



UNIVERSITY OF
WEST ATTICA
ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ

SCHOOL OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

**INTERNAL REGULATION OF POSTGRADUATE
STUDIES OF THE MSc PROGRAM
«BIOMEDICAL ENGINEERING AND TECHNOLOGY»**

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Article 1

General

The Department of Biomedical Engineering, School of Engineering, University of West Attica, organizes and operates from the fall semester of the academic year 2022 - 2023, a Postgraduate Studies Program (MSc) entitled "Biomedical Engineering and Technology" in accordance with the legislation in force.

The present document constitutes the Regulations of Studies of the MSc "Biomedical Engineering and Technology".

Article 2

Purpose – Objectives of the MSc program

The MSc in Biomedical Engineering and Technology aims to promote knowledge, develop research and meet the educational, research and development needs of the country. The MSc is governed by scientific coherence, has a subject related to the scientific fields of the Department of Biomedical Engineering and meets the requirements that guarantee a high level of studies.

Purpose

The MSc "Biomedical Engineering and Technology" aims to create the necessary basis for the development of the participants both in research and professional level, in the rapidly developing field of Biomedical Engineering and Technology. The MSc program covers a wide range of disciplines and fields, such as in vitro diagnostics, in vivo diagnostics, medical imaging, emergency medicine technologies, rehabilitation technologies, biomedical informatics, artificial intelligence, deep learning, ethics and deontology in biomedical engineering, economics, management, marketing and sales in biomedical engineering, research and development in biomedical engineering, and a survey and in-depth study of the different aspects of the biomedical engineering profession. The MSc emphasizes the acquisition of theoretical knowledge and practical skills with the aim of creating postgraduates with high theoretical training, expertise and practical experience to fully respond to positions of increased responsibility and compatible needs imposed by the rapid technological developments in the global labor market in the field of Biomedical Engineering.

Objectives

The specific objectives of the MSc program are to strengthen the theoretical and practical background in the cutting-edge technologies of Biomedical Engineering and Technology, to deepen knowledge as well as to further enhance skills in these areas. This targeting applies to both the research engineer and the practicing engineer, including the engineer in a managerial role for decision making and strategy development. At the same time, the MSc program aims to provide the necessary basis for a PhD thesis immediately after completion of the MSc.

In particular, the specific objectives of the MSc program are:

- 1. To strengthen the ability of postgraduate graduates for autonomous assimilation of new knowledge in conditions of rapid developments in science and technology and to introduce them to the methodologies of systematic scientific research,*
- 2. To foster in postgraduate graduates an interest in scientific knowledge and to provide them with the appropriate background to enable them to become competent to carry out a doctoral thesis,*
- 3. To expand the graduates' abilities to address any current issue related to the practical application of Biomedical Engineering and Technology in Health Services and Industry,*
- 4. To produce postgraduate graduates with the ability to contribute to shaping the future directions of industry associated with the broader concept of Biomedical Engineering,*
- 5. To equip postgraduates with knowledge and skills necessary for a positive intervention in business strategies,*
- 6. To impart to postgraduate graduates broader and deeper interdisciplinary education and technical training, as well as working skills of specialized selected technologies,*
- 7. To produce students capable of operating in a multifunctional interdisciplinary environment,*
- 8. To develop problem-solving skills and the ability to apply these skills to developing innovative solutions to the practical needs of society,*
- 9. To enable students to be able to pursue their personal interests in depth by providing them with options.*

Article 3

Management bodies of the MSc program.

The following bodies are responsible for the organization and general operation of the Postgraduate Studies MSc program:

- a) the Senate of the UniWA,*
- b) the Departmental Assembly (DA),*
- c) the Steering Committee (SC),*
- d) the Coordinator of the MSc program,*
- e) the Postgraduate Studies Committee.*

a) The Senate of the UniWA:

The Senate has the following responsibilities:

- 1. approve the establishment of the MSc program or the amendment of the decision to establish the MSc program,*
- 2. to approve the extension of the duration of the operation of the MSc program,*
- 3. establish Studies Committees, in the case of interdepartmental, interdisciplinary or joint MSc programs,*
- 4. decides on the termination of the MSc programs offered by the University of West Attica.*

b) The Assembly of the Department:

The main competence of the Department Assembly is to recommend to the Senate through the Postgraduate Studies Committee at least the α) to ιστ) of paragraphs 3 και 4 του Article 80, of Law 4957/2022 (A' 141) together with the Internal Study Regulation of the MSc program.

