D5.2 Regulation of Study

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Regulation of Study

of the Joint Transnational Master «ADRION Joint Transnational Master in Renewable Energy» of the Department of Chemical Engineering, School of Polytechnic, University of Patras in collaboration IUAV University of Venice, Department of Architecture and Arts (Italy), University of Zagreb, Faculty of Electrical Engineering and Computing (Croatia), Alma Mater Studiorum – University of Bologna, Department of Electrical, Electronic, and Information Engineering (Italy), Algebra Bernays University, Department of Computing (Croatia), University of Novi Sad, Faculty of Technical Sciences (Serbia), International University of Sarajevo, Faculty of Engineering and Natural Sciences (Bosnia & Herzegovina), University of Tirana, Department of Industrial Chemistry (Albania).

(As decided at Meeting No. 683/07.10.2025 of the Assembly of the Department of Chemical Engineering and approved at Meeting No. 251/23.10.2025 of the Senate of the University of Patras)

Article 1
General Provisions

The second cycle concerns the organization of Postgraduate Study Programmes (P.M.S.) with a minimum number of sixty (60) credit units (ECTS) and a minimum duration of two (2) academic semesters, the successful completion of which leads to level seven (7) of the National and European Qualifications Framework, in accordance with Article 47 of Law 4763/2020.

The completion of the procedure for the establishment of study programmes and the commencement of their operation presuppose their prior certification by the Hellenic Authority for Higher Education (HAHE). For the continuation of their operation, their periodic certification every five (5) years is required within the framework of the evaluation of the academic unit to which they belong.

The present Regulation of Operation of the Postgraduate Study Programme organizes and regulates issues of structure, organization, and operation of the aforementioned Joint Transnational Postgraduate Study Programme (K.D.P.M.S.) which are not specified by the applicable legislation. It aims to clarify the terms and conditions governing the educational process from the admission of postgraduate students (P.S.) until the completion of their studies. It was drawn up by decision of the Assembly of the Department of Chemical Engineering number 683/07.10.202, enters into force following approval by the Senate of the University of Patras, is published in the Government Gazette, is posted on the website of the Department, and is communicated to the Ministry of Education, Religious Affairs and Sports.

Article 2
Subject – Purpose

The Joint Transnational Postgraduate Study Programme "ADRION Joint Transnational Master in Renewable Energy" will contribute to the advancement of the Renewable Energy sector in the Adriatic–Ionian region through the promotion of the sustainable energy transition. The creation of the Joint Transnational Postgraduate Programme, in combination with the contribution of different stakeholders, aims to unlock the full potential of Renewable Energy Sources (RES) in all participating countries which, in addition to Greece, are Italy, Croatia, Albania, Bosnia and Herzegovina, and Serbia.

The programme establishes the foundations for constructive cooperation between EU countries and the countries of the Instrument for Pre-Accession Assistance (IPA) and aims at a collective effort for the promotion of sustainable development and Renewable Energy Sources, envisioning a greener future. The field of knowledge covered by the proposed K.D.P.M.S. constitutes a pivotal scientific area with dynamic development and increasing demand as a specialization field, which constitutes a classic field of study in most academic institutions. The combination of experienced teaching staff from the eight university institutions will constitute a guarantee for the high level of knowledge provision of the joint programme.
International cooperation in education will be achieved on the basis of the principles of equality, fairness, cooperation, and mutual benefit, as well as the mobility of young scientists with different scientific backgrounds but a common objective of further education and specialization in such a crucial sector, technical, political, and social, as that of energy in the participating countries of the Adriatic and the Ionian.
The K.D.P.M.S., after the full and successful completion of the Study Programme, leads to the award of a Postgraduate Diploma (P.D.) entitled "ADRION Joint Transnational Master in Renewable Energy".
The K.D.P.M.S. has two specializations: "Planning and policies for renewable energy" and "Renewable energy systems engineering".
From the programme a single unified degree title (Annex 4) shall be awarded, which will be signed by all participating Institutions, except that of Bologna (UNIBO), and its title shall be recognized in all countries of the participating Universities.
Further information on the subject area of the K.D.P.M.S. is provided on the website: http://www.chemeng.upatras.gr

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Article 4
Διδάσκοντες του Κ.Δ.Π.Μ.Σ.

The teaching duties of the K.D.P.M.S. is assigned following a decision of the Study Programme Committee (E.P.S.) of the K.D.P.M.S., upon a recommendation of the Coordinating Committee, to the categories of instructors referred to in Article 83 of Law 4957/2022.

The obligations of the instructors include, among others, the description of the course or lectures, the presentation of relevant bibliography, the method of assessment of the course, and communication with the postgraduate students.

The K.D.P.M.S. may, by decision of the E.P.S., implement the institution of the Academic Advisor. The purpose of the operation of this institution is the provision of advisory support to postgraduate students (P.S.) during their studies on academic matters in an individualized manner. The expected outcome is the facilitation of the P.S. in the completion of their studies, with parallel utilization of their particular skills and interests within the framework of the educational and research process. The Academic Advisor chooses the manner of approach and the provision of advisory support to the P.S. assigned to him/her in each academic year. One member of the teaching staff of the K.D.P.M.S. is appointed as Academic Advisor for up to four (4) P.S.

Article 5
Admission of Postgraduate Students (P.S.)

The maximum number of students admitted per academic year is set at fifty (50) postgraduate students..

The selection shall be carried out on the basis of the evaluation of the candidates' supporting documents file and an interview conducted by the Admission Committee (A.C.). Upon recommendation of the Coordinating Committee and by decision of the Study Programme Committee (E.P.S.), the Admission Committee is appointed each year and consists of seven (7) members: the Director of the K.D.P.M.S. and six (6) members, each serving as a representative of the six (6) participating Universities that co-sign the final degree of the Programme.

For the admission of postgraduate students (P.S.), a call for applications (Call for Expression of Interest) is issued each year, upon recommendation of the Coordinating Committee and by decision of the Study Programme Committee, with a deadline for the submission of applications and supporting documents specified in the call, which may be extended/modified by decision of the Study Programme Committee. Within the framework of the K.D.P.M.S., if special technological equipment is required for the evaluation process, this must be announced in the call issued for the submission of applications by candidates wishing to enroll in the programme (Article 6, para. 2, Government Gazette B' 1079/28.2.2023).

The publication of the call is carried out by the University of Patras under the responsibility of the K.D.P.M.S., while the relevant cost is borne by the K.D.P.M.S., as it charges tuition fees. The call is posted on the website of the Department, the K.D.P.M.S., and the Institution. The call specifies the admission requirements, the categories of degree holders and the number of admitted students, the method of admission (evaluation of the supporting documents file, interview), the deadlines for the submission of applications, as well as the required supporting documents.

Applications and the required supporting documents are submitted to the Secretariat of the K.D.P.M.S. within the deadline set in the call, which may be extended by decision of the Study Programme Committee. Candidates are advised to carefully check the instructions concerning each individual criterion for their scoring, so that the application file is submitted complete within the predetermined dates. Supplementary, incomplete, or late-submitted documents are not accepted.

Candidates shall submit the following supporting documents (Appendix I):
a) A completed application form (electronically and/or in hard copy). A standardized application form for the issuance of a Letter of Acceptance for studies (non-EU countries) / a Recognition and Equivalence Certificate for studies completed abroad (EU countries), fully completed and signed.
b) A photocopy of the pages of the student's passport containing the name, date and place of birth, and expiration date (pages 1, 2, 3, and 4). Candidates from European Union countries

may submit a copy of their national identity card. In both cases, identity documents must be valid for at least six (6) months after the date of acceptance for studies.
c) A certified copy of the birth certificate.
d) Proof of residence issued no more than six (6) months prior to submission (issued by the relevant Municipality or Regional Authority of the place of residence).
e) A certified copy of the academic degree(s) – University degree or degree certificate indicating the final grade(s) and an explanation of the grading system of the awarding University.
f) A certified copy of the academic transcript and its translation, providing a complete list of courses and grades. The transcript must bear the name and signature of the responsible official of the higher education institution for the conversion of local grades into ECTS. Graduates who have not yet received their degree shall submit an official certificate, signed and/or stamped (depending on the formal procedure of the respective institution), issued by the institution administering the degree examinations. The document must indicate the cumulative grade point average of the years of study.
g) A signed declaration by candidates applying for a scholarship stating that they have not previously received a scholarship for a joint master's program.
h) A certified copy of proof of English language proficiency (level B2 or higher), demonstrated by either a degree from an English-speaking country or an English-taught study program, or by a First Certificate in English, or a TOEFL certificate with a minimum score of 500 points (or 300 under the new scoring system), or an IELTS certificate with a score of at least 6.5, or a State Certificate of Language Proficiency (level B2). Graduates of English-speaking universities are exempt from the obligation to submit proof of language proficiency. If the above requirements for adequate knowledge of English are not met, the Coordinating Committee of the K.D.P.M.S. shall decide on the method of assessing candidates to verify their proficiency in English. Knowledge of a second foreign language shall be considered an additional asset.
i) A motivation letter (maximum 1,000 words) describing the candidate's motivation, academic and/or professional background, and career plans.
j) A detailed curriculum vita, including information on studies, teaching and/or professional experience, scientific activity, etc. (preferred format: Europass).
k) Two letters of recommendation, at least one of which must be written by a member of the teaching staff of the institution from which the candidate has graduated or is expected to graduate. The letters must include the contact details of the referees.
l) Evidence of research or professional experience, where applicable. Any academic publications in which the candidate is a first author or co-author should be submitted. For publications in languages other than English, an English translation of the abstract must be provided.
m) A medical certificate issued in the country of origin or residence, valid for up to six (6) months from the date of issuance, containing information on whether the candidate is registered as suffering from chronic diseases, a statement that the candidate does not suffer from communicable diseases or other conditions incompatible with the future profession, and confirmation of mental health compatible with the duties of a postgraduate student.
n) Official consent of the candidate for participation in the admission procedure.
For further information, interested parties may contact the Secretariat of the Department of Chemical Engineering (10:00–12:00 on working days, tel.: +30 2610 969500, e-mail: chemengsecr@upatras.gr).

The K.D.P.M.S. admits graduates holding degrees in the following fields: Biotechnology; Biological Sciences; Agricultural and Forestry Sciences and Technologies; Environmental and

Natural Sciences; Geological Sciences; Architecture; Urban and Regional Planning; Engineering (Electrical Engineering, Chemical Engineering, Environmental Engineering, Civil Engineering); Economics; and disciplines related to Governance and Policy, from Universities in Greece or from equivalent Institutions abroad, in all cases in accordance with the applicable legal provisions.

Final-year undergraduate students of the above-mentioned Departments of Universities in Greece or abroad may also apply, provided that they submit a Certificate of Completion of Studies no later than one (1) day prior to the commencement of the next academic year following the date of the call for applications for admission to the Program. In all cases, selected candidates must submit all required supporting documents by the end of the enrollment period.

An application may also be submitted by final-year students of foreign institutions that are not yet included in the National Register of Recognized Foreign Institutions of the Hellenic National Academic Recognition and Information Center (DOATAP). In this case, applicants submit a sworn declaration stating that they hold a degree. In any case, those selected must provide supporting documents proving that they have undertaken the required actions so that their degree and the corresponding institution will be included in the National Register of Recognized Foreign Institutions of DOATAP by the completion of the duration of their studies. Otherwise, the student shall be deregistered, without the student being entitled to claim a refund of the fees paid.

