloniki, which operates as an academic unit of the institution.

The following Departments are established at the University Center for International Studies:

a) Humanities, Social and Economic Sciences, which is part of the School of Humanities, Social and Economic Sciences.

b) Science and Technology, which is part of the School of Science and Technology

The above Departments are located in different cities of Northern Greece. Most of them are mainly concentrated in four campuses: Thermi (where the University headquarters is also located), Sindos, Serres and Kavala.

1.2 Academic and Organizational Structure

According to the current legislation, the University is subdivided into Schools, which cover a set of related scientific disciplines, so that the necessary coordination for the quality of the education provided can be ensured. A School is subdivided into individual Departments which also constitute the basic academic units. The units in question cover the subject of a specific scientific field and award the corresponding degree/diploma. The Schools of the Democritus university of thrace - with their Departments - are as follows:

SCHOOLS	DEPARTMENTS
SCHOOL OF ECONOMICS AND BUSINESS ADMINISTRATION (Kavala)	• Department of Accounting and Finance (Kavala) • Department of Management Science and Technology (Kavala)
SCHOOL OF LAW SCIENCES (Komotini)	• Department of Law (Komotini)
SCHOOL OF HEALTH SCIENCES (Alexandroupoli)	• Department of Medicine (Alexandroupoli) • Department of Molecular Biology and Genetics (Alexandroupoli) • Department of Nursing (Alexandroupoli)
SCHOOL OF CLASSICAL AND HUMANITIES STUDIES (Komotini)	• Department of Languages, Literature and Culture of Black Sea Countries (Komotini) • Department of Greek Philology (Komotini)

	• Department of History and Ethnology (Komotini) • Department of Humanities Studies (Komotini)
SCHOOL OF SOCIAL, POLITICAL & ECONOMIC SCIENCES (Komotini)	• Department of Social work (Komotini) • Department of Social Policy (Komotini) • Department of Economics (Komotini) • Department of Political Science (Komotini)
SCHOOL OF SCIENCES (Kavala)	• Department of Computer Science (Kavala) • Department of Physics (Kavala) • Department of Chemistry (Kavala)
SCHOOL OF GEOSCIENCES (Drama)	• Department of Agricultural Biotechnology and Oenology (Drama) • Department of Agriculture (Orestiada) • Department of Forestry & Natural Environment (Drama) • Department of Rural Development (Orestiada)
SCHOOL OF PHYSICAL EDUCATION & SPORTS (Komotini)	• Department of Physical Education and Sport Science (Komotini) • Department of Occupational Therapy (Komotini)
POLYTECHNIC SCHOOL (Xanthi)	• Department of Architectural Engineering (Xanthi) • Department of Electrical and Computer Engineering (xanthi) • Department of Production and Management Engineering (Xanthi) • Department of Enviromental Engineering (Xanthi) • Department of Civil Engineering (Xanthi)
SCHOOL OF EDUCATION SCIENCES (Alexandroupoli)	• Department of Primary Education (Alexandroupoli) • Department of Early Childhood Education (Alexandroupoli) • Department of Psychology (Didymoteicho)

The administrative bodies of each School are the Deanery and the Dean.

The Deanery of each School consists of:

-the Dean,

- the Presidents of the Departments, and

- representatives of Special Technical Laboratory Staff (E.TE.P.), Special Teaching Laboratory Staff (E.D.I.P.), and students.

The Department is managed by:

- the Department's Assembly
- the Management Board, and
- the President of the Department

The Assembly of the Department is made up of the Educational Staff members of the Department, the technical staff representatives, undergraduate and postgraduate students.

The Assembly and the President of the Department consist the Bodies of the Departments' (established) directions (Sectors) - where they exist. The Assembly is made up of the Educational Staff members and of student representatives.

1.3 The Campus of Kavala

The Department of Chemistry of the D.U.T.H. is based in the city of Kavala and, more specifically, in the area of Agios Loukas. A general map of the Kavala hub of the Democritus university of Thrace is given below:

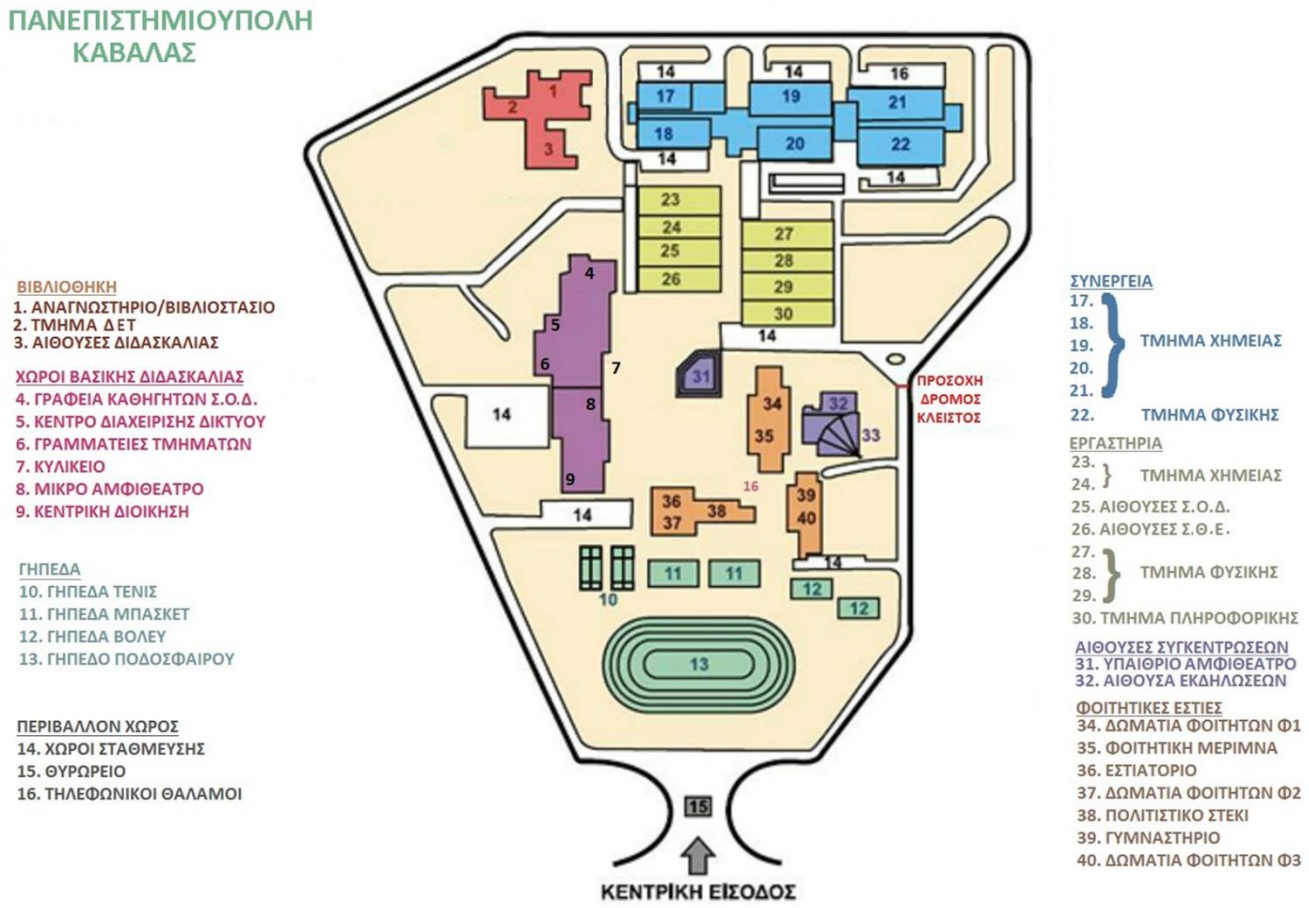

Figure 1.

All the facilities of the Department (workshops, offices, classrooms, secretariat, etc.) are distributed within the space of the Kavala hub of the D.U.T.H. in buildings close to each other.

The buildings of the Kavala campus of the D.U.T.H., where the Department of Chemistry is housed, are of amphitheatrical construction, with an unparalleled view of the Bay of Kavala. Construction began in 1983 and was finally delivered in 1992. The complex (campus) occupies an area of 132, 000 m² with a coverage of 36, 000 m² of which 11, 000 m² in classrooms, 11, 000 m² in laboratories (TOL and Synergies), 11, 000 m² in 3 student dormitories with a capacity of 450 beds, and 3, 000 m² in the library building. In addition to the basic infrastructure of its departments, it includes canteens, restaurant, sports facilities, video conference rooms, amphitheater, etc.

2. THE CITY OF KAVALA

2.1 Geographical and Demographic Data

The prefecture of Kavala is known for its endless natural beauty, with lush forests, wonderful mountain landscapes and blue seas. There is the golden mountain of the ancients, Pangaio, and the river Nestos, one of the largest in Greece, with its wonderful wetland.
Thanks to its natural beauty, the remarkable archaeological sites, the traditional settlements, the Byzantine monuments and the wonderful sandy beaches, Kavala attracts many visitors.
Kavala is the capital of the regional unit of Kavala and geographically located in Eastern Macedonia. The city of Kavala is built at the foot of Mount Symbol and is the third largest city in Macedonia. It is 680 km from Athens and 153 km from Thessaloniki. The permanent population of the city amounts to 52,368 inhabitants, according to the 2021 census, while the total population of the municipality of Kavala is about 63,053 inhabitants. Although it is a modern urban center, Kavala has numerous beaches, places for rest and hiking trails. It is one of the few cities in Greece that within its urban fabric has 4 organised beaches.

Figure 2.

2.2 Historical data

The first traces of human presence and activity in the area of today's Municipality of Kavala date back to the prehistoric times and specifically in the Neolithic era (~ 6.200 BC) and are located at Dikili Ta (= standing stone in Turkish) in the eastern suburbs of the modern city of Krinides. It is the prehistoric settlement that took its name from the marble tombstone of the

Roman official C. Vibius Quartus that dominated the area. It is noteworthy that this settlement "has founded the oldest wine marker in Europe so far".
In the area of the current city of Kavala, two prehistoric sites were located, Antissara in the area of today's Kalamitsa and Perigiali on a low hill east of the city, where a small settlement of the early Bronze Age was found. Traces of early Iron Age inhabitation have been identified on the Panayia peninsula.
The triple name of Kavala (Neapolis, Christoupolis, Kavala) corresponds to different historical periods, the Ancient, the Byzantine and the Modern respectively.

Settlers from the island of Thassos founded Neapolis in the late 7th century BC. It was one of several Thassian colonies along the coastline, all founded in order to take advantage of rich gold and silver mines, especially those located in the nearby Pangaion mountain (which were eventually exploited by Phillip II of Macedonia.