The Assembly of the Department is responsible for the organization, administration and management of the MSc program and in particular:

- 1) establishes committees for the evaluation of the applications of prospective postgraduate students and approves their enrolment in the MSc program,*

- 2) *assigns the teaching work to the lecturers of the MSc program,*
- 3) *recommend to the Senate the amendment of the decision establishing the MSc program, as well as the extension of the duration of the MSc program,*
- 4) *establish examination committees for the examination of the diploma theses of postgraduate students and appoint a supervisor for each thesis,*
- 5) *determines the successful completion of the course of study in order to award the title of the MSc program,*
- 6) *approve the reports of the MSc program, following the recommendation of the Steering Committee (SC),*
- 7) *examine the criteria for exemption from tuition fees and issue a reasoned decision to accept or reject the application,*
- 8) *approve any other matter required for the smooth operation of the MSc program.*

By decision of the Assembly of the Department, the responsibilities of the above mentioned. 1) and 4) may be transferred to the Steering Committee of the MSc program.

c) The Steering Committee (SC):

By decision of the Assembly of the Department, the Steering Committee is formed, with a two-year term of office, consisting of the Director of the MSc program and four (4) members of the Department's Tenure Teaching Staff, who have a related subject to that of the MSc program and undertake teaching work in the MSc program. The SC is responsible for the monitoring and coordination of the operation of the MSc program and in particular:

- 1) *prepare the initial annual budget of the MSc program and its amendments, if the MSc program has resources according to Article 84 of Law 4957/2022, and shall recommend its approval to the Research Committee of the Special Account for Research Funds,*
- 2) *prepare the reports of the MSc program and recommend its approval to the Assembly of the Department,*
- 3) *approve the expenditure of the MSc program,*

4) approve the awarding of scholarships, contributory or not, in accordance with the provisions of the decision establishing the MSc program and the Regulations for postgraduate and doctoral studies,

5) recommends to the Assembly of the Department the allocation of teaching work, as well as the assignment of teaching work to the teaching categories of Article 83 of the Law 4957/2022,

6) recommends to the Assembly of the Department the invitation of Visiting Professors to cover the teaching needs of the MSc program,

7) draw up a plan for the modification of the curriculum, which is submitted to the Assembly of the Department,

8) recommend to the Assembly of the Department the reallocation of courses between academic semesters, as well as issues related to the qualitative upgrading of the curriculum. Specific responsibilities of the Departmental Assembly may be transferred to the Steering Committee for the more efficient operation of the MSc program, following the adoption of a relevant decision on the transfer of responsibilities. Emeritus Professors of the Department or of the collaborating Departments may participate in the Steering Committee, if they provide teaching work in the MSc program.

d) The Director of the MSc program:

The Director of the MSc program is selected from among the members of the Department's teaching staff, with priority to the rank of Professor or Associate Professor, and is appointed by decision of the Departmental Assembly for a two-year term of office, renewable without limitation.

The Director of the MSc program has the following responsibilities:

1) preside over the SC, draw up the agenda and convene its meetings,

2) recommend matters relating to the organization and operation of the MSc program to the Departmental Assembly,

3) recommends to the Board and other bodies of the MSc program related to the effective operation of the MSc program,

4) is the Scientific Officer of the MSc program in accordance with Article 234 of the Law 4957/2022.

e) The Committee for Postgraduate Studies:

By decision of the Senate, upon the proposal of the Deans of the Faculties of the University of West Attica, the Postgraduate Studies Committee shall be established. The Committee consists of one (1) member of the Tenure Teaching and Research Staff from each Faculty of the University of West Attica, one (1) member from the categories of Special Teaching Personnel, Laboratory Teaching Personnel, and Special Technical Laboratory Personnel of UniWA and the Vice-Rector, who is responsible for academic matters, as the Chairman. The members of the Committee have experience in organizing and participating in second cycle curricula. The term of office of the Committee shall be two (2) academic years.