Domestic Higher Education Institutions (H.E.I.s) and public research centers supervised by the General Secretariat for Research and Innovation are bound by the Registers of Article 304 of Law 4957/2022, as in force, in order for their competent bodies, as applicable, to determine whether a foreign institution or a type of degree awarded by a foreign institution is recognized for the acceptance of an application and enrollment for admission to a postgraduate programme of studies or for the preparation of a doctoral dissertation. The competent body of the university or research center, provided that the degree is included in the list of Article 307, in addition to the other supporting documents, is required to request a Certificate of Place of Studies, which is issued and sent by the body where the studies were carried out or by the body responsible for the conduct of the research work. If the place of studies or part thereof is certified as being within the territory of the Hellenic Republic, the degree is not recognized, unless the part of the studies carried out in the Hellenic territory took place at a public H.E.I.

Members of the categories of Special Educational Staff (E.E.P.), as well as Laboratory Teaching Staff (E.DI.P.) and Special Technical Laboratory Staff (E.T.E.P.), may, upon application, be enrolled as supernumerary students, limited to one (1) per year and per postgraduate programme, provided that they serve in the relevant Department and that their degree and the work they perform in the relevant Department are relevant to the subject of the K.D.P.M.S..

The selection is carried out primarily on the basis of a combined assessment of the following criteria: the overall grade of the degree/diploma, the grades achieved in undergraduate courses that are relevant to the academic field of the K.D.P.M.S., performance in the undergraduate thesis, where such a thesis is provided for at the undergraduate level, and any research or professional experience of the candidate in a corresponding field or in a related subject area.

A/A SELECTION CRITERIA	CRITERION WEIGHT	POINTS – PERCENTAGE (%)
1. Degree/Diploma Grade	Degree/Diploma Grade x 3 points	30 max
2. Level of Foreign Language Proficiency	Good knowledge: 3 points Very good knowledge: 6 points Excellent knowledge: 10 points	10 max
3. Publications in Scientific Journals / Presentations at Scientific Conferences	Number of Publications in Scientific Journals / Presentations at Scientific Conferences x 5 points	10 max
4. Possession of Other Postgraduate Degrees	Additional Master's Degree × 10 points	10 max
5. Relevant Professional Experience	Years of experience × 5 points	10 max
6. Two Letters of Recommendation	Good: 3 points Very good: 6 points Excellent: 10 points	10 max
7. Interview	Average interview score (on a scale of 0–10) × 2 points	20 max
	TOTAL	100%

Candidates who achieve the highest overall scores shall be selected, up to the maximum number of students admitted to the Program.

The Secretariat of the K.D.P.M.S. receives the applications and required supporting documents submitted by candidate postgraduate students, as specified in each call for applications, and prepares a list of applicants, which is forwarded to the Admission Committee. Applications and supporting documents must be submitted within the deadlines set out in the relevant call; late applications shall not be accepted. The selection process consists of two stages. In the first stage, applications are evaluated based on the completeness and validity of the submitted documents, which constitutes a prerequisite for proceeding to the second stage. In the second stage, shortlisted candidates are invited to an interview before the Admission Committee, in order to assess their ability to meet the academic requirements of the Program, considering their motivation, overall profile, and scientific competence.

Following completion of the evaluation process, the Admission Committee ranks the candidates, proceeds with the final selection, and prepares the final list of successful

applicants, which is ratified by the Program Steering Committee. In the event of a tie in total score, all tied candidates shall be admitted, provided that the maximum number of admissions specified in the Call for Expressions of Interest is not exceeded; otherwise, priority shall be given to the candidate with the higher degree grade.
The selection procedure, publication of results, and enrollment of successful applicants must be completed no later than the end of September of each academic year.

Article 6
Enrollment – Course / Practical Exercise Registration – Specialization

Successful candidates are required to confirm in writing or electronically (by email) within five (5) working days whether they accept or decline their admission to the K.D.P.M.S., thereby accepting its operating regulations. Failure to respond within the above deadline shall be considered a refusal of admission. In the event of refusals, the Secretariat shall notify the next candidates in order of ranking from the relevant list of successful applicants. Appeals against the lists of successful applicants may be submitted within five (5) working days from the date of their announcement. Appeals must be specific and are examined and decided definitively by the Program Steering Committee.

Successful candidates must complete their enrollment at the Secretariat of the K.D.P.M.S. by the end of September of the respective year, within deadlines set by the Program Steering Committee and announced by the Secretariat. In cases of exceptional necessity, late enrollment may be permitted by decision of the Coordinating Committee, following a justified request by the interested party.

Admitted postgraduate students may obtain information through the Department's website, the Department Secretariat, or the website of the K.D.P.M.S..

Postgraduate students are required to renew their enrollment each semester. Enrollment renewal is carried out by the student electronically via the portal:
https://progress.upatras.gr

Failure to meet the enrollment deadline results in the loss of the right to attend the current semester. A student who has not renewed their enrollment and has neither attended courses nor conducted research for two (2) consecutive semesters automatically loses their status as a postgraduate student and is removed from the registers of the K.D.P.M.S..

Postgraduate students must declare their course selections to the Secretariat of the K.D.P.M.S. by the end of the first examination period of the first academic year, within deadlines set by the Program Steering Committee and announced by the Secretariat. By the end of the third (3rd) semester of studies, postgraduate students must also declare to the Secretariat the Practical Training placement and the Master's Thesis they intend to undertake..

Article 7
Educational Structure of the K.D.P.M.S.

Duration and Structure of Studies – Academic Calendar

The duration of studies in the K.D.P.M.S. is set at four (4) academic semesters, which include the period allocated for the preparation of the Master's Thesis. The maximum duration of studies may not exceed twice the prescribed standard duration. Consequently, the maximum period of study amounts to eight (8) academic semesters

A postgraduate student may submit a duly justified request for suspension of studies (e.g. military service, illness, residence abroad), provided that the relevant supporting documentation is submitted. The decision is taken by the Program Steering Committee following a recommendation by the Coordinating Committee. Periods of suspension of student status are not counted toward the maximum prescribed duration of studies and may not exceed two (2) consecutive semesters. Suspension of studies may be granted only once. Students on suspension lose their student status for the entire duration of the interruption of their studies. In the event that this time limit is exceeded, the postgraduate student is removed from the Program following a recommendation by the Coordinating Committee and a decision of the Program Steering Committee.

Teaching activities, examinations of the first and second teaching semesters, and the resit examinations held in September are scheduled in accordance with the Academic Calendar as approved by the Senate

Courses – Programme of Studies

Courses of the K.D.P.M.S. commence in the winter semester of each academic year and follow the Academic Calendar of the University of Patras. In order to be awarded the Master's Degree, a postgraduate student is required to complete a total of one hundred and twenty (120) ECTS credits, as follows:

a) Ninety (90) ECTS credits from the successful completion of coursework;

b) Thirty (30) ECTS credits from the preparation, writing, and presentation of the Practical Training (15 ECTS) and the Master's Thesis (15 ECTS) during the fourth (4th) semester.

More specifically, the curriculum includes three (3) compulsory courses in the first (1st) semester, four (4) compulsory courses in the second (2nd) semester, differentiated according to specialization, and two (2) compulsory courses plus three (3) elective courses in the third (3rd) semester.

Attendance of courses by postgraduate students is mandatory. The maximum allowable absences per course are set at 20% of the total number of lectures. If this limit is exceeded, the postgraduate student is required to repeat the course.

The language of instruction of the K.D.P.M.S., as well as the language used for the Practical Training and the Master's Thesis, is English.

Upon completion of the Program, a single joint degree will be awarded, signed by all participating Institutions, with the exception of the University of Bologna (UNIBO), and the degree title shall be recognized in all countries of the participating Universities.

During the first semester, all students will be enrolled at the University of Patras and will pay tuition fees to the University of Patras. During the second semester, students will enroll either at University of Venice or at the University of Zagreb, depending on the specialization selected. In the third semester, postgraduate students attend elective courses online, while in the fourth semester they undertake the Practical Training and prepare the Master's Thesis.

The coordinating institution responsible for the organization and operation of the K.D.P.M.S. is the University of Patras.

Teaching is delivered both in person and through distance learning, in accordance with the applicable legislation. Specifically, courses in the first and second semesters are conducted in person, while those of the third semester are delivered online. Examinations at the end of each semester are conducted in person at the University where the postgraduate student is enrolled, except for the third semester, for which examinations are conducted online. The Practical Training and the Master's Thesis are carried out in person in the country chosen by the postgraduate student.

Distance learning is conducted through a dedicated electronic learning platform.

The course schedule is structured per semester as follows:

1st Semester – 30 ECTS
Compulsory Courses at the University of Patras.

Compulsory Courses at the University of Patras (1st Semester – 30 ECTS)		
Course Code	**Course Title**	**Credits (ECTS)**
REN-101	**Fundamentals and Applied Chemistry and Biology for Energy** *Module A:* Chemical fundamentals of energy technologies (6 ECTS) *Module B:* Biochemical processes engineering for renewable energy production (6 ECTS)	12
REN-102	**Renewable Energy Systems (RES) and Georesources for Energy** *Module A:* Renewable energy systems (6 ECTS) *Module B:* Georesources for energy (4 ECTS)	10
REN-103	**Techno-Economic and Life Cycle Analysis of RES** *Module A:* Techno-economic analysis (4 ECTS) *Module B:* Life Cycle Assessment (LCA) (4 ECTS)	8

2nd Semester, 30 ECTS

For the completion of the second semester of studies, students must choose one (1) of the two specializations offered by the curriculum.:

Specialization A: Planning and Policies for Renewable Energy Sources

On-site at IUAV University of Venice, Department of Architecture and Arts, Italy (IUAV):

Compulsory Courses at the University of Venice (2nd Semester - 30 ECTS)		
Course Code	**Course Title**	**Credits (ECTS)**
REN-201	**Ecology for the Energy Transition**	6

REN-202	**Energy Governance and Policy**	6
REN-203	**Spatial Planning for Decarbonization** *Module A:* Spatial planning, renewables and decarbonization (6 ECTS) *Module B:* GIS tools for environmental analysis and planning support (6 ECTS)	12
REN-204	**Circular Economy**	**6**

Specialization B: Renewable Energy Systems Engineering

On-site at the University of Zagreb, Faculty of Electrical Engineering and Computing, CROATIA (UNIZG-FER):

Compulsory Courses at the University of Zagreb (2nd Semester – 30 ECTS)		
Course Code	**Course Title**	**Credits (ECTS)**
REN-205	**Optimal Sizing and Operation of a Photovoltaic System with Storage**	**6**
REN-206	**Estimation and Prediction in Energy Systems and Infrastructure**	**6**
REN-207	**Control in Renewable Energy Systems** Module A: Control of Power converters (5 ECTS) Module B: Control of Energy Storage Systems (5 ECTS) Module C: Energy-efficient buildings control (5 ECTS)	**15**
REN-208	**Seminar on Optimization, Estimation, and Control in RES**	**3**

Elective Courses for the 3rd semester (total 30 ECTS)
Online lectures:

Compulsory Courses (2 courses – 12 ECTS)			
Course Code	**Course Title**	**Coordinating University**	**Credits (ECTS)**
REN-301	**Technical English and Scientific Writing**	University of Tirana, Department of Industrial Chemistry, ALBANIA	**6**
REN-201*	**Ecology for the Energy Transition**	IUAV University of Venice, Department of Architecture and Arts, ITALY	**6**
REN-205*	**Optimal Sizing and Operation of a Renewable Energy Hub**	University of Zagreb, Faculty of Electrical Engineering and Computing, CROATIA	**6**

*** For students who selected Venice in the 2nd semester:**
"Optimal Sizing and Operation of a Renewable Energy Hub" is compulsory, while "Ecology for the Energy Transition" is not required.
* **For students who selected Zagreb in the 2nd semester:**
"Ecology for the Energy Transition" is compulsory, while "Optimal Sizing and Operation of a Renewable Energy Hub" is not required.