Worship of Parthenos (Virgin), a female deity of Greek Ionian origin associated with Athena, is archaeologically attested in the Archaic period. At the end of the 6th century BC Neapolis claimed independence from Thassos and began issuing its own currency, silver coins with the head of Gorgo (gorgonio) on one side. A few decades later a large Ionic temple made from Thassian marble replaced the Archaic one. Parts of it can now be seen in the town's archaeological museum.

In 411 BC, during the Peloponnesian War, Neapolis was besieged by the allied armies of the Spartans and the Thassians but remained allied to Athens. In 410 and 407 BC two Athenian honorary decrees rewarded Neapolis for its loyalty. A pillar found in Athens mentions the contribution of Neapolis to the alliance. The town was later conquered by the Kingdom of Macedonia during the reign of the Argead king Philip II (359-336 BC).

In the Roman era, the military Roman road Via Egnatia passed through the city and helped commerce to flourish. It became a Roman civitas in 168 BC, and was a base for Brutus and Cassius in 42 BC, before their defeat in the battle of Philippi. The Apostle Paul landed at Neapolis during his first voyage to Europe.

In the 6th century AD, Justinian the Byzantine emperor fortified the city in an effort to protect it from barbarian raids. In later Byzantine times the city was called "Christoupolis" (city of Christ) and belonged initially to the theme of Macedonia and later to the Theme of Strymon. The first surviving mention of the new name is in a taktikon of the early 9th century. In the 8th and 9th great care to Christoupolis with fortifications and a notable garrison. The city remained under Byzantine control and in 837 Byzantine armed forces from Christoupolis under the command of Caesar Alexius Moselie stopped Bulgarian raids in the plain of Philippoi.

At about 830-840 AD dates a Greek inscription on the walls of a defensive tower of the fortifications of the city, still visible today, and in 926, according to another inscription (nowadays in the archaeological museum of Kavala), the General of the Theme of Strymon Vasilios Klaudon, restored the "fallen and damaged" defensive walls.

In the mid of the 12th century the Arab geographer Edrisi visited Christoupolis and described it as a well-fortified city and a center of sea trade. According to another inscription, also nowadays in the archaeological museum of Kavala, the Normans probably burnt the city in 1185. Some years later, the city fell to the hands of the Lombards, after the Fourth Crusade and was liberated again by the leader of the state of Epirus, Theodorus Komnenos, in 1225.

Andronikos III Palaiologos, the Byzantine emperor, built a new long defensive wall to prevent from the Catalans' who had failed to capture the city in their first attempt in 1302. Excavations have revealed the ruins of an early Byzantine Basilica under an Ottoman Mosque in the Old Town. It was used until the late Byzantine era.

The Ottoman Turks captured Kavala in 1387 and the city remained a part of the Ottoman Empire until 1912. In the 16th century, Ibrahim Pasha, Grand Vizier of Suleiman the Magnificent, contributed to the town's prosperity and growth by reconstructing the late Roman (1st - 6th century AD) aqueduct. The Ottomans also extended the Byzantine fortress on the hill of Panagia. Both landmarks are among the most recognizable and famous symbols of the city today. Mehmet Ali, the founder of an Egyptian dynasty, was born in Kavala in 1769, and his house has been preserved as a museum.

Kavala was liberated by the Greek navy during the Second Balkan War and was incorporated into Greece with the Treaty of Bucharest. In August 1916 remnants of the IV Army Corps, stationed at Kavala, surrendered to the advancing Bulgarian army. The Bulgarian occupation of the city lasted from August 1916 until September 1918 and its result was the death of around 12.000 Greeks, as the Bulgarian army organized an ethnic cleansing against the Greek population of the city and Eastern Macedonia. After the Greco-Turkish War (1919-1922, the city experienced a new era of prosperity because of the labor offered in both industrial and agricultural sectors by the thousands of refugees that moved to the area from Anatolia. Kavala became greatly involved and developed further in the processing and trading of tobacco. Many buildings related to the storage and processing of tobacco from that era are preserved in the city. During the World War II Bulgaria occupied the city again, following the German invasion (April 1941). During the Bulgarian occupation (1941–1944), almost the entire Jewish community of the city was exterminated as part of the Holocaust. After the World War II, the city faced economic decline and emigration.

In the late 1950s, Kavala expanded towards the sea by reclaiming land from the area west of the port.

In 1967, the ex-king of Greece Constantine II left Athens for Kavala in an unsuccessful attempt to launch a counter-coup against the military junta.

In our days Kavala is an important economic centre of Northern Greece, a center of tourism, commerce, fishing and oil-related activities.

2.3 Useful links of services and transportation

- Kavala Port Authority: 2513505430 -5, https://www.portkavala.gr/routes/
- Port Authority (emergencies:108)
- KTEL/buses, Urban Lines: 2510 222218, https://astiko-kavalas.gr/
- KTEL/buses, Interurban Lines: 2510 222294, https://www.ktelkavalas.gr/
- Airport: 25910 52370-71-72, https://www.kva-airport.gr/el
- EUROTAXI Kavala 2510 620 911, https://eurotaxikavala.gr/

- Kavala Taxi Station 693 6332677, https://www.kavalataxi.gr/
- Municipal Police 2510 451451
- Police (emergencies:100)
- Kavala Hospital: (166) 2510292000, http://www.kavalahospital.gr
- Cyber Crime Division: 11188
- Fire Department: 2510 244444, 199

Travelling to Kavala by:

- ✓ **airplane**

From Athens to Kavala airport, Alexander the Great.

- ✓ **train**

Connection from Athens-Thessaloniki to Drama and from there by KTEL bus to Kavala. Route information https://tickets.hellenictrain.gr/dromologia/

- ✓ **bus**

Transportation to and from Kavala is frequent with KTEL buses. From Athens there is a direct connection to Kavala three times a day (tel. 2105129407).

The Athens-Thessaloniki connection shows a higher density of routes. Specifically, from Kifissos station there are several daily routes to Thessaloniki (tel. 2105148856), from Omonia 6 daily routes (tel. 2105232932) and from Piraeus 2 daily routes (2105148856).

- ✓ **ship**

There is a connection between Kavala and the islands of the Eastern Aegean (Lemnos, Lesvos, Chios, Samos).om Thessaloniki (tel 2310 595422) there is an hourly connection to Kavala.

Urban transport to and from the University campus is carried out with **Line No. 4 Kipoupoli**

3. THE DEPARTMENT OF CHEMISTRY

3.1 Department of Chemistry

The Department of Chemistry of the School of Sciences, Democritus university of Thrace was established in May 2019 (Law 4610, Government Gazette, 90/A' /07-05-2019) "Synergies of Universities and TEIs, access to higher education, experimental schools, General State Archives and other provisions" and is the newest Department of Chemistry established in Greece so far. It belongs to the Faculty of Sciences of the Democritus university of Thrace, which was founded by the same Law. The Department welcomed its first students during the academic year 2019 – 2020. Prior to this there was the Department of Petroleum & Gas Technology Engineering TE and Mechanical Engineering, which joined the School of Technological Applications of the TEI of Eastern Macedonia & Thrace, (first operated in 1976 as a Department of Chemical Oil in the then KATEE, Kavala).

The aim of the Department of Chemistry is the training in the Science of Chemistry and its modern applications, so that its graduates can be equipped with basic and specialized knowledge, laboratory experience and other high-quality skills. The Department is committed to providing high-quality higher education to its students in the scientific area of Chemistry, and to the effort in developing a creative research and work environment for its staff.

The Department's vision is to serve educational, research, cultural and wider social objectives, being a pillar of excellence in education and research, with a commitment to the principles of scientific ethics, accountability, sustainable development and social contribution, while emphasizing internationalization, the exploitation of research results, didactic and learning innovation, the development of entrepreneurship and the interconnection of the University with society.

The Department of Chemistry is organized in the following sectors:

- Sector of Inorganic Chemistry, Analytical Chemistry and Environment Chemistry
- Sector of Physicochemistry and Chemical Technology
- Sector of Organic Chemistry and Biochemistry

3.2 Administration/Secretariat office

The Department of Chemistry is governed by the Department Assembly (D.A.) and the Chair of the Department. The D.A. consists of the Chair of the Department, the Vice-Chair of the Department, the faculty members, 1 representative member of the Laboratory Teaching Staff (E.E.P.), 1 representative member of the Special Technical Laboratory Staff (E.DI.P.), and 1 representative member of the Special Technical Staff (E.T.E.P.). The Chair convenes the D.A., sets the agenda, presides over the meetings, and makes recommendations on the items of the agenda. Furthermore, the Chair maintains the faculty members' registry and oversees the implementation of the D.A.'s decisions.

- Chair of the Department of Chemistry for the term 2023–2026: Professor Mr. Georgios Kyzas.
- Vice-Chair of the Department of Chemistry for the term 2023–2026: Professor Mr. Georgios Maliares.
- Head Secretary of the Department of Chemistry: Ms. Elisavet Ioannidou.

The Department of Chemistry is organized into the following Sectors:

- Sector of Inorganic Chemistry, Analytical Chemistry, and Environmental Chemistry, with course coordinator Associate Professor Ms. Kalliopi Ladomenou.
- Sector of Physical Chemistry and Chemical Technology, with course coordinator Associate Professor Ms. Zoe Metaxa.
- Sector of Organic Chemistry and Biochemistry, with course coordinator Associate Professor Mr. Alexandros Tsoupra.

4. STAFF OF THE DEPARTMENT

4.1 Staff of the Department

The staff of the Department of Chemistry is divided into Teaching and Educational Staff (D.E.P.), Special Teaching Staff (E.E.P.), Special Technical Scientific Staff (E.DI.P.), Laboratory Teaching Staff (E.TE.P.) and Administrative Staff (A.S.) with corresponding responsibilities.
The Department of Chemistry is staffed with 20 D.E.P. members, 1 E.E.P. , 2 E.DI.P. members and 6 E.TE.P. members.
The members of the Teaching and Educational Staff belong to four academic ranks: Professors, Associate Professors, Assistant Professors and Lecturers, while their teaching work is supported by the members of Laboratory Teaching Staff and Special Technical Scientific Staff At the same time, the educational process of the Department is also supported by temporary educational staff, which consists of Scientific Associates, Laboratory Associates and Academic Scholars.

