



NATIONAL TECHNICAL UNIVERSITY OF ATHENS

School of Electrical and Computer Engineers

INTERDEPARTMENTAL POSTGRADUATE PROGRAMME

“TRANSLATIONAL ENGINEERING IN HEALTH AND MEDICINE”

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M4.2

**Regulation of Operations, Internships, Student Mobility, and Conduct of Thesis of the MSc
Translational Engineering in Health and Medicine**

A. REGULATION OF STUDIES

Article 1: Postgraduate Student Eligibility

- a) In the MSc Translational Engineering in Health and Medicine, as in all the MSc Programs of the NTUA, graduates of engineering schools, natural science graduates, and health science graduates (from schools such as Electrical and Computer Engineering, Mechanical Engineering, Chemical Engineering, Information Technology, Physics, Chemistry, Medicine, Biology, Molecular Biology, Biochemistry, Pharmacy, Dentistry, Biotechnology, Bioinformatics, Nursing, etc.) are eligible to apply, under the condition that they meet all the criteria of successfully attendance and completion of the relevant cycle of studies. The program accepts HEI graduates of Greek or accredited-as-equivalent foreign universities are eligible for acceptance by the corresponding PSCs.
- b) The MSc Programs of the NTUA are offered free of charge to all postgraduate students from EU countries. There is a participation fee of €500 per semester which may be modified.

Article 2: Admission Requirements and Criteria for Selection and Enrollment of Postgraduate Students

- a) The general admission requirement for postgraduate students who wish to be enrolled in the program is to have the necessary academic background. This is specified by the PSC and may include the attendance of a number of prerequisite undergraduate courses which provide fundamental knowledge in the broader interdisciplinary field of the Schools participating in the MSc Program Translational Engineering in Health and Medicine.
- b) As evidence of the above-mentioned background knowledge, candidates must submit, together with their resume, the syllabus of each relevant course attended during their previous academic studies. Else, they are required to pre-enroll and attend (with successful examination) the NTUA (prerequisite) courses specified by the PSC. In particular, during the student selection process, certain criteria are taken into account by the PSC, upon the recommendation of the Selection Committee.
- c) As **selection criteria** are considered the following:
- i. the degree grade,
 - ii. the ranking of the candidates (on the basis of their degree grade) in relation to the other graduates in the same School/Department and academic year,
 - iii. the grades in undergraduate courses which are of relevance to the postgraduate program,
 - iv. the candidates' performance and the subject of their final-year thesis, if the writing of such a thesis was formally required for successfully completing their undergraduate studies,
 - v. any other postgraduate qualifications being of relevance to the discipline of the MSc Program,
 - vi. the research, professional and/or technological activity of the candidate,
 - vii. the proficiency in foreign languages, particularly English, and for non-Greek candidates, proficiency in the Greek language as well,
 - viii. the computer literacy,
 - ix. the letters of recommendation; and
 - x. for candidates who are employees, the needs and prospects of their employer company or organization.

The PSC shall specify the details of the postgraduate student selection criteria presented in the above. This includes specifying the language proficiency level and any additional criteria or conducting examinations or interviews, the results of all of which shall be taken into account in the selection process. In the case of interviews, these are arranged by the PSC and conducted by a three-member Selection Committee (designated by the PSC) composed of Faculty Members that are lecturers in the MSc Program, one of whom is PSC member.

- d) The list of successful candidates is approved, after the recommendation of the Selection Committee, by the PSC. The list is then communicated to the GA of the coordinating School.

e) In addition to the number of admissions, the MSc Program may admit one scholarship holder from the State Scholarships Foundation who has succeeded in the relevant competition for domestic postgraduate studies in the discipline of the MSc Program and one non-Greek scholarship holder from the Greek State. The number of scholarship holders may be increased by decision of the PSC.

f) Those STS, LTS and TLS members who meet the requirements may, upon request, be enrolled as supernumeraries (yet only one per year) in an MSc Program of the School in which they offer service and provided the relevance of their work to the discipline of the specific MSc Program.

g) The maximum number of postgraduate students enrolled is determined by considering the number of the MSc Program lecturers and the students-to-lecturers ratio, the infrastructure in terms of material and equipment and the available classrooms. In the case of those MSc Programs offered exclusively in English, the number of postgraduate students should be determined such that at least half of them are Greek, provided of course that there is a sufficient number of applications. The total number of postgraduate students will be adjusted accordingly.

h) The background knowledge required for enrolment in the MSc Program is specified by the corresponding PSC, which is the body determining the prerequisite undergraduate courses that individual students should attend. For each student, the number of such courses cannot exceed a maximum of four (4) per semester while the courses themselves may be selected from the Undergraduate Programs of the Schools participating in the MSc Program. The postgraduate students in question should successfully complete these courses within the prescribed period of attendance in the MSc Program and in all cases before the assignment of the postgraduate diploma thesis.