Elective courses (3 courses – 18 ECTS)			
Course Code	**Course Title**	**Coordinating University**	**Credits (ECTS)**
REN-302	**Biomass and Biofuels**	University of Tirana, Department of Industrial Chemistry, ALBANIA	**6**
REN-303	**Photovoltaic generation, energy management system (EMS) and electric vehicle supply equipment (EVSE)**	Alma Mater Studiorum - University of Bologna, Department of Electrical, Electronic, and Information Engineering (DEI), ITALY	**6**
REN-304	**Waste and Energy Management**	International University of Sarajevo, Faculty of Engineering and Natural Sciences, BOSNIA AND HERZEGOVINA	**6**
REN-305	**Quality Management Systems and Ethical Issues concerning Energy**	International University of Sarajevo, Faculty of Engineering and Natural Sciences, BOSNIA AND HERZEGOVINA	**6**
REN-306	**Planning and Sustainable Development**	University of Novi Sad, Faculty of Technical Sciences, SERBIA	**6**
REN-307	**Geodynamics**	University of Novi Sad, Faculty of Technical Sciences, SERBIA	**6**
REN-308	**Renewable Energy Communities**	Alma Mater Studiorum - University of Bologna, Department of Electrical, Electronic, and Information Engineering (ITALY)	**6**
REN-309	**ICT Data System for Operation of a Renewable Energy HUB**	Algebra Bernays University, Department of Computing,	**6**

		CROATIA	

4th semester, total 30 ECTS

For the fourth semester, all universities participating in the K.D.P.M.S. have established a network and signed Memoranda of Understanding (MoUs) with companies and research organizations in their respective countries, to ensure that students have the opportunity to undertake a practical placement in any of the participating countries.

On-site at an affiliated company or public/private organization:

Compulsory courses (2 courses – 30 ECTS)			
Course Code	**Course Title**	**Coordinating University**	**Credits (ECTS)**
REN-401	**Practical Training (Internship) at a Network Partner**	University proposing the student's internship	**15**
REN-402	**Master's Thesis**	University proposing the student's internship	**15**

The compulsory courses of the K.D.P.M.S. shall not comprise fewer than three (3) teaching hours per week (i.e., a total of thirty-nine (39) teaching hours per semester).

At the beginning of each semester and prior to the commencement of classes of the K.D.P.M.S., the academic calendar is announced to postgraduate students, indicating the start and end dates of each semester as well as the examination periods.

Course description:

1st semester:

Course Title: **REN-101 - Fundamentals and applied chemistry and biology for energy (12 ECTS)**

- **Module A. Chemical fundamentals of energy technologies (6 ECTS):**

Basic chemical issues related both to the well-established as well as the emerging energy technologies will be presented in this course. Special emphasis will be given in chemistry related to hydrogen energy, conversion and storage of electrochemical energy and chemical conversion of carbon dioxide. The following fields will be covered:

1. Fossil fuel energy.
2. Production, purification and usage of hydrogen.
3. Conversion and storage of electrochemical energy.
4. Biomass conversion.
5. Chemical/electrochemical conversion of carbon dioxide.
6. Photoelectrochemical energy

- **Module B. Biochemical Processes Engineering for Renewable Energy Production (6 ECTS):**

The microorganisms and microbial technologies play a significant role in renewable energy production. The course covers the basics of microbiology, biochemistry and

genetics including: basics of microbiology, biochemical reaction stoichiometry, mass balances and energetics of half reactions. Enzyme kinetics. The Michaelis-Menten and Briggs-Haldane models. Determination of kinetic parameters. Factors affecting enzymatic reactions (multiple substrates, co-enzymes, pH, temperature, reversible reactions). Enzyme inhibition (competitive, non-competitive, uncompetitive) and deactivation. Immobilized enzymes (mass transfer limitations, Thiele modulus, effectiveness factor). Kinetics of microbial growth, substrate utilization and metabolic product generation. The Monod model and comparison of various kinetic models. Factors affecting microbial growth. Sterilization and disinfection. Bioreactor types (batch, fed-batch, CSTR). Bioreactor design and productivity optimization. Sequence of bioreactors. Biofilms (the ideal biofilm, biofilm models). Examples of bioprocesses for energy production (anaerobic digestion etc.).

Course Title: **REN-102 - Renewable Energy Systems (RES) and georesources for energy (10 ECTS)**

- **Module A. Renewable energy systems (6 ECTS):**

The students will be taught the basic principles of energy production from renewable sources. Special emphasis on those applicable in Greece and Europe: Solar, Wind, Biomass, Geothermal. The course is focused on

1. Solar Energy – PV Energy – PV Park Installations.
2. Wind Energy – Small Wind Turbines – Wind Parks
3. Energy saving rules and concept of sustainability
4. Economic data and current situation in Greece and worldwide

- **Module B. Georesources for energy (4 ECTS):**

The natural manifestations of geothermal energy are described and the geological background of the creation of geothermal systems is presented. The students will be taught the characteristics of geothermal fluids and the research methodology and stages of fluid production and field development. A thorough presentation of the uses of geothermal energy will be done, with an emphasis on direct uses, as well as the technical problems from the utilization of geothermal fluids (deposit formation, corrosion of metal surfaces, environmental effects), and the ways to deal with them. Also, a brief introduction to the technical-economic evaluation of geothermal investments is given and the state of development and prospects of geothermal energy in Greece and European countries is recorded.

Course Title: **REN-103 - Techno-economic and lifecycle analysis of RES (8 ECTS)**

- **Module A. Techno-economic analysis (4 ECTS):**

Renewable energy technologies produce many measurable benefits, such as a clear reduction in greenhouse gas emissions. However, it is also apparent that these methods of energy production come with costs. Examining renewable energy developments within an economic context, this course provides a comprehensive view of the present and future dimensions of renewable energy use from a technoeconomic perspective. Through this prism, a detailed methodology for economic evaluation of both single renewable resource systems and hybrid RES will be analyzed to the students following this course. In more detail the following issues will be addressed:

- Estimation of fixed capital costs
- Estimation of total production costs
- Evaluation of investment projects

- Detailed analysis of a biodiesel plant design
- Detailed analysis of a combined bioethanol/biohydrogen plant design
- Case studies of hybrid RES

- **Module B. Life Cycle Assessment (LCA) (4 ECTS):**

Life Cycle Assessment is a science-based tool used to perform the environmental assessment of a product, a service or a process, from raw materials through end of life, while Environmental Impact Assessment (EIA) is a procedure to evaluate potential positive and negative environmental impacts of a planned project. LCA aims to assess the effects of the use of energy and raw materials, including waste disposal, while at the same time proposes applicable and practical environmental improvements based on the rational use of raw materials and energy. Calculation of greenhouse gas emissions (or a carbon footprint) is just one dimension of an LCA, which can also assess impacts in many other categories such as ozone depletion, eutrophication, impact on human health and much more. The results obtained from an LCA can be trusted as they are based on International Standards (ISO 14040 and ISO 14044). By performing LCA, you can evaluate options to select the lowest impact choice, comparing the environmental impacts among processes and their alternatives in order to choose which one has the lowest impact, identifying environmental hotspots and taking action to reduce them. Through the course the student will deepen into the concept of LCA, will learn the steps of the methodology, which must be applied, concerning the Goal and Scope definition, the Data collection, the Mass and Energy balances, the Inventory, the Impact Assessment and their Interpretation. Afterwards, the student will learn how the results can be converted into Diagrams. The students also explore the Structure and Contents of Environmental Impact Studies (EIS) and lastly, will have the opportunity to examine LCA and EIS Case studies of several Renewable Energy Plants.

2nd semester:

Course Title: **REN-201 - Ecology for the energy transition (6 ECTS)**:

We hear a lot about ecological transition, but what exactly does it mean? And what tools do we have to deal with it? What can a planner do to contribute to the achievement of national and European objectives in the field of ecological transition?

This course aims to equip students with the basic concepts and tools in order to understand what ecological transition is and how urbanism and planning can enter into this process.

Specifically, this objective will be achieved through three sub-objectives: Setting the framework. The course includes a first block to consolidate the meaning of basic terms and concepts, as well as outline the drivers of the current situation and schools of thought on how to move forward

Deepen the technical issues. The course includes a second block defining the main strategies for decarbonisation (use of clean energy, energy saving and CO2 storage), and defining their possible applications and impacts

Integrate and apply in planning. The course includes a third block to identify tools, initiatives and strategies for the ecological transition that can be applied in the fields of urbanism and planning. The tools introduced are related to ana- lysis, solu- tion design and valuation. In addition, transversal concepts are introduced that are useful for a sustainable ecological transition and help to orientate oneself in the complex framework of tangential disciplines and policies

Course Title: **REN-202 - Energy governance and policy (6 ECTS):**
Energy and its interlinkages with the environment and the territory are crucial issues for the present and future of our planet, and has presented matters that have now become familiar to all: energy poverty, challenging access to energy for warming and cooling the houses, increasing energy demand due to population growth and increasing energy demand per capita, need for decarbonizing our system, pollution peaks, are all issues that require the city planner's attention and responsibility. This course addresses the range of policies, strategies and initiatives from the EU level to the local level. It addresses vertical coordination of policies and goals alignments. It also considered different applications of national policies at the local level, and integration of energy-related policies and funds in non-sectoral plans and documents. A general overview at global targets (including SDGs) and good practices is also included in the program of the course.

Course Title: **REN-203 - Spatial planning for decarbonization (12 ECTS):**
The course's overall goal is to provide students with knowledge about the content of spatial plans, the methods and tools that can be used to support spatial planning decisions, and the main stages of the spatial planning process, with a focus on environmental sustainability issues including renewable energy, environmental degradation, and climate change aspects. Spatial planning activities and choices have a strong role in shaping city and territory future development patterns. For this reason they must integrate all the relevant aspects related to sustainability to respond to the global climate and environmental crisis. This is fully aligned with The European Green Deal presented by the European Commision in 2019 and connected policies (e.g., Biodiversity Strategy, Soil Strategy), with spatial planning having a strong role in contributing to European Green Deal's main ambitions (e.g., reduction of greenhouse gas emissions, sustainable resource use, protection and valorization of natural capital, protection of citizens from environment-related risks and impacts, reduction of social inequalities). Within this framework, the course is going to train students in understanding the structure, role and content of spatial planning instruments; understanding the operational stages of the planning process; identifying and analyzing the main information on the biophysical and human environment of a geographical context, particularly with reference to contemporary environmental sustainability issues; applying methodologies to support the formulation of planning proposals, with a particular focus on the formulation of planning solutions and tools aimed at promoting renewable energy, reversing environmental degradation, and mitigating and adapting to climate change. The course is divided into two modules, one more theoretical module on spatial planning and its role towards decarbonization and one more practice-oriented module on the use of Geographic Information Systems (GIS) to support environmental analysis aimed at informing more sustainable spatial planning decisions:

- Module A. Spatial planning, renewables and decarbonization (6 ECTS);
- Module B. GIS tools for environmental analysis and planning support (6 ECTS).