TEACHING PERSONNEL			
N/A	**NAME**	**ACADEMIC RANK**	**SUBJECT AREA /SPECIALTY**
1.	Apostolidou Eleni	Professor	Mild Energy Forms and Energy Saving
2.	Kyzas Georgios	Professor	Chemical sorbent technology
3.	Mitkidou Sofia	Professor	Organic Chemistry (Theory-Laboratory)
4.	Mitropoulos Athanasios	Professor	Basic physico-chemical processes of chemical engineering – transport and storage of fuels
5.	Sarafis Ilias	Professor	Use of information technology in industrial engineering applications (machinery, construction, processing)
6.	Tarhanidis Konstantinos	Professor	Instruments Control and Automation – Automated Control Systems
7.	Kokkinos Nikolaos	Associate Professor	Process simulations in oil and gas engineering and technology
8.	Maliaris Georgios	Associate Professor	Elements of Mechanical Constructions with Focus on CAM/CAE Systems
9.	Ladomenou Kalliopi	Assistant Professor	Inorganic Chemistry with Focus on Assemblies
10.	Markopoulos Theodoros	AssistantProfessor	Quality control, certification and development of the chemistry and food industry in the international and European environment
11.	Marmanis Dimitrios	Assistant Professor	Design and Implementation of Processes for the Treatment of Liquid Industrial Waste

12.	Metaxa Zoi	Assistant Professor	Modelling of porous media
13.	Mittas Nikolaos	Assistant Professor	Quantitative methods, Methods of prediction in software technology
14.	Nanou Christina	Assistant Professor	Analytical Chemistry
15.	Tsupras Aleksandros	Assistant Professor	Biochemistry
16.	Chalaris Michael	Assistant Professor	Occupational Safety – Management and Transport of Hazardous Chemical Materials
17.	Dimitrakoudi Evangelia	Applications lecturer	Chemistry with an emphasis on advanced chemical analysis
18.	Lazaridou Anastasia	Applications Lecturer	Special Chemical Engineering – Fuel Technology
19.	Chatzichristou Christina	Applications Lecturer	Chemistry and environmental pollution control

LABORATORY TEACHING AND TECHNICAL STAFF

N/A	NAME	ACADEMIC RANK	SUBJECT AREA /SPECIALTY
1.	Roussi Maria	E.E.P.	PE05 with specialization in didactics
2.	Karakosta Kokkoni	E.D.P.	Oil Technological Engineer with emphasis on Calibration and Quality Assurance in Physical-Chemical Characteristics
3.	Moutzouroglou Agni	E.D.P.	Design of Chemical Industries – Technoeconomic Analysis
4.	Andreadou Elisabeth	E.T.E.P.	Mechanical Engineer in Applications
5.	Vythoulkas Georgios	E.T.E.P.	Mechanical Engineer in Applications
6.	Karkalakis Ioannis	E.T.E.P.	Mechanical Engineer in Applications
7.	Mitrousis Ioannis	E.T.E.P.	Electrical engineer T.E. with emphasis on job safety
8.	Bambou Maria	E.T.E.P.	Management of Chemical Industry Sector Projects
9.	Tradaki Anastasia	E.T.E.P.	Chemistry and Polymer Technology

ADMINISTRATIVE STAFF

N/A	NAME	
1)	IOANNIDOU ELISABETH	Head of Secretariat
2)	PAPADOPOULOU CHARIKLIA	Secretary

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Postal address: St. Loukas
Campus of Kavala
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Tel.: (+ 30) 2510 462143
(+ 30) 2510 462396
E-mail: secr@chem.duth.gr
URL: http://chem.duth.gr

4.2 Administration/Secretariat Office: Duties and working hours

The Department Secretariat is responsible for student and administrative matters.

Student services are provided on all working days, and during the hours of 11.00 am to 13.00 pm, at the offices of the Department Secretariat, located at the Campus of Kavala.

Telephone contact: from 9.00 a.m. to 11.00 a.m. and 13.00 p.m. – 14.00 p.m. daily

Student issues include:

- registration Procedures
- keeping the students' records, which include their grades, registration renewals every semester, and information about scholarships,
- granting Certificates and Degrees,
- granting certificates for legal use,
- issuing paper forms required for the students' Internship,
- creating/filling in student lists, according to their course enrolment declaration
- registration cancellations of students who have two consecutive non-renewal of registration or three non-consecutive non-renewal of registration

Regarding first-year student registrations, transfers and registration of those passing the qualifying exams in the Department Chemistry of the D.U.T.H., the following apply:

Registration Renewals - Course Declarations are carried out through the Electronic Secretariat at the beginning of each Semester, and for a period of approximately fifteen (15) days. Each student has his/her own personal code, obtained from the Department's Secretariat, with which s/he declares courses electronically.

After the lists of successful candidates in the National Examinations are sent by the Ministry of Education and Religious Affairs, the registration deadline for new entrants is set, which is common for all higher education institutions in our country. This deadline should not be missed, otherwise latecomers lose the right to register. Registration of new entrants takes place in September.
From November 1 to 15, relevant application forms are submitted for:

- Transfers for financial, social, health reasons, etc., as well as for the children of large families, unless otherwise specified by law.
- Enrolment of Higher Education Graduates, who succeeded in qualifying exams, held every year, at the beginning of December.

4.3 The Institution of the Academic Advisor

Every year, by decision of the Department, a member of the Teaching and Educational Staff is designated as an Academic Advisor for every first-year student, in order to provide information and guidance in their studies (i.e., the transition to tertiary education, the content of their studies, specific subjects of the Study Program, tutors, opportunities for further studies and services offered by the University to students).

The Academic Advisor informs students about his/her role and invites them to an introductory meeting. Students are encouraged to communicate regularly with their Academic Advisor, discuss educational issues and utilize the advice given throughout all the years of their studies. More information can be found in the "Regulations for the Academic Advisor", posted on the Department's website.

The purpose of the introduction of the Academic Advisor institution is to improve the level of study in the Department of Chemistry, by offering a responsible consultative work at the level of personal communication with undergraduate students. The Academic Consultant has a list of the e-mail addresses of the students assigned to him and communicates with them on issues of their studies. In order for meetings to be effective, meetings are held in person with each student, or in the form of group meetings on issues of common interest.

In particular, the Academic Advisor:

- Supports first-year students in order to facilitate them in their transition from secondary to tertiary education.
- Discusses, informs and advises the students on the curriculum.
- Discusses with the students the course of their studies and jointly seek solutions to the problems that students may face.
- Encourages the student's initiative, stimulates his/her interest in the science of chemistry and its relationship with other sciences, and generally helps students be active during their studies.
- Informs and helps them make choices of specialized courses.
- Helps students in selecting the topic of their thesis.
- Informs students about prospects and possibilities for postgraduate studies and helps them make the right choices.

- Informs students about professional prospects (opportunities in the public, private sector, free profession, job abroad).

- Gives Information on the services offered by the University (Student Care, Internship Office, etc.).

For the exercise of the above, the legislation on the protection of the personal data of students and the obligation of confidentiality, which continues with the termination of the duties of the Academic Advisor, applies.

4.4 Evaluation of the Educational Project

The evaluation of the teaching process is an essential means of achieving the objectives of education, through continuous improvement and the best possible performance of teaching work and ensuring the quality of studies. The process of evaluation of teaching work is implemented in accordance with Article 28 of the Internal Regulations of the Democritus university of thrace (Government Gazette B' 4889/06.11.2020).

After the completion of the 9th week of each semester, students are entitled to make an evaluation of the courses they attended and their tutors, in accordance with the regulations of the Institution and the guidelines of the Department of Chemistry. Students are encouraged to participate in this evaluation procedure. They are notified by announcements posted on the department's website to complete and submit online evaluation questionnaires for the courses they followed and tutors, belonging to any category (faculty members, teaching assistants, laboratory staff, etc.). Students' anonymity is strictly ensured and the sole purpose of the evaluation is to improve the educational standards of the Department.

Evaluation is carried out within specific dates set by the Department of Internal Evaluation and before the examination period. The assessment of the evaluations is carried out by the Department's Internal Evaluation Team (OMET) in collaboration with the Internal Quality Assurance Unit of the Hellenic Quality Assurance and Accreditation Agency (HQA-AA).

4.5 Department of Chemistry Committees

The Department operates the following committees:

1. Committee for Undergraduate Studies and the Drafting of a Study Guide
2. Postgraduate Studies Committee
3. Coordinating Committee for Doctoral and Postdoctoral Studies
4. Committee on Development – Strategy – Extroversion
5. Erasmus, Summer Schools and Certifications Committee
6. Committee on Research Activities, Infrastructures and Research Areas
7. Health and safety committee for buildings/workshops
8. Committee for Toxic Waste Management and Environmental Management
9. Computer Committee
10. Committee for recording existing organology, removal of instruments, receipt of material and reagents

11. Committee of diploma thesis
12. Administrative Support and Teaching Works
13. Committee on Traineeships
14. SECTOR Committee
15. Website Committee
16. Committee for recording of building infrastructures

5. FACILITIES

For the smooth operation of the Department there is an adequate building infrastructure of approximately 10.000 sq.m. in the campus of Kavala (12 classrooms equipped with appropriate supervisory means, amphitheater and 23 equipped lab rooms with exclusive use).

5.1 Laboratory Spaces and Equipment

In particular, there are appropriately equipped laboratory spaces (20-25 seats each) for courses in: Inorganic Chemistry, Analytical Chemistry, Organic Chemistry, Physicochemistry, Chemical Technology, Petroleum Chemistry and Technology, Fuel and Biofuel Control, Mild Forms of Energy and Materials Technology. The labs are equipped with the appropriate instruments, used for student education, but also for research, and meet the required needs. In addition, there are 3 computer laboratories and rooms with large scientific instruments in a total area of 1.000 sq.m. that complement the laboratory infrastructure. For the MSc program, the Department has a well-equipped room with all the necessary audiovisual media and a computing center. In addition, the institution's general auditorium and Amphitheatre infrastructure is available if needed.