The competence of the Committee is:

1) to submit an opinion to the Senate of the UniWA for the establishment of new MSc Programs or the modification of the already operating MSc programs, after evaluating the requests of the Assemblies of the Departments for the establishment of new MSc programs, the relevant feasibility and viability reports and the costing of the operation of the MSc programs, as well as the possibility of referring them back if the recommendation is not sufficiently justified or the accompanying reports are not complete,

2) the preparation of the draft Regulations for the MSc programs of the UniWA and its submission to the Senate,

3) the preparation of a model draft of the Regulations for the operation of a MSc programs,

4) the control of the compliance of the Regulations for the operation of the MSc programs,

5) the monitoring of the implementation of the legislation, the Regulations and the decisions of the administrative bodies of the UniWA by the MSc programs,

6) monitoring the implementation of the procedure for exemption from the obligation to pay tuition fees,

7) any other responsibility defined by the Internal Regulations of the respective MSc program.

By decision of the Senate, upon the recommendation of the Postgraduate Studies Committee, the Regulations for MSc programs are approved, which constitutes a separate chapter of the Internal Regulations of the MSc programs of the UniWA.

Article 4

Determination of the minimum and maximum number of admission criteria, Criteria and method of selection of admission candidates

The maximum number of admissions to the MSc program per year is set at thirty (30) and the minimum number of admissions is set at ten (10). In case the number of candidates is less than "10", the Assembly of the Department decides on the operation or not of the MSc program.

Criteria and Method of Selection of Applicants:

i. Call for applications

The Department shall, on dates set by the Assembly of the Department, issue a call for expressions of interest for the admission of postgraduate students to the MSc program. The publication of the call for expressions of interest shall be made by the University of West Attica under the responsibility of the Department. The call for expressions of interest shall be posted on the website of the Department and the UniWA.

The call for expressions of interest shall include:

- (a) the conditions of participation of postgraduate students in the selection process,
- (b) the categories of graduates and the number of admissions,
- (c) the procedure and criteria for the selection of postgraduate students,
- (d) the deadlines for the submission of applications,
- (e) the supporting documents required,
- f) any other detail deemed necessary to facilitate the selection process for postgraduate students.

Where the admission procedure involves a written examination, the invitation to express interest should specify the procedure, the number and content of the courses to be examined, the dates of the examination and the method of marking.

The applications and the required supporting documents shall be submitted to the Secretariat of the MSc program, in paper or electronic form, by the deadline specified in the call for expressions of interest, which may be extended by decision of the Departmental Assembly.

ii. **Candidate Evaluation Committee (CEC)**

The selection of candidates for admission to the MSc program is made by a three-member Candidate Evaluation Committee (CEC), which is composed of members of the Department's who have undertaken postgraduate work and which is constituted by decision of the Assembly.

The application documents may include:

- a) application form,
- (b) a copy of the degree/diploma or a certificate of completion of studies,
- (c) transcript of records,
- (d) a detailed curriculum vitae (detailed reference to studies, teaching and/or professional experience, scientific activity, etc.),
- (e) evidence of research or professional activity (if any),
- (f) at least two letters of recommendation,
- (g) a copy of a postgraduate degree (if available),
- (h) publications in peer-reviewed journals (if available),
- (i) a photocopy of two sides of a photocopy of a police identity card,
- (j) a photograph of the candidate,
- (k) a motivation letter,
- (l) a copy of a certificate of knowledge of English at least at B2 level. Proficiency is certified by a recognized qualification (e.g. a degree from an educational institution in an English-speaking country or an English-speaking study programs, First Certificate in English, Toefl Certificate with a score of at least 500 points (or 300 under the new evaluation method), IELTS Certificate with a score of 6,5 or more, State Certificate of Attainment in Languages (level B2).

Graduates from English-speaking universities are exempted from the requirement to produce a language certificate.