Course Title: **REN-204 - Circular economy (6 ECTS):**
The course aims to teach students to read, study and design the territory through the approach of the circularity of metabolic flows. The circular economy and circular planning, within this course, are read through the key of decarbonisation, i.e. how and how much these processes can contribute to climate neutrality at different scales. The course will be based on the need to know, understand and design the metabolic dynamics that go through the territory shaping it. The concepts of "cycle", "circularity" and "metabolism", borrowed from the natural sciences, will have to be taken up and rethought by the students for the territorial

and urban dimension of a case study area. Through the combination of different knowledge the students will be called upon to confront the main global challenges, demonstrating a critical approach aimed at the realisation of a growing circular metabolism of the territory and the city.

Course Title: **REN-205 - Optimal Sizing and Operation of a Renewable Energy Hub (6 ECTS)**:
The aim of the course is to show how mathematical optimization can be used to support planning the investment in renewable energy hubs jointly with deciding on the optimal investment operation policy. The course starts with simple models of various processes involved in renewable energy production and storage based on mass and energy balance laws, together with main determinants regarding the cost for the corresponding investment and maintenance. Furthermore main determinants for assessment of costs/gains for energy and material exchange with energy grids and the environment are assessed. It is then shown how the models and materials/energy exchange conditions can be formulated in the form of the optimization criterion and the constraints of a mathematical optimization problem. Focus is put on formulation of convex mathematical programs, foremost linear programs. Besides optimal sizing and operation scheduling, also related problems of short-term-ahead operation scheduling and on-line control will be encompassed to show full potential of mathematical optimization in renewable energy hubs design and operation. Final part of the course is used to show how the IT system is organized to support the renewable energy hub operation and interaction with operators and markets.

Course Title: **REN-206 - Estimation and Prediction in Energy Systems and Infrastructure (6 ECTS):** The course focuses on exploitation of data from renewable energy systems and green infrastructure. The data can be used for parametrization of grey-box models of these systems where physical laws are combined with data to yield models of appropriate complexity for various uses in renewable energy systems management and their corresponding variables prediction. The first part of the course will deal with estimation of parameters of grey-box models of renewable energy systems from data. Students will be made aware of bias-variance trade-off in data-based modelling. The second part focuses on machine-learning-based assessment of prediction models of key variables in renewable energy systems and infrastructure. Here the importance of correct data preprocessing and analysis will be stressed before using some readily available machine learning tools. Suitable structures of prediction models for different types of data will be explained.

Course Title: **REN-207 - Control in Renewable Energy Systems (15 ECTS):**

- **Module A. Control of Power Converters (5 ECTS):** Power converter control system structure. Static and dynamic models of power converters. Need for dynamic models. Development of dynamic models using averaging method; switching function averaging, power switch averaging. State-space models: continuous-time and discrete-time. Generalized state-space models. Linear and piecewise linear models; linearization of continuous-time and discrete-time models. Model analysis, transfer function. Control design examples; DC/DC converter, renewable energy power converter system.
- **Module B. Control of Energy Storage Systems (5 ECTS):** Considering the need for energy storage systems when using renewable energy sources. Overview of storage systems with respect to their dynamic characteristics and performance. Modeling of supercapacitors and batteries. Modeling of fuel cell and electrolyzer. Control of energy

flows in the microgrid between sources and several different storage systems using a DC-DC converter. Overview of methods and procedures of achieving maximum power, efficiency and availability of storage systems.

- **Module C. Energy-efficient Buildings Control (5 ECTS):** Energy consumption in the buildings sector amounts to 40% of overall energy consumed in the world, and thereby buildings consume about 50% of energy on ensuring proper climate conditions in them. Since the process of energy system decarbonization demands that the energy consumption sector becomes controllable and predictable as much as possible, control of energy consumption in buildings, especially predictive control, becomes more and more important. In order to get the students acquainted with energy-efficient control in buildings, especially predictive control, the course elaborates the following topics. Structure of the building comfort-related systems. Building elements that are relevant for comfort control and their models: rooms/zones with respect to climate-comfort related variables -- temperature, CO2 concentration and humidity; actuators in zones – fan coils, radiators, surface heating/cooling, ventilation units; units for preparation and distribution of heating/cooling medium – heat pumps, heat exchangers, thermal storages and air handling units. Integration of thermal energy flows from building comfort systems with electrical energy flows, with a short overview of electrical generation/storage/consumption systems in buildings connected in a building microgrid. Simple energy- and cost-efficient control strategies for buildings climate-comfort on different control levels -- zones, central heating/cooling medium preparation, building microgrid. Concept of predictive control on different control levels in buildings and underlying mathematical programming procedures.

Course Title: **REN-208 - Seminar on Optimization, Estimation and Control in RES (3 ECTS):**
Supplement to research in a specific topic within the area of optimization, estimation and control in RES, improvement of presentation and communication skills, as well as writing skills. Debate on the selected topic with other students. The students will present the latest achievements in the area in front of smaller groups. Each student will research and present one of the topics to be agreed with the assigned supervisor.

3d semester:
Course Title: **REN-301 - Technical English and scientific writing (6 ECTS):**
In the dynamic field of renewable energy, effective communication is essential. Whether you're a budding scientist, engineer, or researcher, the ability to convey complex ideas and findings accurately and comprehensively is paramount. This course is designed to equip students with the language skills and writing proficiency necessary to excel in the realm of sustainable energy technologies. Course Objectives:

- Develop Technical Vocabulary: Acquire specialized vocabulary related to renewable energy, including key terms in solar, wind, hydro, and bioenergy technologies.
- Enhance Language Proficiency: Improve English language skills, with a focus on reading, listening, speaking, and writing, up to CEFR Level B2.
- Understand Scientific Literature: Familiarize students with the structure and content of scientific research papers and articles in the field of renewable energy.
- Conduct Effective Research: Learn how to conduct literature reviews, gather data, and analyze information from credible sources.

- Scientific Writing Skills: Master the art of writing clear, concise, and coherent research papers, reports, and proposals.
- Presentation and Communication: Develop skills for presenting research findings and ideas confidently in both written and spoken form.
- Peer Review and Feedback: Engage in peer review sessions to provide constructive feedback and improve writing skills.
- Cultural Sensitivity: Understand the importance of cross-cultural communication in the global renewable energy community.

Course Title: **REN-302 - Biomass and biofuels (6 ECTS):**
The subject treats theoretically the implementation of biomass in the energetic sector, in the framework of sustainable development. It deals with the effective biomass production and the alternative technologies of their transformation to biofuels. It aims at: Understanding the formation of biomass, as a stored solar energy, through photosynthesis; The study of the photosynthetic growth rate for the production of food crops and fuels; Comparison of photovoltaics with photosynthetic materials; Assessing the ecological context of bioenergy; The connection between the human need for food and the need for energy; Awareness increase of issues of land use, productivity, biological carbon sequestration and the link to climate change; Assessment of general principles for the sustainable use of biomass for energy purposes; Identification the main processes and products of bioenergy and understanding the scientific principles underlying each of them.

Course Title: **REN-303 - Photovoltaic generation, energy management system (EMS) and electric vehicle supply equipment (EVSE) (6 ECTS):**
The course aims to explain the context in which a renewable power plant produces electrical energy, giving the constraints that the power plant has to respect concerning the surrounding environment. Firstly, after a brief recap on photovoltaic generation, it is explained how a power plant is connected to the grid and, more in-depth, the case in which the photovoltaic power plant is tied to the electric grid using an interlinked electrical storage system. Secondly, it is explained how electric vehicle charging stations operate, giving examples of necessities, constraints, and equipment. Lastly, it is analyzed the relationship between the producer and the user, studying challenges, possibilities, and possible practices.

Course Title: **REN-304 - Waste and Energy Management (6 ECTS):**
This course treats Resource efficient and Cleaner production in order to establish a regular way of Waste and Energy Management. You will learn about Green Design and Manufacturing and identify all kind of waste produced by manufacturing operations such as: Chips from machining and trimmed materials from sheet forming, casting, and molding operations; Slag from foundries and welding operations; Additives in sand used in sand-casting operations; Hazardous waste and toxic materials used in various products; Lubricants and coolants in metalworking and machining operations; Liquids from processes such as heat treating and plating; Solvents from cleaning operations; Smoke and pollutants from furnaces and gases from burning fossil fuels, etc. We will deal with Sustainable Development Goals and their impact on Waste and Energy Management. Through Material Flow analysis will be explained Detailed description of the material and energy use in order to respond to the following questions: Which waste and emission streams are generated? Which raw materials are lost? Where and why does this happen? Where are the weak points? Where are potentials for improvement? Which materials can be reused?

You will have the opportunity to actively participate in the product change, technological modification and internal recycling process. During this course we will put the most stress on: Environmental Sound Technologies, The Transfer of Environmental Sound Technologies (EST); EST Transfer barriers; Technology need Assessment, Signals for change, Technology Strategy, etc. You will be inspired by the success stories of energy communities, a project born and developed at the International University of Sarajevo, as a practical example of applied waste and energy management.

Course Title: **REN-305 - Quality management systems and ethical issues concerning energy (6 ECTS):**
The module "High availability and low latency data system for monitoring and managing devices in the power grid" aims to introduce students to the basic understanding of useful practical skills in designing, implementing and maintaining data systems for monitoring and managing devices on power grids. In today's technology-driven world, power grid systems require efficient data solutions to ensure their continuous operation and enable efficient management of them. This module deals with the fundamental concepts of data use in conditions of high availability and low latency in the context of complex power grid infrastructures. Students are introduced to the challenges in using data arising from complex power grid systems, including device monitoring, data collection and real-time data processing. The curriculum emphasizes the importance of minimizing downtime and response delays in the flow of data in order to maintain a stable and reliable power grid.

Course Title: **REN-306 - Planning and sustainable development (6 ECTS)**:
The aim of this course is to introduce the students to the process of landscape planning by reviewing the main concepts and methodology of researching the landscape, as well as the analysis of all aspects of landscape planning. Introducing students to the basis of sustainable development of landscapes and its planning process; - Increasing awareness of the value of landscapes, as well as enabling students to acquire new knowledge in the field of landscape evaluation and preparing them for working in multidisciplinary teams that deal with landscape planning.

Course Title: **REN-307 - Geodynamics (6 ECTS)**:
Education goal is to acquire basic and applied knowledge in the field of Geodesy, Geomatics and Geoinformatics. Acquiring general and applied knowledge in the field of geodynamics. Acquired knowledge is used in professional courses, in recognition and in solving engineering problems. Course content: Fundamentals in geodynamics. Engineering and geological processes. Researching the action of exogenic and endogenic forces. Global geodynamic processes. The methodology of determining the global displacement of the Earth's crust. Geodetic methods of local and regional geodynamic analysis. Analysis of the displacement of the Earth's crust on the basis of repeated terrestrial and GPS observations.

Course Title: **REN-308 - Renewable Energy Communities (6 ECTS):**
This course will immerse you in the world of energy communities through bioeconomy models, providing a new perspective on the future of energy and sustainability. You will learn how mass electrification and the development of micro-distributed renewables in a shared electricity network are transforming the energy sector and creating unprecedented opportunities.
You will explore the fundamentals of solar energy, from renewable technologies to their installation and integration into an integrated system of strategic energy production,

consumption, and storage. However, this course goes beyond that: it will introduce you to the principles of bioeconomy, an interdisciplinary study that combines biology, economics, and environmental sustainability through models derived from the laws of physics, biology, and chemistry. You will discover how bioeconomy can explain the issue of resource management and highlight the limitations of the current energy system and how it can prevent the risks of the emerging new one.
You will have the opportunity to actively participate in the creation and management of an energy community, addressing real challenges such as energy sharing and strategic planning. You will also explore bioeconomy models that integrate the sustainable use of biological resources into energy production.
The course will connect you with industry professionals, innovative companies, and leading institutions in the field of renewable energy and bioeconomy. You will be inspired by the success stories of energy communities, a project born and developed at the University of Bologna, as a practical example of applied bioeconomy.