Article 3: Study Guide

For each MSc Program, the corresponding PSC is responsible for preparing the Study Guide, in accordance with the present Regulation. The Study Guide is uploaded to the MSc Program website.

Article 4: Language Used for the Writing of the Postgraduate Diploma Thesis

The language of instruction is Greek. The language to be used for the writing of the Postgraduate Diploma Thesis (PDT) is English.

Article 5: Duration of Studies

The minimum academic duration of the MSc Program Translational Engineering in Health and Medicine is three (3) academic semesters and the maximum time period of enrollment is two (2) years.

Article 6: MSc Program's Structure

a) In exceptional cases in which a postgraduate student successfully completes the obligations for the Diploma of Postgraduate Studies (DPS) to be awarded in a period shorter than the minimum duration of the MSc Program provided for and, in all cases, in a period of not less than one (1) year, the Senate may approve, upon the recommendation of the PSC to the Postgraduate Studies Committee, the awarding of the DPS.

b) The maximum time period within which students can pursue the DPS, measured from the official time of enrollment in the MSc Program, is two (2) years. By exception, in special cases, a short-period extension of up to one (1) additional year may be granted, upon a reasoned PSC decision. On completion of the second year, the PSC shall decide on whether the student's period of study should be discontinued, in which case a certificate with the courses passed and corresponding grades should be issued.

c) Courses requiring laboratory practice or computer use aim to provide, as far as possible, individualized training for the postgraduate students. The introduction of new teaching methods that will enhance active participation of students is

pursued. Particular emphasis will also be placed on the training of postgraduate students in groups, with distinctive role for each participating student, in order to enhance their teamwork skills and synthetic ability.

d) The curriculum of the MSc comprises (2) semesters of coursework and one (1) semester dedicated to the completion of the Postgraduate Diploma Thesis. To obtain the Diploma of Postgraduate Studies – Master of Science, students are required to attend and successfully pass 12 courses (7 mandatory core courses from Group A and 5 elective courses from Group B) which collectively correspond to 60 ECTS credits. The elaboration and successful presentation of the Postgraduate Diploma Thesis is equivalent to 30 credit units (ECTS).

e) In total, students are offered 8 mandatory courses and 7 elective courses, focusing both on the complete comprehension of the theoretical background, as well as the laboratory practice in the disciplines of Translational Engineering in Health and Medicine.

f) The Postgraduate Diploma Thesis (PDT) starts after the completion of the second semester of the 1st year of studies, provided that, by that time, the students have fulfilled all requirements for at least half of the MSc Program courses. The aim of the PDT is to study, develop, and apply new methods, technologies, and systems of Translational Engineering in Health and Medicine for students to integrate knowledge offered and to practice in real applications.

g) The structure of postgraduate studies is organized into groups of obligatory and elective courses. In the group of obligatory courses, prerequisite basic (also called “core”) courses and specialization courses may be included. The PSC has the authority to decide whether courses can be offered by other Schools of the NTUA or of another HEI. Also, the PSC decides on whether courses may be offered as electives in other MSc Programs of the NTUA. Obviously, many of the MSc Program courses appear as elective in Doctoral Studies Programs.

h) The MSc Program Translational Engineering in Health and Medicine is coordinated by a NTUA School follow the “Unified Academic Timetable of Postgraduate Studies”, which is prepared by the Postgraduate Studies Committee and approved by the University’s Senate on an annual basis.

i) By a written request, postgraduate students of the MSc Program may temporarily suspend their studies for a period not exceeding two (2) consecutive semesters. The semesters of student status suspension shall not be counted towards the maximum period provided for regular study.