Existing equipment

• Scales, Pemeters, Conductive Meters, Flamephotometer, Tholoorometer, Refractometer, Polosimeter, Automatic titration devices, Portable residual chlorine chromatometer, BOD Device, COD Apparatus, Ultra Purity Water Device, Water Deionisation System, High Temperature Kilns, Incubation Chambers

• Rotary Vaporisers, Magnetic stirrers, thermocoats, Water baths, Sand baths, Thermal Reactor for pre-treatment of mud samples, Centrifuge, Ultrasonic Bath, Autoclave, Ice Machine, Melting Point Determination Devices, Distillers and Extractors

- Column chromatography system (flash chromatography)
- Spectrophotometer FT-IR, NIR, PerkinElmer
- Ultraviolet – Visible Spectrophotometer (UV-VIS), (HITACHI U-2000)
- Ultraviolet-visible spectrophotometer (UV-VIS) (HITACHI U-1500)
- Visible photometer (VIS)
- Ultra-high pressure liquid chromatograph with triple quadrupole mass spectrometer (UPLC-MS-MS), (6400 Agilent)
- Gas chromatograph with electron capture and nitrogen-phosphorus detectors (Agilent, Thermo)
- Gas chromatograph with mass spectrograph detector (6890NGC-5975BMS, Agilent) with automatic sampler
- Inductively coupled plasma – ICP-MS mass spectrometer, 7700X Agilent, with automatic sampler and laser excision (LA-ICP-MS)
- Gas chromatograph with Isoprime mass detector, GC-C-IRMS (Isoprime)
- Individual Absorption [AA]
- Audio Magneto telluric [AMT]
- Contact Angle Analyser [CA]

- Ground Penetration Radar [GPR]
- Langmuir – Blodgett Film Deposition [LB]
- Small/Wide Angle X-Ray Scattering Instrumentation [SAXS – WAXS]
- Ultra Microtome [UMT]
- X – Ray Diffraction [XRD]
- Electron Microscope Transit (TEM)
- Scanning electron microscope (SEM), (JSM-6390LV), with elemental analyser (Bruker AXS)
- Atomic Power Microscope (AFM), (Innova)
- Mercury Porosimeter, Nitrogen Porosimeter, Permemeter (Vinci)
- 2D Proteom Unit
- Fluid Flow Study Devices, Heat Transmission Devices
- Oil and Biofuel Technology Laboratory Equipment: Automatic fractional distillation unit of crude oil 15 theoretical discs [Autodest 800 FISCHER], Atmospheric distillation apparatus: petroleum products, mixtures of biodiesel and organic volatile products [ORVIS BU PAMv2], Complete discontinuous reactor unit, AFP-102 aromatic and olefinic hydrocarbon determination device in liquid petroleum products [NORMALAB], Cold Filter Barrier Point Determination Device on Biofuel and Biofuel Mixtures [TANAKA AFP-102], Cold Filter Barrier Point Determiner in Petroleum Products and Their Mixtures [LINETRONIC TEXHNOLOGIES] automatic Cloud Point Determining Device, Pour Point, Freezing Point [PHASE TECHNOLOHY], Digital biodiesel density measurement device [Antoon PAAR DM A4100], Digital crude and petroleum density measurement device [RUDOLPH DDM2911], REID vapour pressure measurement device [SUR BERILN], MINIVAR VPXpert automatic portable vapour pressure measurement device [GRABNER INSTRUMENTS AMETEK], colour determination of petroleum products [KOEMLER INSTRUMENT CO, SUR BERLIN], Auto flash point device [PMA 2] and open vessel CLEVELAND combustion point device [PETROTEST CLAS], Total sulphur determination device in crude and heavy petroleum products [OXFORD LAB X3000] and light petroleum products (petrol, diesel oil, etc.) [Antek MODEL 735], Spectrophotometer for Fuel Illegal Control [HITACHI U-2900], Water Identifier in Petroleum Products (Metrohm Coulometer 831. Stirrer 728], Dean & Stark Device for water determination, Carbon Residue [NORMALAB NMC 210], Consistency determination by penetrating cone/needle, lubricating fats, asphalt and waxes [SUR BERLIN], Determination of acidity number (TAN) base number (TBN), chlorides, fuel and mineral oil water [Metrohm TITRINO BASIC], Conductive biofuel oxidative stability determination apparatus [Metrohm RANCIMAT 873], Viscosity Baths and viscosity tubes [PMT Tomson, SUR BERLIN]
- Wind tunnel – Wind Generator 36W, Hybrid system: a) Wind Generator 36W, b) PV Frames 3 x 40W
- Material conductivity measuring apparatus
- Water – water and steam-water exchanger
- Solar installation for hot water production

- Hydrogen cell
- Thermographic camera
- Electricity analyser
- Exhaust gas analyser
- Thermal conductivity coefficient measurement apparatus k
- Thermal Resistance Measurement Device R
- Vaisala Weather Station
- Interconnected Horizontal and Vertical Wind Generator – Photovoltaic System
- Fixed tilt photovoltaic system – tracker
- 3D printers of FDM, SLA, Stereo lithography technologies for the manufacture of cellular panels. Asiga, Formlabs (2X), Stratasys, Leapfrog, Zortrax
- Casting system consisting of: Vacuum caster – Argon, digitally controlled 1 900 °C, oven digitally controlled, industrial stirrer, all for casting with the technique of "lost wax"
- Instron 8801 mechanical test equipment with heads 100 KN & 5KN, dynamic stress (tiredness) up to 100 Hz, for compression, bending, tensile and shearing.
- High Speed Camera, 5 Axis CNC Machining Center, CNC Wire Electrocorrosion, 2.5 Axle Lathe(livetooling) CNC, Opticaland Measuring MachineCoordinateMeasuringMachineCMM.
- Three-axle dynamic tables Kistler
- Oscillation recording equipment with Laser POLYTECRSV-150 Remote Sensing Vibrometer
- Industrial robotic arms 6 degrees of freedom, KAWASAKI. A payload of 30 kg and an area of 1.8 m RS030N and a payload of 5 kg and an area of 0.65 m RS005N
- Three Blade Servers DELL Intel Xeon 3.3 GHz 32 GB RAM Windows 2012 Server + Blade UPS

5.2 Teaching Classrooms

For the educational needs of the Department there is adequate building infrastructure of approximately 10.000 sq.m. in the campus of Kavala and specifically, 12 classrooms and an amphitheater with exclusive use. In addition, there are specially equipped classrooms and a computing centre for the MSc program.

5.3 E-learning

Open eClass (https://eclass.emt.ihu.gr) is an integrated Electronic Course Management System and is the proposal of the Academic Internet (GUnet) for the support of asynchronous e-learning services. It is designed to enhance the educational process, is based on the philosophy of opensource software, is actively supported by GUnet and is freely distributed.

The introduction of asynchronous e-learning gives new possibilities to education, offering a means of interaction and continuous communication between trainers and trainees. At the same

time, the electronic organisation, storage and presentation of educational material is supported, regardless of the limiting factors of classical teaching space and time, creating the conditions of a dynamic educational environment. The Open eClass platform is designed to implement new educational activities. The main roles are those of the trainer and the trainee. In particular, the user – trainer can easily and quickly create user-friendly and functional online courses, using the educational material available (notes, presentations, texts, images, etc.). At the same time, learners have an alternative channel of access to the knowledge offered. The Open eClass platform supports asynchronous eClass services without restrictions and commitments. They are accessed by using a simple web browser without the requirement of specialised technical knowledge.

The following electronic services are also provided to the students of the Department of Chemistry:

- University e-mail,
- E-Secretariat,
- VPN service,
- Eduroam network,
- Digital and electronic library collections;
- Institutional Repository “Theodoros Trivellas”.

5.4 Institutional Research Laboratories

The department also operates the following 10 institutionalized laboratories, which are the core of the conduct of research activities and innovative actions and their internal rules of operation.

- LABORATORY OF NANOPARTICLES
- LABORATORY OF ORGANIC CHEMISTRY – SPECTROMETRY MASS
- LABORATORY FOR SIMULATION OF PROCESSES IN OIL AND OIL ENGINEERING AND TECHNOLOGY
- CONVENTIONAL FUEL AND BIOFUEL LABORATORY
- WATER QUALITY CONTROL LABORATORY – SOIL SEWAGE
- ENVIRONMENTAL PROTECTION LABORATORY
- LABORATORY OF GEOLOGIC AND GEOPHYSICAL RESEARCH
- PROSTHETIC ENGINEERING LABORATORY
- LABORATORY TECHNOLOGIES FOR AUTOMATIC CONTROL SYSTEMS – AUTOMATIC SYSTEMS
- LABORATORY OF RENEWABLE ENERGY SOURCES AND HEAT TRANSMISSION

The Department actively participates in the Hephaestus Laboratory, which belongs to the School of Sciences, which is a medium-to-large-scale infrastructure laboratory in which the Department of Chemistry contributes with the largest percentage of its members http://hephaestus.teikav.edu.gr.

6. POSTGRADUATE STUDY PROGRAMMES IN THE DEPARTMENT

At the Department of Chemistry, School of Sciences of the Democritus university of thrace, there are currently 4 postgraduate programs of study.

I) Chemical industry: Quality, Environment, Health and Safety Management (Government Gazette, Series II, No 1117/14.03.2022)
II) Cosmetic Chemistry (Government Gazette, Series II, No 3466/29.07.2021)
III) Nanotechnology (Government Gazette, Series II, No 4106/12.11.2019)
IV) Oil and Gas Technology (Government Gazette, Series II, No 3959/29.10.2019)

6.1 Postgraduate Program in Chemical Industry: Quality, Environment, Health and Safety Management

6.1.1 History

Since the academic year 2022-2023, the Department of Chemistry of the Democritus university of Thrace organizes and operates a Postgraduate Studies Program in the "Chemical Industry: Quality, Environment and Health & Safety and Security Management' (MSc in Quality, Safety, Security, Health and Environmental Management) in accordance with the provisions of this Decision and the provisions of Law 4485/2017 (Government Gazette, Series I, No 114).

6.1.2 Purpose of the Master's Program

The multidisciplinary-interdisciplinary MSc program aims to provide high-level postgraduate education and promotion of knowledge and research in the scientific areas of Quality Management, Environment, Protection, Health and Safety. Its aim is the integrated scientific, management and technical training of executives who undertake the duties of Quality, Health, Safety and Environment Officer (HSSQE), a particularly widespread and demanding position that concerns all sectors of economic activity internationally, and especially the chemical industry. More specifically, the MSc focuses on the theoretical specialization and laboratory specialization and training of young scientists in the management of the main supporting functions of enterprises, namely Quality Management, Environmental Policy, Health and Safety Protection. In particular, safety concerns include, in addition to the prevention of injuries at work, the particular subject matter of security and natural disasters, as well as the objects of process safety and the prevention of large-scale technological accidents, with a particular interest in the chemical industry. Also, the subject of the MSc clearly includes the applications of the Science of Chemistry in these fields. These support functions are part of the basic industrial management standards ("Families" ISO 9000, 14000 and 45000 respectively), which are linked to each other through the "Basic Standard Structure" in a wider single "family", in which young scientists will be trained. They are also related to the broader corporate risk management standards (ISO 31000:2018, COSO ERM, IRGC, etc.). A large part of the MSc is an in-depth understanding of key scientific and technical concepts, as well as the legislative framework, at the same time as the combined and holistic approach of the disciplines of Occupational Safety and Health (HS), Protection (S), Quality Assurance (Q), and Environmental Protection and Management (E).