Course Title: **REN-309 - ICT Data System for Operation of a Renewable Energy HUB (6 ECTS):**
This course aims to introduce students to the basic understanding of useful practical skills in designing, implementing and maintaining data systems for monitoring and managing devices on power grids. In today's technology-driven world, power grid systems require efficient data solutions to ensure their continuous operation and enable efficient management of them.
Course deals with the fundamental concepts of data use in conditions of high availability and low latency in the context of complex power grid infrastructures. Students are introduced to the challenges in using data arising from complex power grid systems, including device monitoring, data collection and real-time data processing. The curriculum emphasizes the importance of minimizing downtime and response delays in the flow of data in order to maintain a stable and reliable power grid.

Upon proposal of the Study Programme Committee and approval of the Senate, modifications to the course programme and redistribution of courses among the semesters may be carried out.

Course Attendance

The educational activities of each academic year are structured into two (2) semesters of study, the winter and the spring semester, each of which includes at least thirteen (13) weeks of teaching. Courses of each semester are examined at the end of the thirteen-week teaching period. If a postgraduate student fails a course, a resit examination shall be organized during the following semester/examination period. If the student is already enrolled at the University of the subsequent mobility period, that University shall provide the necessary arrangements to allow the student to retake the examination using the examination material provided by the previous University at which the failure occurred, and shall be responsible for returning the completed examination material to the previous University for evaluation and grading. This procedure does not apply to students enrolled in the final intake of the Program.

Attendance of courses is mandatory. If a class cannot be delivered as scheduled, a make-up session shall be arranged. The date and time of the make-up session shall be posted on the website of the K.D.P.M.S..

Course registration is mandatory for each semester. Failure to comply with the registration deadline results in the loss of the right to attend the current semester. In such cases, continuation of studies requires a decision of the Program Steering Committee, following a recommendation by the Coordinating Committee.

The maximum number of absences per course is set at 20% of the total number of lectures. Absences exceeding this limit in a course result in failure of that course. In such cases, the student is required to repeat the course.
Courses are delivered in person during the 1st, 2nd, and 4th semesters and via distance learning during the 3rd semester. In exceptional cases, the Master's Thesis may be completed through distance supervision, subject to approval by the Program Steering Committee.

Grading / Examinations / Appointment of the Supervisor and the Three-Member Examination Committee

The assessment of postgraduate students and their performance in the courses they are required to attend within the framework of the K.D.P.M.S. is carried out at the end of each semester through written or oral examinations or through coursework completed throughout the semester. The method of assessment is determined by the instructor of each course and students are informed from the course outline and from the professor during the first lesson. Performance in each course is evaluated by the course instructor(s) and graded according to the grading scale applicable to undergraduate students at the respective University where the course is taught. At the University of Patras, the minimum passing grade is five (5) or higher. Correspondingly, passing grades are determined in accordance with the grading regulations in force at each of the other cooperating Universities.

Course grades are submitted to the Secretariat of the K.D.P.M.S. within twenty (20) days following the end of the examination period.

The results of course assessments are communicated to postgraduate students under the responsibility of the course coordinator fifteen (15) days after the examination date or, in the case of coursework-based assessment, twenty (20) days after the submission of assignments. Repeat examinations for the purpose of improving a grade in a course that has already been passed are not permitted.

To be awarded the Master's Degree, each postgraduate student must successfully attend and pass all compulsory and elective courses offered within the framework of the K.D.P.M.S. and must complete a Practical Training placement and a Master's Thesis, thereby accumulating at least 120 ECTS credits.

A postgraduate student is removed from the Program by decision of the competent body, as applicable, if he/she/it fails the same course twice or fails two different courses, regardless of participation in any resit examination period.

For each postgraduate student, the Coordinating Committee appoints one faculty member as Supervisor. The Coordinating Committee and the Supervisor are responsible for monitoring and overseeing the student's academic progress.

For each postgraduate student, the Coordinating Committee also appoints a Three-Member Examination Committee for the evaluation of the Master's Thesis. Approval of the Master's

Thesis may be granted with the affirmative opinion of only two (2) members of the Three-Member Examination Committee, who are also responsible for grading the thesis.

In the event of failure in the examination of the Master's Thesis, the student may be re-examined once more, no earlier than three (3) months and no later than six (6) months following the previous examination, provided that the maximum permitted duration of studies in the K.D.P.M.S. is not exceeded. In the case of a second failure, the student is removed from the Program by decision of the Program Steering Committee.

For the award of the Master's Degree, a passing grade is required in all postgraduate courses and in the Master's Thesis. If this requirement is not met within the prescribed time limit, the postgraduate student is entitled only to a certificate of successful attendance for the courses in which a passing grade was obtained and shall withdraw from the Program.

Article 8
Master's Thesis (M.T.)

A postgraduate student is entitled to submit a Master's Thesis topic provided that they have successfully completed the courses of the first (1st) and second (2nd) semesters of the curriculum.

In the 4th semester of the Programme, the preparation of a Master's Thesis is required. The Coordinating Committee, following an application submitted by the candidate stating the proposed title of the thesis and the proposed supervisor, and accompanied by a summary of the proposed thesis, appoints the supervisor and establishes the three-member Examination Committee for the approval of the thesis, one of whose members is the supervisor.

Modification of the thesis topic or replacement of a member of the Three-Member Examination Committee (T.E.E.) is carried out following a proposal by the student or the supervisor to the Study Programme Committee and is examined on a case-by-case basis. A change in the sense of a minor modification or further specification of the title of the thesis, without altering the general subject and the basic design of the study, may be made following the submission of a relevant application by the postgraduate student, signed by the supervisor, to the Secretariat of the Programme.

Members or supervisors of the three-member Examination Committee of the Master's Thesis are appointed from among all categories of teaching staff, as defined in Article 83 of Law 4957/2022. In exceptional cases of loss, objective inability to perform supervisory duties, or for serious reasons (illness, absence abroad, etc.), replacement of the supervisor or a member of the T.E.E. may be carried out following a decision of the Study Programme Committee.

The maximum number of Master's Theses that may be supervised by each supervisor is set at seven (7).

In order for the thesis to be approved, the student is required to defend it before the three-member Examination Committee. Upon completion of the defense of the Master's Thesis by the postgraduate student, the three-member committee evaluates and grades the thesis.

The Examination Committee may request:

(1) minor revisions, which the candidate must complete within a period of thirty (30) days.
If so requested, the committee submits the final grade to the Secretariat without further examination.
(2) major revisions.

In case (2), a re-examination of the revised text is scheduled. If the student does not respond successfully, he/she is deregistered following a reasoned recommendation of the three-member Examination Committee and a decision of the Coordinating Committee.

Master's Theses, once approved by the Examination Committee, are mandatorily uploaded to the institutional repository NEMERTEΣ.

For the preparation and writing of the Master's Thesis (M.T.), the rules governing the writing and publication of theses of the University of Patras, as set out in Annex 3 of the present Regulation, shall apply.

Writing of the Master's Thesis (M.T.)

Matters concerning the writing of the Master's Thesis (M.T.), such as, indicatively, font type, guidelines for the abstract, content, structure, and manner of presentation of the thesis, bibliographic issues, etc., are set out in Annex 2 of the present Regulation.

Following the presentation and defense of the Master's Thesis (M.T.), the Three-Member Examination Committee (T.E.E.) drafts and signs the Minutes of the Public Presentation of the Master's Thesis.

For the recording of the grade of the Master's Thesis (M.T.), the presentation minutes are submitted to the Secretariat of the K.D.P.M.S..

Article 9
Other Obligations of Postgraduate Students

Obligations and Rights of Postgraduate Students

Postgraduate students are required to renew their enrollment at the beginning of each teaching semester. Enrollment renewal is carried out by applying at the beginning of each semester, within the deadlines set by the Secretariat of the K.D.P.M.S..

Postgraduate students have the following obligations:

- To attend regularly all courses of the approved curriculum.
- To submit the required coursework within the prescribed deadlines.
- To participate in the scheduled examinations.
- To submit to the Secretariat, prior to the evaluation of their Master's Thesis, a solemn declaration stating that the thesis is not the product of plagiarism, either in whole or in part.
- To pay the prescribed tuition fees.
- To respect and comply with the Regulations of Postgraduate Studies, the decisions of the governing bodies of the Joint Transnational Master's Program, the Department, and the University of Patras, as well as the principles of academic ethics.

Postgraduate students are entitled to all rights and benefits provided to first-cycle (undergraduate) students, except for the right to free textbooks. The Institution is obliged to ensure accessibility to recommended textbooks and teaching for students with disabilities and/or special educational needs.

Postgraduate students are encouraged to participate in and attend seminars, discussions, conferences /workshops related to the academic field of the K.D.P.M.S., as well as lectures and other scientific events organized by the K.D.P.M.S. e.t.c.. Postgraduate students may undertake auxiliary teaching duties in first-cycle study programs by decision of the Program Steering Committee. Postgraduate students are required to obtain an academic identity card through the Electronic Academic Identity Service of the Ministry of Education, Religious Affairs and Sports.

The Study Programme Committee may decide on the deregistration of a postgraduate student if:

- they exceed the maximum permitted number of absences;
- they have failed an examination in one or more courses, as defined in the Regulation, and have not successfully completed the Programme;
- they exceed the maximum permitted duration of studies in the K.D.P.M.S., as defined in the present Regulation;
- they have violated the applicable provisions concerning the handling of disciplinary offenses by the competent disciplinary bodies;
- a student who has not renewed his/her registration or has not attended courses for two (2) consecutive semesters automatically loses the status of postgraduate student and is deregistered from the registers of the K.D.P.M.S.;
- automatically, following the submission of a relevant application by the postgraduate student;
- they fail to pay the prescribed tuition fees (in any case, a student who has not fulfilled his/her financial obligations is not entitled to receive either a certificate of completion of studies or the Postgraduate Degree);
- they fail to respect and comply with the decisions of the competent bodies, as well as the principles of academic ethics.

1) Enrolled students of the K.D.P.M.S. may attend free of charge provided that they meet the financial or social criteria of Article 86 of Law 4957/2022. A prerequisite for granting the right to free attendance on the basis of financial or social criteria is the fulfillment of excellence requirements during the first cycle of studies, which corresponds at a minimum to holding a grade equal to or higher than seven and a half out of ten (7.5/10), provided that the assessment of the basic degree submitted for admission to the K.D.P.M.S. has been carried out according to the ten-point grading scale of a domestic Higher Education Institution (H.E.I.). Otherwise, this criterion is applied proportionally in accordance with the respective grading scale, provided that the submitted degree has been awarded by a foreign institution..

2) The total number of students attending free of charge may not exceed the number corresponding to twenty percent (20%) of the total number of enrolled students per academic year. If, in the numerical calculation of the number of beneficiaries of tuition fee exemption, a decimal number arises, it is rounded to the nearest integer. If the number of beneficiaries exceeds the percentage provided herein, the beneficiaries are selected in descending order of ranking until the number is filled.