Article 7: Attendance - Examination - Course Grading System

- a) Students are required to attend the MSc Program courses and participate in the related educational activities and coursework. If there are extremely serious and documented reasons justifying a postgraduate student’s inability to attend, the PSC may excuse a certain number of absences which cannot exceed a maximum of 1/3 of the total number of lectures delivered. Postgraduate students who have not reached the required number of attendances in a course are entitled to repeat the course (or an equivalent one designated by the PSC) in the next (being also the final) academic year of study, as long as there is such a provision in the specific MSc Program.
- b) The course grading system is on a 0-10 scale, without involving fractional units, with the grade 5 representing the lowest pass. A course grade has to be derived not only from the final examination but also, with non-negligible weight, from the performance of the students in the applied teaching methods (laboratories, personal computer labs, study labs, design labs, fieldwork, thematic studies, group work with individual presentations of the group members) carried out during the course, with a relative weighting that is determined in each course by the responsible lecturer, approved by the PSC and which cannot be less than 30% of the total course grade. It is also clarified that only the DPS grade, which is the average of grades awarded by the individual examiners, may be expressed in a form including the half of a fractional unit.
- c) The final examination is held after the end of the teaching period, within a two-week examination period, in accordance with the University’s Unified Academic Timetable of Postgraduate Studies and relevant PSC decisions.
- d) The results are issued by the responsible lecturers within two weeks from the date that the final examination was held.
- e) There is no provision for repeating the examination period. In exceptional circumstances, the PSC may, by a documented decision, accept a special additional examination for a maximum number of two (2) courses per postgraduate student and academic year, provided that the postgraduate student was unable to take the examination

due to force majeure events. Also in exceptional cases, the PSC may set re-examination.

- f) Students failing the examinations have the option to enroll the following year in the same courses or change these courses, if they are elective. In cases of two-year programs in which re-enrolling is not possible in the following year, only one additional examination period, set at a suitable time by the PSC, is allowed as an exception.
- g) Postgraduate students who fail examinations in up to two courses, in which case they cannot successfully complete the program according to the provisions of the present Regulation, are entitled to be examined, upon their request and a reasoned PSC decision, by a three-member committee of Faculty Members of the School. The members of this committee are designated by the PSC of the MSc Program and should have expertise in the same or at least closely related discipline as the examined courses. Lecturers of the courses in question are exempt from this committee.
- h) It is possible for postgraduate students who have attended courses of another recognized postgraduate program and have successfully passed the associated examinations to be exempted from the corresponding courses of the MSc Program upon a submitted written request, receiving the positive recommendation of the responsible lecturers and the decision of the PSC.
- i) Lectures not given have to be re-scheduled in order to reach the number of 13 teaching weeks, required for all the MSc Program courses. Re-scheduling is decided and announced by the PSC of the MSc Program, which takes care of complying with the academic timetable to the greatest extent possible.

Article 8: Award and Grade of DPS

- a) Successful completion of the postgraduate courses and the PDT is required in order for the DPS to be awarded. If this is not achieved within the maximum prescribed period of study, the postgraduate student receives a simple certificate of attendance for the courses passed and withdraws.
- b) The DPS grade is calculated as the weighted average of the grades received in the postgraduate courses and the PDT. The PDT can be considered to correspond to one (1) semester of courses.
- c) Once a year, specifically in November, the Secretariat of the coordinating School compiles a list of postgraduate students graduating, in which are included those who have successfully completed their obligations in the MSc Program during the previous academic year. The degrees are awarded annually, at a special ceremony organized by the coordinating School, by the corresponding Dean and the Director of the MSc Program.

Article 9: Degree Type - Diploma of Postgraduate Studies (DPS)

- a) The degree type (Diploma of Postgraduate Studies) awarded, being either NTUA Interdepartmental or Interinstitutional with the NTUA in the role of the coordinating university, is given in Chapter B of the program's Operational Regulation.
- b) Under the responsibility of the Director of the MSc Program and the administrative care of the coordinating School, the DPS are issued timely with the computer support of the NTUA's IT Administration.
- c) The DPS is accompanied by a transcript in which are listed all the courses of the MSc Program that the student has successfully attended, with the corresponding grades received. In the transcript the subject of the postgraduate student's thesis (PDT) is indicated as is the grade the thesis received.
- d) In the original DPS issued is not indicated the numerical value of the diploma grade. Instead, a characterization in accordance with the scale "Good", "Very Good", "Excellent" appears, which is determined in correspondence with the total grade attained. As regards the correspondence between the two scales, the same with the undergraduate studies apply, i.e., "Excellent" implies a grade from 9 to 10, "Very good" from 7 to 8.99 and "Good" from 5 to 6.99. If the postgraduate student wishes, the numerical value of the DPS grade will be indicated on the corresponding certificate of studies.