In case the above requirements for proficiency in English language are not met, the SC of the MSc program will decide on the way in which the candidates will be examined in order to determine their proficiency in English.

Knowledge of other foreign languages will be taken into account.

iii. The criteria for the selection of candidates shall include

(a) the relevance of the degree/diploma or certificate of completion of studies to the field of biomedical engineering (Yes/No)

(b) proficiency certificate in English (or pass an examination to establish English language proficiency) (Yes/No)

(c) the overall degree/diploma grade (0-40),

(d) research or professional experience in a relevant field or in a related subject (0-10),

(e) letters of recommendation (0-15),

(f) the oral interview (0-25).

The weighting of the above criteria is determined as follows:

	CRITERION	WEIGHTING
K1	Relevance of the degree/diploma or certificate of completion of studies to the field of biomedical engineering	Yes/No
K2	Proficiency certificate in English (or pass an examination to establish English language proficiency)	Yes/No
K3	Overall degree/diploma grade	40%
K4	Research or professional experience in a relevant field or in a related subject	20%
K5	Letters of recommendation	15%
K6	Oral interview	25%
	TOTAL	100%

If criterion K1 or K2 is not met (K1=No and/or K2=No), the application will be rejected without further evaluation. If criteria K1 and K2 are met (K1=Yes and K2=Yes), candidates will be ranked on the basis of criteria K3-K6 as follows:

$$TB = (K3 \times 0,4) + (K4 \times 0,20) + (K5 \times 0,15) + (K6 \times 0,25)$$

Candidates with the highest overall score (**TB**) and up to the maximum number of admissions to the MSc program are selected.

iv. Selection process

The required supporting documents must be submitted within the deadlines set out in the relevant call for expressions of interest.

The selection procedure is as follows:

The Secretariat of the MSc program receives the applications and the necessary supporting documents submitted by the postgraduate student candidates, which are provided by the call for expressions of interest in each case, and draws up a list of postgraduate student candidates, which it forwards to the CEC. The supporting documents submitted by the candidates must have been submitted by the deadline, as provided in the relevant call for expressions of interest. Late applications will not be accepted.

There are two stages in the evaluation procedure:

In the first, applications will be assessed on the basis of the completeness and validity of the supporting documents submitted, which is a prerequisite for qualification to the next stage.

In the second stage of the procedure, candidates are invited to an interview before the CEC. The aim is to determine which candidates are able to respond effectively to the requirements of the MSc program, taking into account their motivation and interest, but also their overall constitution and scientific competence in relation to the subject of the MSc program.

Upon completion of the evaluation procedures, the CEC draws up a complete list of all candidates, ranks the candidates, makes the final selection and draws up the provisional list of successful candidates, which is ratified by the Departmental Assembly. The list is published in accordance with the provisions on personal data protection on the website of the MSc program and in the announcements of the Department.

In the event that two or more candidates obtain the same total number of points, they will be admitted as tied.

An appeal against the provisional list of successful candidates may be lodged within five (5) working days from the date of the announcement of the results. The objection must be specific and shall be finally decided by a three-member committee of faculty members of the Department who have undertaken postgraduate work.

After the deadline for objections and the final decision of the Objections Committee (if any), the final list of successful candidates will be posted in accordance with the procedure for posting the provisional list.

Successful candidates are invited to respond in writing or electronically (email) within a predefined deadline after the posting of the final list (as specified in the call for expressions of interest of the MSc) for the acceptance of their inclusion in the MSc program and its operating conditions, as described in these operating rules.

In case of refusals, the Secretariat shall inform the next candidates in the evaluation order from the final list of successful candidates.

v. Registration

Successful candidates must register at the secretariat of the MSc program within deadlines set by the competent bodies. For reasons of exceptional need, a postgraduate student may be registered after the deadline by decision of the Steering Committee following a reasoned request from the person concerned. Admitted postgraduate students may be informed by the website of the MSc program and/or by the MSc program's Secretariat.