3) The submission of applications for free attendance in the K.D.P.M.S. takes place after the completion of the student admission process to the K.D.P.M.S. and within a time period determined by the K.D.P.M.S. itself. The financial status of candidates shall in no case constitute grounds for non-selection to the K.D.P.M.S..

4) A student of the K.D.P.M.S. who meets the condition of paragraph 1 is entitled to free attendance, provided that the following criteria apply:
α) the average of the aggregate taxable income of the last two (2) fiscal years of all members of the family of the applicant for tuition fee exemption, namely the applicant himself/herself, his/her parents, regardless of whether they submit a joint or separate tax return, and his/her siblings up to twenty-six (26) years of age, provided that they are unmarried and have their own taxable income within the meaning of Article 7 of Law 4172/2013 (A' 167), does not exceed seventy percent (70%) of the national median equivalised disposable income, according to the most recently published data of the Hellenic Statistical Authority (ELSTAT), if the applicant has not completed the twenty-sixth (26th) year of age and is unmarried or has not entered into a civil partnership,

β) the average of the individual taxable income of the applicant for the last two (2) fiscal years does not exceed one hundred percent (100%) of the national median equivalised disposable income, according to the most recently published data of ELSTAT, if the applicant has completed the 26th year of age,

γ) the average of the aggregate taxable income of the last two (2) fiscal years of the applicant for tuition fee exemption and his/her spouse or partner, provided that he/she is married or has entered into a civil partnership, regardless of whether they submit a joint or separate tax return, does not exceed one hundred percent (100%) of the national median equivalised disposable income, according to the most recently published data of ELSTAT.

5) If the applicant for exemption has not completed the 26th year of age and is a child of a family with three or more children, or a child of a single parent, or an orphan of at least one (1) parent, or a person with a disability, or a member of a household with a person with a disability, he/she may apply for a fifty percent (50%) exemption from the obligation to pay tuition fees, provided that the average referred to in point (a) of paragraph 4 exceeds seventy percent (70%) and does not exceed one hundred percent (100%) of the national median equivalised disposable income.

6) The examination of the criteria for exemption from tuition fees is carried out by the Study Programme Committee of the K.D.P.M.S., which issues a reasoned decision on the acceptance or rejection of the application.

7) The possibility of exemption from the obligation to pay tuition fees is granted exclusively for attendance in one (1) postgraduate programme organized by a domestic H.E.I.

8) Those who receive a scholarship from another source are not entitled to exemption. In this case, an application is submitted which serves as a sworn declaration, and the K.D.P.M.S. may additionally request any other supporting document it deems necessary.

9) The present provisions do not apply to citizens of third countries.

At the end of each semester, an evaluation of each course and each instructor is carried out by the postgraduate students.

Article 10
Award and Final Grade of the Master's Degree

Requirements for the Award of the Master's Degree
A postgraduate student completes their studies and is awarded the Master's Degree upon fulfillment of all obligations stipulated by the Program and by the Internal Regulations for Postgraduate Studies of the University of Patras. Specifically, the student must:
a) successfully complete all required courses with a passing grade;
b) be successfully evaluated during the public defense of the Master's Thesis;
c) fulfill all financial and other obligations.

If these requirements are not met within the maximum prescribed duration of studies, the postgraduate student is removed from the K.D.P.M.S. following an act of removal issued by decision of the Program Steering Committee and communicated to the student by the Secretariat of the K.D.P.M.S.. In this case, the student is entitled only to a certificate of successful attendance for the courses in which a passing grade was obtained.

Calculation of the Postgraduate Degree (D.M.S.) Grade

The final grade of the Postgraduate Degree (D.M.S.) results from the grades of the postgraduate courses and the grade of the Master's Thesis (M.T.), in accordance with a decision of the Study Programme Committee, as follows:

D.M.S. Grade =
(Grade of Course 1 × ECTS of Course 1 + Grade of Course 2 × ECTS of Course 2 + … + Grade of Internship × ECTS of Internship + Grade of Master's Thesis × ECTS of Master's Thesis) / Total number of ECTS credits of the K.D.P.M.S..

The grade of the Postgraduate Degree (D.M.S.) results from the weighted average of the grades of the courses of the K.D.P.M.S., the Internship, and the Master's Thesis (with weighting coefficients being the ECTS credits of the courses, the Internship, and the Master's Thesis) and is calculated, to an accuracy of two decimal places, as follows:

The grade of each course, the Internship, and the Master's Thesis is multiplied by the corresponding number of ECTS credits, and the sum of the products is divided by the total number of ECTS credits required for the award of the D.M.S.

The **grade** of the D.M.S. certifies the successful completion of the postgraduate student's studies. The awarded D.M.S. bears a classification of Good, Very Good, or Excellent, corresponding to the following grade ranges:

⇒ **"Excellent": 8.50 to 10.00**

⇒ **"Very Good": 6.50 to 8.49**

⇒ **"Good": 5.00 to 6.49**

The award of the D.M.S. degrees is approved by the **Study Programme Committee** of the **K.D.P.M.S**.

Required Supporting Documents
Documents to be submitted for the award of the D.M.S.

For the award of the D.M.S., the following are required:

- One copy of the Master's Thesis after final corrections (thermally bound), including the following:

1. Cover page
2. Abstract and keywords
3. Members of the Three-Member Examination Committee

Proof of submission of the Master's Thesis to the website of the Central Library (https://library.upatras.gr/nemertes#deposit).
In cases where publication of the Master's Thesis in the institutional repository "NEMERTES" is requested to take place after 12 months, an application for extension of the embargo period must be completed, which is provided by the Secretariat.

- A sworn declaration, provided by the Secretariat.
- One USB or CD containing the following (three separate files):

1. The final text of the Master's Thesis
2. Abstract and keywords
3. Members of the Three-Member Examination Committee.

Degree Award Ceremony
A student who has successfully completed postgraduate studies takes an oath at a public graduation ceremony, before the Rector or the Vice-Rector acting as the Rector's representative, and the Director of the K.D.P.M.S.. The ceremony takes place after the end of each examination period, on a date and time determined by the Rector in cooperation with the Heads of the Departments.The oath does not constitute an element of the successful completion of studies; however, it is a necessary prerequisite for the award of the postgraduate degree. For reasons of force majeure (e.g. health reasons, residence or employment abroad, military obligations), and following an application submitted to the Secretariat of the Department, the graduate may request the award of the degree without participating in the graduation ceremony or may request to participate in a subsequent ceremony.

Exemption from the obligation to participate in the graduation ceremony is approved by the Director of the K.D.P.M.S.. Prior to the graduation ceremony or exemption therefrom, a relevant certificate of successful completion of studies may be issued to graduates.

Article 11
Plagiarism

The postgraduate student is obliged to properly acknowledge, in an appropriate manner, if he/she has used the work or views of others. Copying is considered a serious academic offense. Plagiarism is defined as the copying of another person's work, as well as the use of another person's work—whether published or unpublished—without proper citation. The copying of any supporting or reference material, even from the candidate's own previous studies, without appropriate reference, may constitute grounds for a decision of the Study Programme Committee of the K.D.P.M.S. for the student's deregistration. In the above cases, the Study Programme Committee may decide on the student's deregistration,

provided that the student has first been given the opportunity to present his/her views on the matter, either orally or in writing.

Any misconduct or breach of academic ethics is referred to the Study Programme Committee for handling. Acts of copying or plagiarism, as well as, more generally, any violation of the provisions on intellectual property by a postgraduate student during the preparation of course assignments or the writing of the Master's Thesis, are also considered violations of academic ethics..

Article 12
Student Benefits

Postgraduate students may make use of the existing infrastructure and facilities of the University of Patras, as well as those of the cooperating foreign Universities, within the framework of the K.D.P.M.S.. These include teaching spaces appropriately equipped with modern teaching aids and computers, the Library, and the facilities of the respective Departments of the participating Institutions of the K.D.P.M.S..

Postgraduate students who do not have other medical and hospital insurance coverage are entitled to full medical and hospital care within the National Health System (N.H.S.), with coverage of the relevant expenses by the National Organization for the Provision of Health Services (E.O.P.Y.Y.), by analogous application of Article 33 of Law 4368/2016 (Government Gazette A' 83).

Postgraduate students are entitled to free meals and accommodation, based on their individual and family financial situation, their place of residence, the location of the Higher Education Institution, and the specific conditions prevailing therein.

Postgraduate students are granted facilities for transportation throughout the year, as well as the necessary means for their cultural development and recreation..

Student Scholarships and Awards

The K.D.P.M.S. may provide a number of scholarships on the basis of academic criteria to full-time students, in accordance with a decision of the Study Programme Committee, which specifies the amount of the scholarships, the required supporting documents, the evaluation criteria, the scholarship award procedure, as well as the obligations and rights of scholarship recipients.

Scholarships are included in the approved budget of the K.D.P.M.S.. The K.D.P.M.S. may also, in exceptional cases, award prizes to students with outstanding performance, in accordance with criteria and procedures to be determined by a decision of the Study Programme Committee (e.g. to the postgraduate student with the highest grade point average across all courses of the first semester or for the provision of services).

A scholarship is not granted in cases where the postgraduate student already receives a scholarship from another source, nor to postgraduate students who have been admitted to the K.D.P.M.S. without the obligation to pay tuition fees.

Article 13
Diploma Supplement

In addition to the degree of the K.D.P.M.S., a Diploma Supplement is issued, which is an explanatory document and does not replace the official degree certificate or the transcript of records. The Diploma Supplement is attached to the degree certificate and provides information regarding the nature, level, overall educational context, content, and status of the studies that were successfully completed by the individual whose name appears on the original degree certificate. The Diploma Supplement does not contain any value judgments, nor does it include statements of equivalence or correspondence, or recommendations concerning the recognition of the degree abroad. The Diploma Supplement is issued automatically and free of charge, in both the Greek and English languages, and must meet the authenticity requirements applicable to the awarded degree certificate. The date of issue of the Diploma Supplement does not necessarily coincide with the date of award of the degree certificate; however, it may never precede it..

Article 14
Administrative Support – Infrastructure

Within the K.D.P.M.S., a Secretariat operates, which performs the duties of its administrative support and is responsible for its smooth, effective, and orderly operation. Its responsibilities include all matters related to the conduct of correspondence, the maintenance of protocols and archives, the keeping of minutes of meetings of the collective bodies of the K.D.P.M.S., the preparation and maintenance of registers and individual student files of postgraduate students, the monitoring of their student status (recording of grades, etc.), the issuance of certificates, attestations, and other academic documents to postgraduate students, graduation ceremonies, scholarships, student identification cards, etc.

The infrastructure of the participating academic institutions in the K.D.P.M.S., which includes Libraries, Student and Research Laboratories, Computing Centers, and other facilities, as well as the extensive network of public and private bodies that will provide placements for the Internship of postgraduate students and for the preparation of their Master's Theses, ensures that, in combination with the highly trained and long-experienced teaching staff, high-level education is provided to the postgraduate students of the Programme..

More specifically, the Department of Chemical Engineering provides the necessary infrastructure (teaching rooms, laboratories, computers, etc.) for the conduct of courses and the preparation of the Master's Thesis of the K.D.P.M.S.. The facilities and infrastructure include:

- Three (3) teaching rooms of the Department of Chemical Engineering
- The Seminar Room of the Department of Chemical Engineering
- The Multimedia Room of the Department of Chemical Engineering
- The student and research laboratories of the Department of Chemical Engineering
- The scientific equipment of the Department of Chemical Engineering
- The scientific equipment of the Network of Horizontal Laboratory Units and Centers of the University of Patras

- The interlibrary loan services provided by the Library and Information Center of the University of Patras.