The Master's Degree programme generally aims at the promotion of knowledge, the development of research and technology, as well as the satisfaction of the educational, research, social, cultural and development needs of the country in the basic functions of supporting the production process of all sectors of economic activity. In particular, it aims to train high-level scientists capable of contributing to theoretical and applied areas of the specific disciplines, to specific thematic modules or sub-sectors of the subjects of the first cycle of study of the Department of Chemistry related to the aforementioned modules, as well as to the production and transmission of knowledge, know-how, methodologies and research results in the scientific field of the Department of Chemistry. The MSc aims to meet the research and educational needs in the fields of Occupational Safety and Health, Protection, Quality, Environment as well as the development of a combined research field and the production of innovative applications in these subjects holistically. This MSc programme in the Department of Chemistry is considered an innovative and unique postgraduate program since it offers combined knowledge from disciplines and subjects that are of particularly high demand from the labor market. This enables its students to be given a holistic approach to an important and modern area, Quality, Environment, Health and Safety, initially in the light of analysis and then from the management perspective. Graduates will be able to work among others in the chemical industry, the private sector, and in national and international bodies that are increasingly active in the emerging field of Quality, Environment, Health and Safety. In addition, it is expected to strengthen the connection of research with Greek production units, through the creation of well-trained and skilled human resources and the transfer of know-how that will contribute to the promotion of the country's development needs.

In particular, the objectives of the Programme are the following:

- Providing high-level postgraduate studies
- Providing knowledge in the modern developments of the emerging field of Quality, Environment, Health and Safety.
- Creation of competent graduates to participate in occupational health and safety in the field of action and in all fields of work and specializations
- Creation of specialists for infrastructure protection
- Creation of specialized scientists with expertise in quality assurance
- Creation of specialized environmental executives, oriented towards the protection and management of the environment and sustainable development
- The provision of the necessary high level of knowledge, and the development of the necessary skills, skills and values for the preparation of specialized scientists and future executives who are aware of the current trends in the fields of quality management, employee safety and health services and environmental protection, as well as ensuring compliance with the relevant standards and procedures to be followed by each body, capable of staffing the productive and administrative functions of enterprises and organizations in the private and public sector, at both strategic and operational level, in a globalized economic environment.
- The training and preparation of executives already occupied by SMEs and public organisations with the necessary knowledge, competences, skills and values in order to contribute effectively to the development of Greek businesses and organizations and the Greek economy in general.
- Preparation for third cycle studies. The MSc also aims to meet social needs in the context of continuous and lifelong learning. The guiding philosophy of the MSc is to provide graduate students with advanced knowledge, methods, and analytical skills that will enable them to continue learning and development. Based on this philosophy, the teaching methods focus on the active participation of learners and include various interactive methods, such as applied research, case studies, laboratory practice exercises, etc.

6.1.3 Master's degree awarded

The P.S.P. awards a Master's Degree in "Quality, Environment and Health and Safety Management" (MSc in Quality, Safety, Security, Health and Environmental Management).

6.1.4 Categories of Graduate Accepted

In the multidisciplinary-interdisciplinary postgraduate programme entitled: ''Chemical industry: Quality, Environment, Health and Safety Management" (MSc in Quality, Safety, Security, Health, and Environmental Management)" are accepted, after selection based on the curriculum vitae and after an interview of candidates, graduates of Greek higher education institutions or equivalent foreign ones. Indicatively, graduates of: Schools of Sciences, Health Sciences, Geotechnical Sciences, Engineering, Law, Political Science and Public Administration and related departments of other Schools of Greece or recognized equivalent institutions abroad, as well as graduates of TEI departments in a related field. In addition, graduates of the National School of Public Administration and Graduates of Production Military Schools of Armed Forces, Security Corps and Fire Brigade etc. In any case, these degrees should be relevant to at least part of the discipline of the Postgraduate Program.
Students of relevant Schools who completed their undergraduate studies before the dates of enrollment in the postgraduate program may also apply.
The criteria for evaluating the applications of postgraduate students are the degree grade, the relevance of the basic undergraduate degree or diploma to the Master's Degree program, the professional experience, the candidate's research activity, the existence of another relevant degree or postgraduate degree, the letters of recommendation, the knowledge of English and other foreign languages.

6.1.5 Programme requirements and learning outcomes

This MSc program equips students with a holistic understanding of Quality, Safety, Security, Health, and Environmental Management, preparing them for leadership roles in diverse industries and institutions
1. Introductory Issues in Safety and Health at Work
Skills: Understanding workplace safety protocols, hazard identification.
Knowledge: Fundamental concepts in occupational health and safety.
Competencies: Apply safety principles to real-world workplace scenarios.
2. Environmental Protection
Skills: Environmental impact assessment, sustainable practices.
Knowledge: Environmental legislation, conservation strategies.
Competencies: Develop and implement environmental protection plans.
3. Quality and Risk Management
Skills: Risk assessment, quality assurance.
Knowledge: Principles of risk management, quality control methodologies.
Competencies: Design effective risk and quality management systems.
4. Total Quality Management
Skills: Quality improvement techniques, process optimization.
Knowledge: TQM philosophies, continuous improvement models.
Competencies: Implement TQM principles in organizational contexts.

5. Environmental Policy and Planning. Management of the Environment
Skills: Policy development, environmental planning.
Knowledge: Environmental governance, management strategies.
Competencies: Formulate and execute environmental policies.
6. Occupational Safety - Process Safety - Security against Asymmetric Threats and Critical Infrastructure Protection
Skills: Process safety planning, security protocols.
Knowledge: Threat analysis, critical infrastructure protection.
Competencies: Implement security measures in industrial settings.
7. Occupational (OHS) and Environmental Risk Assessment and Management
Skills: Risk analysis, crisis management.
Knowledge: OHS regulations, environmental risk factors.
Competencies: Develop comprehensive risk assessment and management plans.
8. Ergonomic and Psychosocial Factors at Work. The Human Factor
Skills: Ergonomic design, psychosocial risk management.
Knowledge: Human factors in workplace safety.
Competencies: Implement ergonomic solutions for improved workplace conditions.
9. Research Methodology and Tools for QSSHE
Skills: Research design, data analysis.
Knowledge: Research ethics, methodologies in QSSHE.
Competencies: Conduct and evaluate research in the field.
10. Occupational Health and Hygiene - Harmful Agents. Basic Principles of Toxicology and Chemical Exposure
Skills: Hazardous material management, exposure control.
Knowledge: Toxicology fundamentals, chemical exposure pathways.
Competencies: Develop protocols for chemical safety and exposure control.
11. Chemistry and Environmental Pollution Control and Applications of Chemistry in OHS and Safety
Skills: Environmental monitoring, pollution control.
Knowledge: Chemistry applications in safety, pollution prevention.
Competencies: Implement chemistry-based solutions to environmental challenges.
12. Quality Management, Chemometrics, and Metrology
Skills: Quality metrics, measurement techniques.
Knowledge: Chemometric applications, metrology principles.
Competencies: Apply advanced quality and measurement techniques.
13. Quality, Environmental, and Health and Safety Management Systems
Skills: System implementation, audit processes.
Knowledge: Standards in QSSHE, integrated management systems.
Competencies: Develop, implement, and audit integrated management systems.
14. Executive Topics: Project Management, Logistics, Security, Fire Safety, etc.
Skills: Project leadership, logistics optimization.
Knowledge: Executive-level topics in security, fire safety, etc.
Competencies: Manage complex projects and operational aspects.

6.1.6 Duration of study

The duration of studies for the award of the Master's Degree (MSc) is set in three (3) semesters.

6.1.7 Course program per semester

The total of credits (ECTS) required to obtain the MSc is 90 ECTS in 3 semesters (30 ECTS every semester). In addition, postgraduate students are required to attend all courses (compulsorily), to prepare the laboratory and tutorial exercises/tasks assigned to them, to attend the seminar courses and study courses indicated to them, to participate in practical exercises which are not credited with ECTS credits, as well as to prepare a postgraduate thesis on a subject related to the subject of the Postgraduate Programme. The teaching of the courses and the writing of the Diploma Thesis take place in Greek and/or English.

Studies include:

• Twelve (12) courses with 3 hours per week: six (6) the first semester (winter semester, 30 ECTS) and six (6) the second semester (spring semester, 30 ECTS).

• The course with the code XE9 “Environmental Pollution and Pollution Control and Applications of Chemistry in OSH and Protection” includes 9 hours of laboratory exercises.

• The course with the code XE10 “Quality Management, Chemometric and Metrology” includes 12 hours of laboratory exercises.

• Diploma Thesis is carried out in the third semester (30 ECTS Units).

The course schedule is organized every semester as follows:

Code	ECTS (P.M.)	Course Title
First semester		
XE1	5	Introductory Issues in Safety and Health at Work, Environmental Protection, Quality and Risk Management
XE2	5	Total Quality Management
XE3	5	Environmental policy and planning. Management of the environment
XE4	5	Occupational Safety - Process Safety – Security against asymmetric threats and critical infrastructure protection
XE5	5	Occupational (OHS) and Environmental Risk Assessment and Management
XE6	5	Ergonomic and psychosocial factors at work. The Human Factor
Total	30	
Second semester		
XE7	5	Research Methodology and Tools for QSSHE
XE8	5	Occupational Health and Hygiene – Harmful agents. Basic Principles of Toxicology and chemical exposure
XE9	5	Chemistry and Environmental Pollution Control and Applications of Chemistry in OHS and Safety
XE10	5	Quality Management, Chemometrics and Metrology
XE11	5	Quality, Environmental, and Health and Safety Management Systems
XE12	5	Executive Topics: Project management, logistics, Security, Fire Safety etc.
Total	30	
3 rd semester		
XE13	30	Postgraduate Diploma Thesis
Total	30	

6.1.8 Number of admissions

The number of persons admitted to the programme per year is set at a maximum of eighty (80). Members of the EEP categories, as well as EDIP and ETEP members of the Department of Chemistry, who meet the legal requirements (Law 4485/2017), may, at their request, register as overnumbered, and only one per year.

6.1.9 Staff

The teaching staff of the Postgraduate Program "Chemical Industry: Quality, Environment, Health and Safety Management" (MSc in Quality, Safety, Security, Health, and Environmental Management)" includes distinguished Professors and Professors of Universities of Greece, and Greek university professors abroad, PhD Researchers, as well as prominent executives of the country's public sector, Independent Authorities, Public Organizations and Businesses of the private sector, all with excellent studies, and a special contribution in the field of Occupational Safety and Health (Health and Safety), conservation, Quality, Environmental (Environment) and Logistics, and with significant knowledge and distinct experiences from internationally advanced scientific environments.

7. SERVICES AND STUDENT WORK

7.1 European Programmes Office (Erasmus)

Through the Erasmus+ European Mobility Programme, students of the Department are given the opportunity to undertake part of their studies (up to one year) at a University of another European or Associated country. In this context:

- Each student is responsible for the consultations concerning the host university. The staff of the Department provide all the necessary information and support the students both in the application process and in their contacts with the host institution.
- Students declare the courses they will attend at the host institution and the proposed matches with the courses of the current Curriculum. The Erasmus+ Committee of the Department checks and approves the matches. After the end of the trip, the grading of the host institution is submitted to the Chemistry Department through the Erasmus+ Coordinator of the Department and the student's score is registered in the Secretariat's electronic system.
- The selection of students to participate in the Erasmus+ programme is made in accordance with the general rules and algorithm described by the Erasmus+ rules.