B. REGULATION OF POSTGRADUATE DIPLOMA THESIS COMPLETION

Article 1: Postgraduate Diploma Thesis

- a) The Postgraduate Diploma Thesis (PDT) starts after the completion of the second semester of the 1st year of studies, provided that, by that time, the students have fulfilled all requirements for at least half of the MSc Program courses. For postgraduate students who re-enroll in the following year in order to attend first or second semester courses, the PSC decides on whether they can be allowed to start working on their PDT from the beginning of the second academic year of study. The aim of the PDT is to study, develop, and apply new methods, technologies, and systems of Translational Engineering in Health and Medicine for students to integrate knowledge offered and to practice in real applications
- b) Postgraduate students are required to submit an application in which shall be indicated the proposed title and supervisor of the PDT, with an abstract of the proposed thesis attached. The supervisor must be a faculty member or professor emeritus with teaching duties in the MSc program. By the supervisor's proposal, postgraduate students may be scientifically assisted in the preparation of their PDT by PhD holders, PhD students or other postgraduate students and other scientific collaborators of the NTUA or invited external lecturers. In addition, support for the preparation of the PDT in terms of laboratory equipment may be provided by the technical staff (STS, TLS, LTS, and others), whenever such a need arises.
- c) The PSC designates the supervisor, approves the assignment of the PDT to the postgraduate student and establishes the three-member Examination Committee for the approval of the thesis. This Committee consists of the supervisor and at least one MSc Program lecturer from the participating schools. The scientific expertise of the Examination Committee members must be the same with, or relevant to, the discipline of the MSc Program.
- d) If the PDT is not successfully completed within the 3rd semester of the program, it can be continued for one more academic semester, provided that the postgraduate student submits a progress report on the thesis, approved by the supervisor. In the case of non-submission of the progress report, the thesis completion and hence the student's period of study is discontinued.
- e) The grade of the PDT is calculated as the average of the grades received from the three examiners on a 1-10 scale, rounded to the nearest half fractional unit, with the minimum pass mark being 5.5 (five and 50%). The PSC is responsible for setting uniform evaluation criteria.
- f) The text of the PDT is composed by using a suitable text compiler, following the template approved by the PSC. The thesis should be submitted electronically and, if requested by the Examination Committee and the NTUA Library, in hard copy. It must include a 1,200 to 2,000-word abstract, table of contents, bibliographical references and a 300 to 500-word abstract in Greek and in English. After the approval of the PDT, postgraduate students are required to deposit an electronic file of their thesis at the NTUA Central Library and to electronically submit the file to the NTUA Institutional Repository. The PDTs approved by the Examination Committee have to be uploaded to the MSc Program website.

Article 2: Prize for Best Postgraduate Diploma Theses (PDT) Awarded by the NTUA

The NTUA may award prizes to the best PDTs written for the University MSc Programs by exploiting endowment resources. The procedure for the evaluation of the theses is described below.

- a) A thesis is nominated for a prize by the thesis supervisor who submits a written recommendation concisely stating the reasons why the specific PDT or doctoral thesis is recommended for a prize. The recommendation is accompanied by:
- a duly filled submission form in which the thesis author declares that an electronic file of the PDT is submitted in order to be evaluated for winning the prize corresponding to a specific endowment,
 - abstract of the PDT; and
 - the electronic file of the PDT.
- b) Following the selection criteria applied for prize awards at the NTUA, the PSC compiles a list of the PDTs nominated. The number of PDTs included in this list should correspond to the number of the prizes awarded. The list needs to be approved by the GA.
- c) In the selection criteria should be included the following:

- i. the originality and novelty of the PDT; and
- ii. the papers in high-quality journals and conferences that have been published based on material produced for the PDT.
- d) The Postgraduate Studies Committee establishes an Evaluation Committee, consisted of three (3) or four (4) Faculty Members from different Schools, in which supervisors of evaluated papers cannot participate.
- e) The Evaluation Committee takes into account the evaluations of the Schools and submits its recommendation to the Postgraduate Studies Committee, which reaches a decision that is subsequently announced to the Senate.
- f) The prizes are awarded in a ceremony featuring short presentations of the top three PDTs.