Article 15
Resources of the K.D.P.M.S. – Financial Management

1. The resources of the K.D.P.M.S. may derive from: a) tuition fees, b) donations, sponsorships, and financial contributions of any kind, c) bequests, d) resources from research projects or programmes, e) own resources of the Higher Education Institutions (H.E.I.s) participating in the K.D.P.M.S., and f) the state budget or the Public Investment Programme in Greece, or corresponding resources of the participating foreign H.E.I.s.
2. Tuition fees are paid either by the student himself/herself or by a third natural or legal person on behalf of the student; in all cases, the student shall inform the Secretariat accordingly.
3. The management of the resources of the K.D.P.M.S. is carried out through the Special Account for Research Funds (E.L.K.E.) of the University of Patras.
4. The resources of the K.D.P.M.S. are allocated as follows:
a) an amount corresponding to thirty percent (30%) of the total revenue derived from tuition fees and attributable to the University of Patras is retained by the E.L.K.E. This amount includes the percentage retained in favor of the E.L.K.E. for the financial management of the K.D.P.M.S. By decision of the Governing Council, adopted by the end of March each year, it is determined whether the remaining amount, after deduction of the E.L.K.E. retention, is transferred to the regular budget or allocated for the creation of projects/programmes through the E.L.K.E., with the aim of prioritizing the coverage of the needs of postgraduate programmes operating without tuition fees and covering research, educational, and operational needs of the H.E.I. For the revenues of the K.D.P.M.S. referred to in points (b) to (d) of paragraph 1, the applicable E.L.K.E. retention for revenues from corresponding funding sources is applied;
b) the remaining amount of the total revenues of the K.D.P.M.S. is allocated to cover its operating expenses.

For participation in the K.D.P.M.S., postgraduate students pay tuition fees amounting to one thousand five hundred euros (€1,500) per semester for citizens of the European Union (EU), and three thousand euros (€3,000) per semester for non-EU citizens or citizens of third countries. Tuition fees are paid in four equal installments: the first upon the initial enrollment of the postgraduate student in the K.D.P.M.S., and the remaining three upon renewal of the student's enrollment in each of the subsequent three semesters.

In the event of permanent withdrawal or deregistration of the postgraduate student from the K.D.P.M.S., the tuition fees paid are not refunded.

Article 16
Evaluation

At the end of each semester, an evaluation of each course and each instructor is carried out by the postgraduate students. The evaluation is conducted using a special evaluation

form/questionnaire completed by the postgraduate students. The questionnaire covers the evaluation of both the course and the instructors. Courses are evaluated with regard to their content, teaching methodology, educational material, and the degree of their alignment with the principles and philosophy of the postgraduate programme. Instructors are evaluated with regard to their knowledge and ability to convey it to students, their preparation, use of up-to-date bibliography, willingness to answer questions, timely grading and return of assignments and written examinations, and adherence to the scheduled teaching hours of the course.

The K.D.P.M.S. is evaluated within the framework of the periodic evaluation/certification of the academic unit by the National Authority for Higher Education. Within this framework, the overall assessment of the work carried out by the K.D.P.M.S., the degree of achievement of the objectives set at its establishment, its sustainability, the absorption of graduates into the labor market, its contribution to research, its internal evaluation by postgraduate students, the expediency of extending its operation, as well as other elements relating to the quality of the work produced and its contribution to the national strategy for higher education are evaluated (Article 87, paragraph 1, of Law 4957/2022).

If, at the stage of its evaluation in accordance with the above paragraph, the K.D.P.M.S. is deemed not to meet the conditions for the continuation of its operation, its operation shall be completed upon the graduation of the students already enrolled, in accordance with the decision establishing it and the Regulation of postgraduate and doctoral programmes of studies.

Article 17
Website of the K.D.P.M.S.

The K.D.P.M.S. maintains its website in the English language. The official website of the K.D.P.M.S. is continuously updated and contains all information and announcements of the Programme, and constitutes the official channel for informing students.

Article 18
Transitional Provisions

Any matters not regulated by the present Regulation shall be regulated by decision of the Study Programme Committee.

Article 19
Appendixes

APPENDIX 1

Application Supporting Documents for the K.D.P.M.S.

Candidates shall submit the following supporting documents:

a) A completed application form (electronically and/or in hard copy). A standardized application form for the issuance of a Letter of Acceptance for studies (non-EU countries) / a Recognition and Equivalence Certificate for studies completed abroad (EU countries), fully completed and signed.
b) A photocopy of the pages of the student's passport containing the name, date and place of birth, and expiration date (pages 1, 2, 3, and 4). Candidates from European Union countries may submit a copy of their national identity card. In both cases, identity documents must be valid for at least six (6) months after the date of acceptance for studies.
c) A certified copy of the birth certificate.
d) Proof of residence issued no more than six (6) months prior to submission (issued by the relevant Municipality or Regional Authority of the place of residence).
e) A certified copy of the academic degree(s) – University degree or degree certificate indicating the final grade(s) and an explanation of the grading system of the awarding University.
f) A certified copy of the academic transcript and its translation, providing a complete list of courses and grades. The transcript must bear the name and signature of the responsible official of the higher education institution for the conversion of local grades into ECTS. Graduates who have not yet received their degree shall submit an official certificate, signed and/or stamped (depending on the formal procedure of the respective institution), issued by the institution administering the degree examinations. The document must indicate the cumulative grade point average of the years of study.
g) A signed declaration by candidates applying for a scholarship stating that they have not previously received a scholarship for a joint master's program.
h) A certified copy of proof of English language proficiency (level B2 or higher), demonstrated by either a degree from an English-speaking country or an English-taught study program, or by a First Certificate in English, or a TOEFL certificate with a minimum score of 500 points (or 300 under the new scoring system), or an IELTS certificate with a score of at least 6.5, or a State Certificate of Language Proficiency (level B2). Graduates of English-speaking universities are exempt from the obligation to submit proof of language proficiency. If the above requirements for adequate knowledge of English are not met, the Coordinating Committee of the K.D.P.M.S. shall decide on the method of assessing candidates to verify their proficiency in English. Knowledge of a second foreign language shall be considered an additional asset.
i) A motivation letter (maximum 1,000 words) describing the candidate's motivation, academic and/or professional background, and career plans.
j) A detailed curriculum vita, including information on studies, teaching and/or professional experience, scientific activity, etc. (preferred format: Europass).
k) Two letters of recommendation, at least one of which must be written by a member of the teaching staff of the institution from which the candidate has graduated or is expected to graduate. The letters must include the contact details of the referees.
l) Evidence of research or professional experience, where applicable. Any academic publications in which the candidate is a first author or co-author should be submitted. For

publications in languages other than English, an English translation of the abstract must be provided.
m) A medical certificate issued in the country of origin or residence, valid for up to six (6) months from the date of issuance, containing information on whether the candidate is registered as suffering from chronic diseases, a statement that the candidate does not suffer from communicable diseases or other conditions incompatible with the future profession, and confirmation of mental health compatible with the duties of a postgraduate student.
n) Official consent of the candidate for participation in the admission procedure.

APPENDIX 2

Guidelines for the Writing of the Master's Thesis (M.T.)

The Master's Thesis (M.T.) is printed on A4 paper, double-sided (front–back), and the pages are thermally bound. For the formatting of the thesis text, it is recommended that the following guidelines be followed:

- **Cover color:** white
- **Page size:** A4 (210 × 297 mm)
- **Margins:** 2.5 cm (top), 2.5 cm (bottom), 3 cm (left), 3 cm (right)
- **Line spacing:** 1.5
- **Page numbering:** footer, with Roman numerals for the introductory pages (i, ii, iii,…) and Arabic numerals for the main body of the text (1, 2, 3, …)

It is noted that, for the convenience of postgraduate students, it is recommended that the thesis consist of two files:

- The first file includes the cover pages, dedication, preface, abstract, list of abbreviations, and table of contents. The pages of this file are numbered with Roman numerals (i, ii, iii, …).
- The second file begins with the Introduction of the Master's Thesis and includes the remainder of the work. The pages of this file are numbered with Arabic numerals (1, 2, 3,…).
- Text alignment: justified
- Font: Times New Roman (optional), but mandatory for the cover page for reasons of uniformity
- Font size: 12 pt

Tables, Figures, Images, and Diagrams

Tables, figures, images, and diagrams are recommended to be included within the text and separated from the surrounding text by 1.5 line spacing. All tables, figures, etc. must be accompanied by an explanatory caption that clearly conveys their content without requiring reference to the main text for understanding.

The explanatory caption precedes the table, while the caption for figures, images, etc. follows them (i.e., is placed after them). It is customary for the caption font to be the same as the text font but one point smaller. It is recommended that the line spacing within the caption be single and that the distance between the caption and the table or figure be 12 pt.

The prefix of each explanatory caption (i.e., the word Table, Figure, Image, etc.) and the corresponding number resulting from their numbering are written in lowercase, bold letters.

Tables should be designed to include three (3) horizontal lines only: one above and one below the column headings defining the heading row, and a third line at the bottom of the table. In general, unless there is a serious reason, excessive use of horizontal and vertical lines should be avoided. It is recommended that table columns be center-aligned. If a table exceeds one page in length, the column heading row should be repeated on the following page.

Equations – Reactions

Equations are written in full using the same font as the main text, leaving 1.5 line spacing above and below. Their numbering is mandatory and is placed in parentheses on the right-hand side of the text. For reasons of uniformity, chemical reactions should follow the same or a similar font style.

Footnotes

If footnotes are used, it is recommended that the same font as the main text be used, with a font size of 10 pt.

Main Structure of a Typical Master's Thesis

The main body of a typical Master's Thesis includes the following sections:

1. **Introduction**
   The introduction informs the reader about the main subject of the thesis, the methodology adopted, and explains terms and techniques that are not widely known. It includes a separate subsection entitled **Literature Review**, which presents the most recent developments in the field, and concludes with the **Objectives of the Thesis**, where the purpose of the specific work is explained.
2. **Experimental / Computational Part**
   This section describes the experimental/computational protocol followed and specifies the chemical compounds used (purity, supplier), the instruments (manufacturer, model, accuracy), as well as codes/computational software/packages, etc.
3. **Results and Discussion**
   The results are presented in the form of tables, figures, reactions, or spectroscopic data. During the Discussion, the results are correlated with relevant bibliographic data.
4. **Conclusions**
   The results are evaluated and the conclusions arising from the study are presented.
5. **References**
   The reference list includes the complete details of all bibliographic citations appearing in the text (authors, journal title, title of article or book, publisher, place and year of publication). Bibliographic references within the text are indicated by numbers in brackets, e.g. [1], [1, 3–5, 7]. If references are cited numerically in the text, they must appear in the reference list in ascending numerical order. Particular attention must be paid to ensuring that references are uniform and consistent.
6. **Appendices**
   The inclusion of appendices is optional. Appendices are placed after the References section and include data that are not presented in the Results or Discussion sections.

APPENDIX 3

Terms for the Writing and Dissemination of Diploma Theses, Master's Theses, and Doctoral Dissertations at the University of Patras

Each volume containing the text of a thesis shall clearly bear the following on the reverse side of the title page:

University of Patras, [Department]
[Author's Name]
© [year] – All rights reserved

1. The Undergraduate Student (UGS), Postgraduate Student (PGS), or Doctoral Candidate (DC)—through the relevant submission form for depositing the thesis in the institutional repository NIMERIS—grants the University of Patras and its Library and Information Center the non-exclusive right to make the work available via the internet for the purposes of systematic and comprehensive collection of the University of Patras' research output, documentation, transparency, and the promotion of research.