Office Erasmus+ DI.PA.E.– Campus of Kavala

Address: Agios Loukas, 65404, Kavala (Building of the Library).

Staff

Nikos Kiourtis, pr@emt.ihu.gr, 2510462290.

Fai Georgiadou, fei@emt.ihu.gr, 2510462221.

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Responsible for the Department: Professor E. Apostolidou, elapost@chem.ihu.gr

More information on http://erasmus.teiemt.gr/index.php/el/

7.2 Library

The Library of Kavala has been operating since 1989. In 2002 it was renamed as Publications and Library Department and is an independent part of the Foundation. Since 1998 it has been housed in a newly built two-storey building with a total area of 800 m^2 with a lending section and a reading room with 200 readers' seats. Its collection includes 30.000 books, 3,000 accessible (electronic and non-electronic) journal titles as well as a large number of graduate theses. It is also a subscriber to 17 electronic information sources (online databases, digital libraries, statistical databases, etc.).

The Library of the Kavala hub, as a modern academic library, is an integral part of the Foundation's educational and research work. Its mission is the provision, management and distribution of information, the support of undergraduate and postgraduate students, the strengthening and support of the Foundation's educational and research activities and its substantial participation in any activity that promotes education.

7.3 Student Club

The Democritus university of thrace (Campus of Kavala) operates a Student Club which aims to implement student benefits and facilities for living, cultural cultivation and student sport. The Student Club ensures that students are fed and housed. Besides, it deals with the provision of scholarships and interest-free loans to students based on their financial situation in combination with their performance in studies.

Information on the benefits of the Student Club of the Democritus university of thrace (Campus of Kavala) is provided by the Secretariat of the Club, located on the ground floor of the student residence F1.

Student benefits are granted if the duration of their studies does not exceed the normal duration (8 semesters) plus 50 %.

Interested parties can also contact the Student Welfare Department by email at: stegasi@emt.ihu.gr.

Feeding

On the ground floor of Student House F2 operates the Restaurant which provides food with three meals a day (breakfast, lunch and dinner) seven days a week, except for holiday periods when it is closed. Usually there is a choice between at least two meals and the daily cost for those who are not eligible for free meals is extremely small. The Student Club provides information on the conditions under which a student may have free meals.

In the area of the campus and specifically on the ground floor of the administrative building there is a canteen which is open from morning until late at night and in it one can eat snacks or buy useful things, e.g., tickets, etc.

7.4 Student Dormitory

At the campus of Kavala there are 3 student dormitories with an area of 11,000$^{m^2}$ and a capacity of 450 beds. Students can be accommodated as long as their Department's studies last, extended by one year. The postgraduate students can be accommodated as long as their Postgraduate Program lasts, plus one semester.

The Student Dormitory in the campus of Kavala consists of three buildings under the names Φ1, Φ2 and Φ3.

The organisation of each building is described in the table below:

Campus of Kavala			
Description of buildings	Names of buildings		
	Φ1	**Φ2**	**Φ3**
Floors	3	3	2
Wings per floor	2	2	2
Rooms per wing	14	14	14
WC per wing	3	3	3

Bathrooms per wing	3	3	3
m² of rooms (without balcony)	9 sq.m.	9 sq.m.	9 sq.m.
m² of rooms (with balcony)	12 sq.m.	12 sq.m.	12 sq.m.
Capacity per room	2	2	2

For more information you can see the rules of operation at: http://www.teikav.edu.gr/portal/images/news/2020/kanest.docx

7.5 Student Health care Service

Students are also provided with: Full medical and hospital care (Presidential Decree 185/1984).

7.6 The University Gym

The Gym of in the Kavala's campus has as its mission to ensure the organisation and operation of sports programs and activities for the students and all the staff of the institution. The aim of all programs is to improve the quality of life of the members of the academic community through exercise and physical activity.
Sports facilities are available to all students as well as academic and administrative staff. In the gym room located on the ground floor of the student residence F3 there are several programs:

- Muscle Strengthening
- Cardio Fitness
- Fitness and weight control programmes
- Traditional dances
- Martial arts
- Ping pong

Participating students can also accompany the Foundation's teams representing the hub of Kavala in various student championships (internal, inter-university and international) organized during the academic year.
Necessary supporting documents for participation in the gym programs are:

- Certificate of study
- Pass
- 2 recent photos
- Doctor's certificate

7.7 Sports and Cultural Activities

The University Gym offers a wide range of sports programs that cover each student's sports interests and are aimed at people with different needs, interests, capabilities and levels, in the following areas:

- Organised sports activities (track, shooting, tennis, traditional dance, volleyball, beach-volley, etc.)
- Internal leagues and tournaments (Basket 5X5 & 3X3, Ball Football – futsal, Football 11X11, Table tennis)
- Leisure activities (hiking, skiing)

- Fitness programs
- Sports (Panhellenic Student Championships)

7.8 Student Associations

Student clubs exist in every department of the hub, so there are the corresponding student associations of the departments of Physics, Chemistry, Computer Science and Accounting and Finance.

Union of Pontian Students

Union of Pontian Students of the Hub of Kavala (former TEI of Eastern Macedonia and Thrace) was founded in November 1984 by people whose common characteristic is the love for the music-dancing tradition of Greece and especially of Pontos.

Most of them have a long-term relationship with this sector. Its members are composed of students, professors and administrators. The creation of the Association was a natural result of the will expressed by everyone to establish a body through which they would channel their experience, energy and ideas to society, proposing actions for tradition and culture.

The main concern of the Union of Pontian Students is the preservation of customs and traditions and the study of the historical, cultural and folklore character of Pontos.

In the dance department of the club are taught dances from Pontos such as Omal, Seranitsa, Letsina, Triangle, Company, Kotsari, Saringos. Also, the club's activities include the participation of the dance group in events all over Greece and abroad. The Union of Pontian Students has represented our country in an international festival on behalf of higher education institutes.

Association of Cretan Students

The club was founded in 2003 with the aim of strengthening the links between the Cretan students in Kavala, as well as helping them.

The club's goal is to highlight the huge cultural, historical and traditional heritage of Crete in Northern Greece. As part of this goal, various events, activities and excursions are organized in order to highlight the identity of Crete and respectively to learn the place where students spend 4 years.

Cyprus Association of Students and Friends

The Cyprus Association of Students and Friends was born in November 2004. The purpose of the Association is to help Cypriots and all active students in Kavala in general. This will be done mainly through this website but also through announcements at the University.

7.9 Network Operations Center – Electronic Services

The Department of Informatics (Informatics Service) in Kavala is responsible for the smooth operation, maintenance and development of equipment, interconnections and services of the data network of the campuses of Kavala and Drama.

The IHU in Kavala and Drama has created, maintains and continuously evolves a HighSpeed Data Network. The Data Network connects each section to Greek and international Networks, and the Internet. Through the Data Network, a set of network services are provided to all members of the academic community in order to support and promote the Foundation's education, research and administrative operation.

Student Services

E-Secretariat

The e-Secretariat offers students – users of the system the possibility to display and process their personal data (declarations, scores, certificate applications, etc.), as well as the possibility to view data related to the departments to which they belong (study programs, courses, staff, etc.).

In particular, students from anywhere on the internet can:

- Make online submission of course declarations and applications for certificates.
- Be informed about the courses they have passed along with their respective grades, the examination period, the academic year, the teaching hours etc.

Access is made using the institutional account at the following link: https://students.duth.gr

Electronic Service EUDOXOS

It is a service for the immediate and complete provision of the coursebooks to the undergraduate students of the Universities. Access is made using the following link: https://eudoxus.gr/

Academic Identity Acquisition Service (Pasos)

Access is made using the institutional account at the following link: https://academicid.minedu.gov.gr/

8. INTERNATIONAL DIMENSION OF THE P.S. AND COOPERATION

(a) The Department of Chemistry of the Democritus university of thrace utilizes the Erasmus+ programme, which grants mobility for studies and internships in world-renowned companies and universities. Commuters reap multiple benefits, broaden their horizons and develop, among other things, skills and competences for their personal and work development, such as improving their language skills, intercultural understanding towards other peoples, creating European consciousness, experience abroad, studying and working under different standards.
There is a constant encouragement to its students to be properly and responsibly informed by the Erasmus+ Office of the Department of Public and International Relations about their travel to European Union countries. More information is available on the official Erasmus+ website (URL: http://erasmus.duth.gr/) or by a face-to-face visit to the Library building of the Campus of Kavala.
(B) The Department of Chemistry, in collaboration with the INES Research Center (France) and the Catholic University of Lille, organizes an international summer school in the field of the International Summer School on photovoltaic Systems and Emerging technologies (From mainstream silicon to disruptive organics/perovskites technologies).
(URL: https://i3se.kedivim.duth.gr/)
Also, the Department of Chemistry, in collaboration with the University of Sorbonne, organizes a Summer School, from 03-07 July 2023, on the theme "Towards a Green and Sustainable World". The courses will be held remotely and entirely in English. Participation is free.
(C) Within the framework of the Foreign Language Postgraduate Program 'MSc in Oil and Gas Technology' of the Department of Chemistry of the IHU, active cooperation is maintained with the Harold Vance Department of Petroleum Engineering of Texas A & M University of USA at the level of teaching by Professors David Schechter and George Moridis, as well as the elaboration of postgraduate thesis.
(D) In the same framework of collaboration with the Harold Vance Department of Petroleum Engineering at Texas A & M University, the IHU will also operate the Foreign Language Undergraduate Program of Studies 'BSc in Petroleum Science and Engineering'.
(e) The Department has developed partnerships with many Universities and Research Institutions both in Europe and abroad. In addition, many of the funded European projects require cooperation with institutions in other countries of the European Union. Below are listed indicatively collaborating institutions abroad.
Vanor Wasseraufbereitungssysteme, Vienna, Austria
University of Cyprus, Cyprus
Dunarea de Jos University of Galati, Romania.
University of the Academy of Sciences of Moldova, Moldavia
Institute of Geology and Seismology, Moldavia
Institute of Zoology, Moldavia.
University of Oxford, UK
Texas A &M University, USA
Lawrence Berkeley National Laboratory, USA
University of Antwerp, Belgium
Helmholtz Zentrum Geesthacht, Germany
Blekinge Institute of Technology, Sweden
Bernoulli Institute, Kroningen, Denmark
Cyprus University of Technology, Cyprus
Örebro University in Örebro, Sweden

Rise Research Institutes of Sweden, Sweden
Universiy of Zabol, Iran
BuAli Sina University, Iran
University of Erlangen-Nuremberg, Germany
Vrije Universiteit Brussel, Belgium
Sorbonne Université, France
Huazhong University of Science and Technology, China
City University of New York, USA
Polish Academy of Sciences, Poland
National Yunlin University of Science and Technology (YunTech), Taiwan
— Department and Graduate School of Safety and Environment Engineering,
— Research Center for Soil &a Water Resources and Natural Disaster Prevention (SWAN);
— Bachelor Program in Interdisciplinary Studies, College of Future,
Central Police University, Taiwan
Military Academy “Genral Mihailo Apostolski” – Skopje, North Macedonia
Police Academy, Fire Officers Faculty, Romania
Department of Geography and Environmental Studies at the University of Haifa, Israel.
George Mason University, USA
Sandia National Laboratories, USA
the School of Science has appointed on behalf of the Department of Chemistry responsible for cooperation with those responsible for the action “Study in Greece”, which is the official body of internationalisation and extroversion of Greek higher education, Assistant Professor Michalis Chalaris.
(g) The Department of Chemistry organises scientific conferences and supports international scientific meetings, indicatively:
1st Chemical Research Conference
International Conference on Planning, Challenges of Disaster Management and Resilience
Safety GALA Workshops
More information can be found on the website of the Department of Chemistry in the category Conferences.