Article 3: Intellectual Property Rights of Postgraduate Theses

- a) As the author, the postgraduate student holds the intellectual property rights to the thesis. This stems from the nature of the procedures followed for the examination and awarding of the corresponding postgraduate diploma/degree, requiring the thesis to reflect the student's personal, unique and original contribution. Also, the author is responsible for the content of the PDT.
- b) Intellectual property rights may be reserved with a suitable statement on the intellectual property rights page, which is placed right after the title page of the PDT, accompanied by information such as © [Year], [Full Legal Name]. ALL RIGHTS RESERVED.
- c) Postgraduate students who avail of the NTUA's infrastructure, staff and expertise, under the guidance of the supervisor, should provide service to the University.
- d) The role of the supervisor must be acknowledged in the PDT and indicated on the front and inside cover. In addition, the supervisor and infrastructure used (e.g., laboratory, fellowship, funding) should be included in the acknowledgements.
- e) Under the amended Greek Law 2121/1993 currently in force, the broader scientific and research work of Faculty Members cannot be considered as part of their official duties.
- f) By agreement or contract, the author grants the University a non-exclusive right to publish (e.g., through the institutional repository of the NTUA Library), reproduce and make the thesis available for educational, research and non-commercial purposes. In order for the University to legitimately use the above-mentioned rights for commercial purposes, it is essential that the authors of the composite work at hand formally assign these rights to the University through a contractual agreement.
- g) The supervisor/head of research group/laboratory may utilize and publish the results produced (data, studies, computer programs, applications, prototypes, etc.). These actions do not concern commercial exploitation, but rather the use of the results in the context of research and science.
- h) In the case of funded research, the intellectual property rights of the PDT are not transferred. Rather, the right to use/exploit the research results (data, studies, computer programs, applications, prototypes, etc.) is granted to the Scientific Director and/or funder, in accordance with the provisions of the contract between the NTUA and the commissioning entity.
- i) If there is a potential for economic exploitation of the research product (or resulting patent), an agreement or a contract securing the right of the individuals who have substantially contributed to the development of the composite work/product has to be established on the basis of the applicable legal framework.
- j) Both the author and supervisor names are included in the publication of early/completed papers during or after the completion of the PDT. Other persons who may also have contributed creatively to the work produced are listed with a statement of their actual contribution.
- k) Use of or reference to copyrighted material in the context of the PDT must comply with the rules of academic ethics. Violation of these rules entails violation of the copyright law and will be addressed accordingly by the University.

C. REGULATION OF INTERNSHIPS AND STUDENT MOBILITY

1. Postgraduate students have the opportunity to work on areas related to the discipline of the MSc for a certain period of time abroad as interns with research bodies, organizations, NGOs, public and private sector companies, or Higher Education Institutions in Greece and abroad in program countries, where an Erasmus Charter for Higher Education has been awarded.
2. Postgraduate students have the opportunity to conduct their Postgraduate Diploma Thesis for an academic semester abroad: (a) within the framework of collaboration with Columbia University, (b) within the Erasmus+ program for studies at Higher Education Institutions in program countries, where an Erasmus Charter for Higher Education has been awarded, or (c) within the framework of academic collaborations established by the MSc program with research bodies, organizations, NGOs, public and private sector companies, or Higher Education Institutions in Greece and abroad.
3. The open call for applications to conduct postgraduate thesis or to intern abroad, when in the framework of the Erasmus program, is operated by the NTUA's Office of European Educational Programs every academic period for the following academic year. Only postgraduate students in the second semester of studies at the time of the application have the right to apply, provided also that they have passed at least $\frac{3}{4}$ of the first semester's courses. The evaluation is carried out by the Erasmus evaluation committees of the competent schools with a grading system as indicated by NTUA. Subsequently, the places are allocated by the NTUA's Office of European Educational Programs and approved by the host institution.
4. To conduct the postgraduate thesis or work as an intern abroad, students must:
 - a) secure the approval of the PSC to conduct the postgraduate thesis abroad, following the recommendation of the supervisor in the MSc program, which consists of the theme and the co-supervisor of the host institution.
 - b) secure the approval of the PSC to work as intern and the agreement of the host institution, which should include the schedule of work.
5. Postgraduate students who have graduated from the program have the opportunity in the framework of other academic collaborations of the Erasmus+ program to undertake an internship abroad, provided that their application has been submitted and approved before they receive their diploma.