2. Each UGS, PGS, or DC preparing a diploma thesis, master's thesis, or doctoral dissertation in a Department of the University of Patras is deemed to have been informed of and to accept the following:

   - The entire work constitutes original work produced by the author and does not infringe upon third-party rights in any manner.
   - If the work contains material not produced by the author, such material must be clearly identified and explicitly cited within the text as the work of a third party, with equally clear identification details. The author further certifies that, in cases where original graphical representations, images, diagrams, etc. are used, they have obtained unrestricted permission from the copyright holder for the inclusion and subsequent publication of such material.
   - The UGS, PGS, or DC bears sole responsibility for the fair use of the material employed and is exclusively liable for any consequences arising from such use. The author acknowledges that the University of Patras bears no responsibility for, nor assumes liability arising from, insufficient clearance of intellectual property rights.
   - The drafting, submission, and dissemination of the work are not impeded by any assignment of the author's intellectual property rights to third parties (e.g. publishers of monographs or scientific journals), at any time before or after publication of the work. The author acknowledges that the University of Patras does not waive its right to disseminate the content of the diploma thesis, master's thesis, or doctoral dissertation through the means it deems appropriate.
   - For the above reasons, upon submission of the diploma thesis, master's thesis, or doctoral dissertation, the UGS/PGS/DC submits a solemn declaration stating that they have been informed of and understand the legal consequences and the provisions set out in the Regulations of Studies of the Master's Program and the Department, as well as in the Internal Operating Regulations of the University of Patras, and that the submitted work entitled "……" has been prepared under their sole responsibility in compliance with the applicable legislation and the present regulations on intellectual property rights.

3. Theses and dissertations are published in the institutional repository no later than twelve (12) months after submission. The Coordinating Committee of a Master's Program or the Three-Member Advisory Committee may, following a duly substantiated request by the Supervisor and the UGS/PGS/DC, grant a temporary exemption from public dissemination of the thesis/dissertation in the institutional repository for serious reasons related to the further progress and development of research activity, or where the interests of the author or other individuals, organizations, or companies may be affected.

The embargo period may not exceed thirty-six (36) months, provided that no other legal impediments exist. It is noted that submission of the thesis takes place after its successful defense, in accordance with the applicable provisions, and prior to the award of the degree; however, its public availability is regulated by the Library depending on the relevant request.

SUBMISSION OF THE THESIS TEXT TO THE LIBRARY AND NEMERTES

Submission of the thesis to the structures of the Library and Information Center (LIC), in accordance with the Internal Regulations of the Library and Information Center (Senate Meeting 382/20.04.2005, revision 59/04.06.2015), is mandatory for postgraduate students and doctoral candidates of the University of Patras in electronic form, and additionally in printed form for doctoral candidates. Upon submission of the thesis, the Library and Information Center issues the necessary certificates for submission to the respective Departmental Secretariats.

APPENDIX 4

GRADUATE'S
REGISTRATION NUMBER: 000

HELLENIC REPUBLIC	REPUBBLICA ITALIANA	REPUBLIC OF CROATIA	REPUBLIC OF CROATIA	REPUBLIC OF SERBIA	BOSNIA AND HERZEGOVINA	REPUBLIC OF ALBANIA

UNIVERSITY OF PATRAS
DEPARTMENT OF CHEMICAL ENGINEERING
Università IUAV di Venezia
DEPARTMENT OF ARCHITECTURE AND ARTS
UNIVERSITY OF ZAGREB
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING
ALGEBRA BERNAYS UNIVERSITY
DEPARTMENT OF COMPUTING
UNIVERSITY OF NOVI SAD
FACULTY OF TECHNICAL SCIENCES
INTERNATIONAL UNIVERSITY OF SARAJEVO
FACULTY OF ENGINEERING AND NATURAL SCIENCES
UNIVERSITY OF TIRANA
DEPARTMENT OF INDUSTRIAL CHEMISTRY

award the

ADRION JOINT TRANSNATIONAL MASTER'S DEGREE
IN RENEWABLE ENERGY

IN THE SPECIALIZATION OF

……..…….

TO ……..

GRADUATE OF THE DEPARTMENT OF ……..
OF THE UNIVERSITY OF ……
FROM ……
WHO STUDIED
RENEWABLE ENERGY

AT THE UNIVERSITY OF PATRAS, THE UNIVERSITY OF VENICE, THE UNIVERSITY OF ZAGREB, THE ALGEBRA BERNAYS UNIVERSITY, THE UNIVERSITY OF NOVI SAD, THE INTERNATIONAL UNIVERSITY OF SARAJEVO, THE UNIVERSITY OF TIRANA

PURSUANT TO SUCCESSFUL COMPLETION OF HIS/HER OBLIGATIONS
WITH GRADE SATISFACTION

……

WAS DEEMED WORTHY OF THE POSTGRADUATE DEGREE
ON ……..…..
THE AWARD WAS ENDORSED ON …….

THE RECTOR OF THE UNIVERSITY OF PATRAS	THE RECTOR OF THE IUAV UNIVERSITY OF VENICE	THE RECTOR OF THE UNIVERSITY OF ZAGREB	THE RECTOR OF THE ALGEBRA BERNAYS UNIVERSITY	THE RECTOR OF THE UNIVERSITY OF NOVI SAD	THE RECTOR OF INTERNATIONAL UNIVERSITY OF SARAJEVO	THE RECTOR OF UNIVERSITY OF TIRANA
THE CHAIRMAN OF THE DEPARTMENT OF CHEMICAL ENGINEERING	THE CHAIRMAN OF THE DEPARTMENT OF ARCHITECTURE AND ARTS	THE DEAN OF FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING	THE VICE RECTOR FOR SCIENCE AND RESEARCH	THE DEAN OF THE FACULTY OF TECHNICAL SCIENCES	THE DEAN OF THE FACULTY OF ENGINEERING AND NATURAL SCIENCES	THE DEAN OF THE FACULTY OF NATURAL SCIENCES
THE REGISTRAR OF THE DEPARTMENT OF CHEMICAL ENGINEERING						

Curricular Internship

To complete the Master's Program, the completion of two hundred and sixty (260) hours of practical training is required, commencing in the third (4th) semester of studies. Students may register for the curricular internship once they have successfully completed courses totaling 60 ECTS credits.

The Curricular Internship is a work-based learning course aimed at integrating academic knowledge with professional practice in the field of renewable energy. Students undertake a supervised internship in a business, research institution, or public agency partner of the Joint Master's Programme.

The internship enables students to apply advanced technical and analytical skills to real-world challenges in renewable energy systems, technologies, policy, and sustainability, while developing professional competences, ethical responsibility, and autonomy.

The syllabus includes the following components:

- Internship Preparation
- Professional Practice in Renewable Energy
- Technical and Analytical Tasks
- Professional Skills Development
- Ethics, Safety and Sustainability
- Internship Reporting and Reflection

Supervision, Monitoring, and Assessment of the Curricular Internship

All students undertaking a curricular internship shall be subject to regular supervision and monitoring by both an assigned academic supervisor and a designated mentor at the host organisation.

The academic supervisor shall conduct scheduled meetings with the student at least once per month, either online or face-to-face, in order to provide academic guidance, monitor progress, and address any academic or organisational issues arising during the internship period.

The host-organisation mentor shall maintain regular interaction with the student on a weekly basis throughout the duration of the internship, offering professional supervision, practical guidance, and continuous performance feedback.

Continuous communication among the student, academic supervisor, and host-organisation mentor shall be ensured through email, the institutional Learning Management System (LMS), and video-conferencing platforms to support guidance, progress monitoring, documentation, and feedback.

Assessment and Evaluation

Student performance during the curricular internship shall be evaluated through a summative assessment process based on the following components:

- Evaluation by the host organisation
- Assessment of the written internship report

- Oral presentation of internship outcomes

The language of evaluation shall be English.

Overall Assessment Weighting

- Internship performance (host organisation evaluation): **40%**
- Written internship report: **40%**
- Oral presentation: **20%**

Evaluation Criteria

Student performance shall be assessed according to the following predefined criteria:

- Achievement of the internship learning objectives
- Technical and professional competence
- Quality of problem-solving skills and initiative
- Professional conduct and ability to work in a team
- Quality of the internship report and reflective analysis
- Effectiveness of oral presentation and communication skills

The evaluation criteria shall be defined in advance and communicated to students through t he Programme Guide and the institutional Learning Management System (LMS).

Mobility Regulation

Purpose and Scope

This Regulation defines the mandatory mobility framework of the Joint Transnational Postgraduate Study Programme (K.D.P.M.S.), which constitutes an integral and compulsory component of the Programme's academic structure. Mobility is embedded in the curriculum to ensure internationalisation, interdisciplinary learning, academic integration among partner institutions and exposure of students to diverse academic, cultural and professional environments.

Student Mobility Structure

The Programme incorporates compulsory mobility in all stages of study. The first semester is delivered with physical presence at the University of Patras, which acts as the Coordinating Institution of the Programme, and aims to provide students with the foundational scientific and methodological knowledge necessary for subsequent specialisation. During the second semester, students are required to undertake mandatory physical mobility to one of the partner institutions abroad, either in Italy or in Zagreb, depending on the specialisation selected in accordance with the approved curriculum. This mobility period forms an essential part of the Programme's learning outcomes and academic progression. The third semester is delivered entirely through distance learning, using the approved digital platforms of the Programme, ensuring academic continuity and equal access regardless of students' geographical location. During the fourth semester, students are required to complete a mandatory practical placement, which may be undertaken in any of the participating countries of the Programme. For this purpose, all partner universities have established a structured network of companies, research centres and relevant organisations and have concluded Memoranda of Understanding to guarantee the availability, academic relevance and quality of practical placements.

Academic Recognition

All mobility periods foreseen in the curriculum are fully embedded in the Programme and are automatically recognised upon successful completion. Academic recognition is ensured through the application of the European Credit Transfer and Accumulation System (ECTS), full recognition of credits earned at partner institutions and documentation in the official academic records and the Diploma Supplement. No additional academic requirements or assessment obligations are imposed on students as a consequence of their participation in mobility.

Administrative Support and Coordination

Administrative coordination and student support during mobility are ensured through the central Programme Secretariat operating at the Coordinating Institution, in close cooperation with designated administrative contact persons appointed at each participating Higher Education Institution. This coordinated support structure facilitates communication in the students' preferred language, assists with administrative procedures related to enrolment, residence and practical placement, and ensures continuity of support during transitions between countries.

Mandatory mobility is fully integrated into the Programme's internal quality assurance system. The Programme systematically monitors the completion of mobility periods, student feedback regarding academic and administrative support and the quality and relevance of practical placements. Mobility-related data are reviewed annually and contribute to the Programme's quality enhancement planning.

Overall responsibility for the implementation of this Regulation lies with the Programme Committee, while the Coordinating Committee ensures academic coherence across institutions and mobility periods. Host institutions and placement organisations provide appropriate academic or professional supervision, and students are required to comply with the academic, administrative and professional obligations of each host institution or organisation.

Final Provisions

This Regulation applies from the first year of operation of the Programme and may be amended following evaluation outcomes or changes in the institutional or legal framework, in accordance with the Programme's quality assurance procedures.