9. REFERENCE TO DEPARTMENT AND UNIVERSITY REGULATIONS

The various regulations of the Department and the University are available at the following hyperlinks:

https://chem.duth.gr/index.php/el/
https://rescom.duth.gr/
https://hssqe.chem.duth.gr/

10. ANNEX - DETAILED OUTLINE OF COURSES OF THE POSTGRADUATE PROGRAMME

The course outlines are listed according to the ΕΕΘΑΕ standard.

Table 1: A' SEMESTER

Mandatory Courses

a/a	Course	Course code	Teatching hours/week	Teacher coordinator	ECTS
1	Introductory topics in Occupational Safety and Health, Environmental Protection, Quality and Risk Management	XE1	3	Halaris M, Marmanis D., Kyzas G., Paparoupas N., Peltekis S., Naris S., Panopoulos G.	5
2	Total Quality Management	XE2	3	Halaris M., Markopoulos Th., Dimitriadis E., Krokos F., Mylonakis G.	5
3	Environmental policy and planning. Management of the environment	XE3	3	Halaris M., Tarhanidis K., Yakoumis I., Despotidou Marmanis D.	5
4	Occupational Safety - Process Safety – Security against asymmetric threats and critical infrastructure protection	XE4	3	Halaris M, Mitrou E., Papakostas V., Georgiadou P., Loukidou M., Targoutzidis A.	5
5	Occupational (OHS) and Environmental Risk Assessment and Management	XE5	3	Halaris M, Konstantopoulou S., Targoutzidis a.	5
6	Ergonomic and psychosocial factors at work. The Human Factor	XE6	3	Halaris M., Karabelias G., Konstantinidou M., Koukoulaki Th.	5
	Σύνολο ECTS Εξαμήνου				**30**

Table 2: B' SEMESTER

Mandatory Courses

a/a	Course	Course code	Teaching hours/week	Teacher coordinator	ECTS
1	Research Methodology and Tools for QSSHE	XE7	3	Mittas N., Naska Androniki	5

2	Occupational Health and Hygiene – Harmful agents. Basic Principles of Toxicology and chemical exposure	XE8	3	Halaris M., Mauritius S., Naris S., Toufekoula H., Tezari A.	5
3	Chemistry and Environmental Pollution Control and Applications of Chemistry in OHS and Safety	XE9	3	Mitkidou S., Kokkinos N., Nannou H., Chronopoulos G., Tsoupras A.	5
4	Quality Management, Chemometrics and Metrology	XE10	3	Halaris M., Nannou H., Lambropoulou D., Tarantili P., Kosheleva R .	5
5	Quality, Environmental, and Health and Safety Management Systems	XE11	3	Halaris M., Peltekis S., Paparoupas N., Zervogiannis P.	5
6	Executive Topics: Project management, logistics, Security, Fire Safety etc.	XE12	3	Delias P., Kolaitis D., Kranidiotis Th., Hainas E., Marketos I.	5
	Σύνολο ECTS Εξαμήνου				**30**

Table 3: C' SEMESTER

Mandatory Courses

a/a	Course	Course code	Teaching hours/week	Teacher coordinator	ECTS
1	Postgraduate Diploma Thesis	XE13		Professor	30
	Total ECTS Semester				**30**

10.1 1st Semester Courses

COURSE	**:**	Introductory topics in Occupational Safety and Health, Environmental Protection, Quality and Risk Management
CODE	**:**	XE1
TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
The theoretical part of the course is divided into five (5) distinct subparts: α) The first part deals with the presentation of all aspects of the International, European and Greek Chemical Industry and business.		

b)The second part deals with the horizontal topic of risk management. It starts with the basic concepts and types of risks. It analyses the basic step-by-step process of risk management (Risk Identification, Risk Assessment, Risk Assessment, Management Strategies) with special emphasis on risks related to Quality, Environment and Health and Safety. The risk management approaches (management/governance) for corporate and systemic risks respectively are presented.
c) The third part deals with Quality Management. It includes the basic concepts and definitions of Quality, as well as the basic principles of Quality Management. It includes a presentation of legal and regulatory framework and standardisation issues
(d) Part Four on Environmental Management Includes the basic concepts and definitions (sustainable development, environmental footprint, etc.), as well as the basic principles of environmental management. It presents the main national and international legal and regulatory framework in the field of environmental management
(e) The fifth part deals with health and safety at work. It includes the basic definitions (occupational accident, occupational disease, etc.), as well as the main national and European legal and regulatory framework. The bodies involved (Safety Technician, Occupational Physician, Labour Inspectorate, etc.) are presented, as well as the basic principles of occupational risk management.

COURSE	**:**	Total Quality Management
CODE	**:**	XE2
TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

The course includes theoretical background knowledge in the technology of quality control and quality assurance, in particular in quality systems and in the basic methodology and techniques of quality management. In particular, the following specific topics are covered in depth:
Understanding the term Total Quality Control (TQC), the parameters that influence it, and how it can be applied in practice. Design and development of a quality product/service [including Failure Mode and Effects Analysis (FMEA)], and design of the production processes involved.
Establish a good background in Total Quality Management or Total Quality Administration as well as other applicable Quality Assurance Systems (QA) (similarities and differences) and Total Quality Awards (EU, USA, Japan). Application of the most widely used tools and techniques (brainstorming, affinity diagram, cause-effect diagram, comparison with reference systems, control chart, histogram, Pareto chart, and scatter diagram). Theoretical as well as practical knowledge of the two major ISO systems: the ISO 9000 "family" of standards for quality management. Terminology, basic principles, structure, and ISO 22000 for product quality and food quality and safety, respectively Other quality standards. Measurement, calculation, analysis and calculation of costs for quality taking into account the possibility of a large number of failures of different origin taking place. Understanding of the different techniques for optimising costs for quality (cost reduction while improving quality). Ways of implementing an assurance, evaluation and certification system for consumers. Understanding the importance of product safety and consumer protection within the EU legislative framework. The EU legislative framework for quality development, CE marking, and food marketing safety (HACP, ISO 22000).

COURSE	**:**	Introductory topics in Occupational Safety and Health, Environmental Protection, Quality and Risk Management
CODE	**:**	XE1
TYPE	**:**	Mandatory
SEMESTER	**:**	1st

HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

The theoretical part of the course is divided into five (5) distinct subparts:
α) The first part deals with the presentation of all aspects of the International, European and Greek Chemical Industry and business.
b)The second part deals with the horizontal topic of risk management. It starts with the basic concepts and types of risks. It analyses the basic step-by-step process of risk management (Risk Identification, Risk Assessment, Risk Assessment, Management Strategies) with special emphasis on risks related to Quality, Environment and Health and Safety. The risk management approaches (management/governance) for corporate and systemic risks respectively are presented.
c) The third part deals with Quality Management. It includes the basic concepts and definitions of Quality, as well as the basic principles of Quality Management. It includes a presentation of legal and regulatory framework and standardisation issues
(d) Part Four on Environmental Management Includes the basic concepts and definitions (sustainable development, environmental footprint, etc.), as well as the basic principles of environmental management. It presents the main national and international legal and regulatory framework in the field of environmental management
(e) The fifth part deals with health and safety at work. It includes the basic definitions (occupational accident, occupational disease, etc.), as well as the main national and European legal and regulatory framework. The bodies involved (Safety Technician, Occupational Physician, Labour Inspectorate, etc.) are presented, as well as the basic principles of occupational risk management.

COURSE	**:**	Environmental policy and planning. Management of the environment
CODE	**:**	XE3
TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

First, the basic concepts of pollution control and environmental management are introduced. Topics related to Environmental Problems and the Legislative Framework (Greece, Europe, International Community) are covered, while Major Environmental Problems such as ozone depletion, greenhouse gases, biodiversity loss, air pollution, water pollution, etc. are analysed. It will include existing legislation on pollution control and environmental protection, the presentation of issues related to the management of raw materials and waste in relation to circular economy practices, the design of environmental projects, the awareness of third parties (suppliers and customers) on environmental protection through the supply chain, as well as environmental auditing issues.
In particular, emphasis will be placed on the implementation of Environmental Management Systems (component development, team building - awareness-raising, environmental analysis, environmental policy design, target setting, programme design, process development, internal audit, environmental statement), as well as their certification (procedures, cost/benefit analysis, audits, etc.). Environmental ethics
good decision-making.

COURSE	**:**	Occupational Safety - Process Safety – Security against asymmetric threats and critical infrastructure protection

CODE	**:**	XE4
TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

α) The first part concerns the management of risks to the safety of workers in the performance of their work (accidents at work). It includes an analysis of the types of accidents at work according to Eurostat's ESAW classification, the factors affecting each, the preventive measures involved, and other issues relating to their management.
(b) The second part deals with process risk management (Process Safety), with particular emphasis on risks for chemical processes. It includes an analysis of the main risks, associated factors, and key issues related to their management. It also covers the risk of Major Technological Accidents (MTEs) during the management (production, storage, transport) of large quantities of hazardous chemicals. The objective is to acquire knowledge in risk assessment, technical and organisational measures, the design of emergency response procedures inside and outside the industrial site, as well as the relevant legal and regulatory framework. Included is an introduction to TAMEs (fires, explosions, chemical spills, Natech accidents), presentation of historical TAMEs, the relevant legislative framework (Seveso III Directive, transport of dangerous goods - ADR, ATEX Directive - explosives), the assessment and management of risks of TAMEs (identification of risk sources and risk analysis, technical measures to prevent or reduce the impact of TAME risks, safe working practices, safety management system), as well as emergency response planning (inside and outside the industrial plant)
c) The third part concerns risks from external threats (e.g. acts of aggression, weather events, public health, etc.) that may affect people, processes or infrastructure and cannot be counteracted by the basic prevention tools available to the company. The types of these risks, the main influencing factors and the basic principles of their management are described. It also covers the provision of specialised knowledge related to the protection of critical infrastructure.