The registration of postgraduate students takes place within 15 days after the announcement of the selection of the successful candidates. When registering, postgraduate students shall submit, indicatively, and in addition to the documents submitted with their application, the following:

- Application for registration
- Photocopy of their identity card or passport
- Certificate of permanent residence and Proof of permanent residence and Proof of Social Security Number.
- Certificate of residence or proof of their permanent residence Certificate of their permanent residence or proof of their permanent residence certificate
- Two photographs of the identity card specification
- Copy of the proof of deposit of the first instalment of the tuition fees in the account of the MSc program.

For reasons of exceptional need, postgraduate students may be registered after the above deadline, by decision of the SC of the MSc program, following a reasoned request from the interested parties.

Article 5

Categories of Candidates for the study of the MSc program

Graduates of Engineering Departments, Departments with Technological and Positive direction and Departments of Health Sciences of Universities and Technical Universities of Greece or similar institutions abroad, according to the provisions of the applicable legislation, are admitted to the MSc program.

Applications may be submitted by graduates of final year students of the Departments, provided that they have submitted to the Secretariat of the MSc program a Certificate of Completion of Studies before the start date of the programme. In this case, the copy of their degree or diploma must be submitted to the Secretariat of the MSc program within the first month of the programme's courses. In these cases, in particular, enrolment in the programme will take place after presentation of the certificate of completion of studies.

Applications may also be submitted by graduates of foreign institutions which are not yet included in the National Register of Recognised Foreign Institutions of the NARIC organization. In case a foreign institution is not listed on the NARIC website, the Department shall apply the procedure of paragraph 2. 5, of Article 304, of Law No. 4957/2022. Otherwise, the student will be deleted, without the student being entitled to a refund of any money he/she may have deposited.

Article 6

Study duration – Study suspension

1. Study duration

The structure of the second cycle curricula is such that it includes educational activities corresponding to ninety (90) European Credit Transfer and Accumulation System (ECTS) credits (thirty (30) ECTS per academic semester). The maximum duration of the MSc program is five (5) academic semesters. After completion of the maximum duration of study, subject to the following paragraphs, the Assembly of the Department shall issue an act of withdrawal.

2. Study suspension

Postgraduate students may apply for a suspension of their studies (military service, illness, absence abroad, etc.), provided that they submit the relevant documents. The decision is taken by the Departmental Assembly on the recommendation of the Steering Committee. The semesters of suspension of student status do not count towards the maximum period of regular study. The right of suspension may be exercised once or in parts for a period of at least one (1) academic semester, but the total duration of the suspension may not exceed two (2) academic semesters. Students on suspension shall lose their student status for the entire period of suspension. Upon his/her return to attendance, the student shall continue to be subject to the attendance status of the time of his/her enrollment as a graduate student.

Article 7

Study program

The registration of admitted postgraduate students each year takes place within the deadlines set by the SC of the MSc program. Admitted postgraduate students can be informed from the website of the MSc program and/or from the Secretariat of the MSc program.

The conditions of study included in the Study Regulations of the MSc program are accepted by each candidate upon registration. The candidate, before enrolling, takes note of these Regulations.

The MSc program starts in the autumn/winter semester of each academic year. The successful examination in all courses of the curriculum, the successful completion of the Diploma Thesis, and the accumulation of 90 credits are necessary prerequisites for the award of the MSc degree.

Weekly schedule

At the beginning of each semester, the timetable for the semester is announced to the postgraduate students, which is determined by a decision of the Departmental Assembly, following the recommendation of the SC. In exceptional circumstances, where it is not possible to organize courses (e.g. illness of teaching staff, inability to access the facilities of the UniWA), the timetable may be changed in terms of days and times, and/or the MS Teams platform may be used. Students are informed of changes via the official MSc program website and by the coordinator and lecturers of each course for which the dates and times are changed.

Compulsory attendance

Postgraduate students are required to attend all the activities of the MSc program. A postgraduate student is considered to have attended a course (and is therefore eligible to sit the examinations) only if he/she has attended at least 80% of the teaching hours of the course. Exceptions are allowed only for serious reasons and after examination of the matter by the SC. In any case, participation and attendance are established under the responsibility of the course lecturers.