COURSE	**:**	Occupational (OHS) and Environmental Risk Assessment and Management
CODE	**:**	XE5
TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

The theoretical part of the course is divided into two (2) distinct sub-parts. The purpose of the first part is to enable students to identify hazards that may cause harm to humans, plants and animals and to understand and assess their impact on the environment. Assess and characterise the risk so that appropriate strategies can be devised to effectively mitigate and manage environmental risk. Students will be equipped with the tools and techniques used to assess environmental risk based on the principles set out in international and national regulatory frameworks. Students will be guided through the complete process of designing and implementing an environmental risk assessment and management plan.

COURSE	**:**	Ergonomic and psychosocial factors at work. The Human Factor
CODE	**:**	XE6

TYPE	**:**	Mandatory
SEMESTER	**:**	1st
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
The course is divided into three main sections: α) Ergonomic factors and analysis. In this module, the basic principles of the science of ergonomics and the context of its application are presented. The main factors and their impact on work, the basic principles and tools of ergonomic analysis (e.g. KIM, QEC, etc.) and ergonomic design will be analysed. Particular emphasis will be placed on stress assessment methods for musculoskeletal disorders. b) Psychosocial factors at work. This module will introduce the main psychosocial factors in the workplace (stress, burnout, burnout, bullying, etc.) and will analyse their impact on psychosocial phenomena in the workplace (burnout syndrome, bullying/mobbing, harassment, etc.) and the basic principles of managing these phenomena and factors at work. c) Human factor. This module will analyse human factors and the risks associated with them that can affect Quality, Environmental Safety, Protection from external factors and Occupational Health and Safety. In particular, the main approaches and the most important models of Subjective Risk Perception and Human Error will be analysed, both in an individual and collective context. Basic concepts (Safety Culture, Risk Communication, etc.), as well as relevant tools and methodologies (e.g. Behavioral Based Safety) will be presented.		

10.2 2nd Semester Courses

COURSE	**:**	Research Methodology and Tools for QSSHE
CODE	**:**	XE7
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
The aim of the course is to introduce the student - new researcher - to the various methodologies, methods, techniques and tools for conducting scientific research with emphasis on applications in the interdisciplinary field of Quality Management, Environment, Protection and Health and Safety. The student will be trained to apply rules of proper literature search, writing a literature review and comprehensive presentation of their results. Basic sources of information and data, standard methodologies in specific fields of research related to Quality, Environment and Health and Safety, and tools for statistical analysis will be presented.		

COURSE	**:**	Occupational Health and Hygiene – Harmful agents. Basic Principles of Toxicology and chemical exposure
CODE	**:**	XE8
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

This module presents the basic principles of Occupational Health and Hygiene, adapted to the technical background of the students. Reference is made to the most important occupational diseases and the legal framework governing them. The basic principles of industrial hygiene and worker health protection, the role of the Occupational Physician, the basic principles and management framework, and the relevant legal framework are presented
The main harmful factors for workers' health are analysed: physical (noise, vibration, microclimate, lighting, radiation), chemical and biological, their impact on health, and the basic qualitative and quantitative methods for their assessment (determination of levels, exposure, limit and recommended values).
The basic principles for dealing with harmful agents by category, as well as individual (PPE) and collective protection measures are presented.

COURSE	**:**	Chemistry and Environmental Pollution Control and Applications of Chemistry in OHS and Safety
CODE	**:**	XE9
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
The issues of pollution control and environmental protection include many disciplines of science and technology and the content of the lesson has been structured into modules to adequately cover the relevant basic concepts. Principles of environmental pollution control. The most important of the subjects taught are water pollution, air pollution, radioactivity pollution -, traffic & industrial noise -cartographic imprint and more. - Atmospheric pollutant sampling - Objectives and Conditions - Sampling Systems of Pollution of the atmosphere - Sampling methods of pollutants from atmosphere and emission sources - Determination of pollutants and particulate matter Water Sampling - Organoleptic Control Parameters - Natural -Chemical Water Parameters - Organic Water Pollution Parameters - Nutrients - Eutrophicism - Metals and Toxic Elements - Rain Analysis - Solid Waste Control. Measurements of non -ionizing radiation and radioactivity in soil samples, plants etc. It also examines the effects of toxic and other harmful materials, greenhouse effect, noise pollution, adverse effects of microwave radiation, basic biological cleansing systems as well as environmental parameter measurements and control of the aforementioned pollutants. The approach of pollution forms examined within the course is recommended in the following: a. scientific definition analysis and description of pollution, b. Determination of sources and causes that create pollution, C. reference to the consequences of pollution in humans and ecosystems and d. Analysis of the prevention measures and precautions to limit pollution and actions to disappear. The laboratory part of the course includes laboratory exercises related to sampling, sampling techniques of air deposits, water, sediment, soil, biological materials		

COURSE	**:**	Quality Management, Chemometrics and Metrology
CODE	**:**	XE10
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

The theoretical part of the lesson is distinguished in three (3) distinct submeris. Specifically, students will be taught: (a) The basic concepts related to measurements, metrology and control and test laboratories. The emphasis is on the analysis of ISO 17025: 2005 (standard requirements, design and implementation of the standard). The basic measurement indicators and the determination of the objectives in the application of ISO 17025: 2005 in control and test laboratories are also presented and analyzed. (b) Methods: Definitions Selection of methods. Delivery methods. Validation and verification of analytical methods. Specialty and selectivity. Accuracy, correctness, loyalty. Precision control methods. Detection, detection and quantification limits. Durability. Sensitivity. Linearity, reference curve, linear and dynamic area. Uncertainty of measurements: Basic concepts, Eurachem uncertainty, Nordtest and Monte Carlo techniques. (c) Chemmetometry and analytical procedure. Basic statistical processing of detailed data. Errors in the analytical procedure, error dissemination. Calibration. Quantification techniques. Quality of analytical methods (reliability, slip, sensitivity, detection, selectivity, loyalty, accuracy). Validation of analytical methods. Signals and data. Editing signals. Methods of participation and correlation. Response surfaces and models. Sampling theory. Multiparametric approach. Cluster analysis (cluster analysis). Pattern recognition. Program Statistical Packages. Experimental design. Neural networks. Introduction to statistical software Matlab and R. The laboratory part of the course includes the following laboratory exercises related to: (i) Environmental Quality Control (ii) Material quality control (metals and alloys, ceramics and glass. paper).

COURSE	**:**	Quality, Environmental, and Health and Safety Management Systems
CODE	**:**	XE11
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	

The purpose of the lesson is to familiarize students with management standards, especially with the quality, environmental management and health and safety of labor, as well as the corporate risk management standards where the relevant risks are included. In particular they will be presented: (a) The basic principles and concepts of management standards, types of standards and the principles of design, operation and certification. b) The issue of quality inspections and focuses mainly on ISO 9001: 2008. Basic concepts of quality are described and the requirements and paragraphs of the standard are presented and analyzed. The basic types and types of inspections are described, the process of designing and implementing the inspection as well as the role of the Inspector and the Inspection Group are analyzed. (c) The ISO 14000 "Family" for Environmental Management. Terminology, basic principles, structure. Other Environmental Management Standards (EMS, Emas, etc.). The concepts of environmental management are analyzed, a historical overview of the development of environmental management systems, describes the European EMAS approach, and the responsible care "Responsible Care". The main part is the presentation and analysis of standard 14001 (standard requirements, comparison of standards 14001 and 9001). Finally, the Community System of Ecological Management and Audit - EMAS is presented, it is analyzed that the CDP certification and what is the role of the Environmental Inspectors, the Analysis of the Life Cycle (AKZ), and the various ecological signals. d) The 'family' of ISO 45000 standards for professional health and safety. Terminology, basic principles, structure. Design, implementation, control, improvement. Other standards on health and safety. e) The basic Structure of Standards. Consolidated concepts and functions ISO 9000, ISO 14000 and ISO 45000. f) The main corporate risk management standards: ISO 31000: 2018, Erm-Coso, IRGC. Terminology, basic principles, structure. Scope of Standards. g) The basic concepts/definitions of credibility and

analyzes the concept of failure. The characteristics and assessment techniques of credibility are analyzed in detail, and emphasis is also placed on the utilization of reliability data in risk analysis. The basic concepts of maintenance are also presented and its importance and importance are analyzed. The maintenance systems and policies are then analyzed and the second part closes with the presentation and analysis of total productive maintenance (activity, results)

COURSE	**:**	Executive Topics: Project management, logistics, Security, Fire Safety etc.
CODE	**:**	XE12
TYPE	**:**	Mandatory
SEMESTER	**:**	2nd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
The purpose of the lesson is to deepen the address of specific issues, where the nature of the dangers and the characteristics of the framework require a particular management approach, but also governed by a specific legal framework. Specifically, the following special issues are deepened by: a) Project Management. The uniqueness and finite of the duration of a project create particularities in the dangers of quality, environment and health and safety and management. Particular emphasis is placed on technical projects and the relevant legal framework that governs them (health and safety, environmental conditions, etc.) b) Logistics. Packaging, storage and transportation has particularities related to quality, environmental risks, and health and safety risks, especially for the chemical industry. Particular emphasis is placed on the packaging, storage and transportation of chemicals and the particular legal framework (Reach Directive, ADR Directive, etc.) Also referred to as lifting and transport licensing issues. (c) Public gathering places. The gathering of the public in professional areas whose security is called upon to manage the business raises particular risks to safety, protection against exogenous risks (natural disasters, security, etc.), health and hygiene. This section presents both these risks and the basic principles of treatment, the stakeholders and the legal framework.		

10.3 3rd Semester Courses

COURSE	**:**	Postgraduate Diploma Thesis
CODE	**:**	XE13
TYPE	**:**	Mandatory
SEMESTER	**:**	3rd
HOURS	**:**	3 h/w [39 hours theory]
ECTS	**:**	5
CONTENT	**:**	
After the successful completion of the required courses of the first three semesters, students/students undertake the preparation of a postgraduate diplomatic thesis (MDS). The subject of the MDS must be of research in nature and be part of the Postgraduate Program. The subject is selected on the basis of students' interests and after consulting with the teacher who will undertake the supervision of the MDS. Regular cooperation with the Supervisor is necessary as long as the preparation of the MDS lasts. It is recommended that the MDS is about 25,000 words without annexes. The way the bibliographic sources are listed is based on the 7th edition of the System of the American Psychological Association (Style, 7th Edition).		