Detailed curriculum

The syllabus per semester is as follows:

1ST SEMESTER		
COURSE TITLE	R: Required E: Elective	ECTS
The science of Biomedical engineering	R	3
Research methodology	R	2
Biology-Biotechnology	R	5
The Biomedical engineering industry sector I	R	5
Biostatistics	E	5
Medical signal and image processing	E	5
Biomedical marketing	E	5
Quality Assurance and Medical Device Regulations	E	5
Biomechanics and Biomaterials	E	5
Optical Microscopy	E	5
TOTAL NUMBER OF REQUIRED ECTS		30

2ND SEMESTER		
COURSE TITLE	R: Required E: Elective	ECTS
Diagnostic Medical Imaging Systems	R	5
Biomedical Instrumentation	R	5
The Biomedical engineering industry sector II	R	5
Emergency medicine	E	5
Control systems in biomedical engineering	E	5
Bioinformatics	E	5

Human machine interaction in healthcare	E	5
Machine Learning in Medicine and Biology	E	5
Science, Technology, Society: Biomedical Engineering, Social Aspects, Ethics	E	5
TOTAL NUMBER OF REQUIRED ECTS		30

3RD SEMESTER		
COURSE TITLE	R: Required E: Elective	ECTS
Diploma thesis	R	30
TOTAL NUMBER OF REQUIRED ECTS		30

In addition to the above courses, the MSc program may organize specialized optional seminars, without the award of ECTS (e.g., workshops for learning programming language). The additional seminars, since they will last more than 26 hours in total, and since they will be assessed through examinations, will be mentioned in the Diploma Supplement in case of successful completion.

The educational approach emphasizes the encouragement of students' self-direction to cultivate research methodology through the assignment of personal projects to each student for each individual course and includes the following methodologies:

- **Classroom lectures** using information technologies (digital slides).
- **Workshops** in the premises of the Biomedical Engineering Department using the available specialized equipment.
- **Field visits** to companies, collaborating research centres and health institutions such as hospitals.
- **Specific seminars by Biomedical Engineering professionals** at the Biomedical Engineering Department's facilities and at the facilities of partner Biomedical Engineering institutions/companies.
- **Projects and assignments**, individual and group, to deepen the knowledge of the subject matter of each course, to encourage students' self-direction and to practice research methodology.

All the educational material is posted on the eclass platform of the UniWA and includes slides, scientific articles, e-books, educational videos, self-assessment questionnaires, etc.

The following is a brief description of the course content and learning objectives:

1ST SEMESTER

BMET101 The science of biomedical engineering

Course Objectives:

The purpose of this course is to introduce the science of biomedical engineering. The course will define the scope of biomedical engineering and analyze key areas of biomedical engineering, such as biomedical instrumentation, medical imaging, medical signal and image processing, biomedical informatics, biomedical optics, biomaterials, neuroengineering, ethics in biomedical research. Finally, the career prospects and job roles of a biomedical engineer will be analyzed.

Learning Outcomes:

1. A comprehensive understanding of the scientific field of biomedical engineering, knowledge of definitions and key concepts.
2. Distinguish and describe the main areas of biomedical engineering.
3. Identify, describe and compare the roles of biomedical engineers in the labor market.

BMET102 Research methodology

Course Objectives:

The course will introduce the basic principles of research methodology (initial hypothesis, data collection, data analysis, publication of results, ethics, and personal data protection issues) and the methodology of drafting scientific articles. Upon completion of this course, students will have a comprehensive understanding of the basic principles of research methodology, they will know how to write a scientific report/essay, and they will be prepared to communicate technical concepts and ideas clearly and concisely through written reports, oral presentations, and visual aids.

Learning Outcomes:

1. Gain a comprehensive understanding of research methodology.
2. Describe and differentiate the different types of research with emphasis the biomedical engineering domain.
3. Recognize and address ethical considerations in research, ensuring responsible conduct throughout the research process.
4. Apply statistical techniques to analyze quantitative and qualitative data, interpreting results and drawing valid conclusions from statistical analyses using relevant software tools.

5. Construct a well-organized and persuasive research proposal, including a clear introduction, literature review, methodology, and ethical considerations.
6. Produce clear and concise research reports, with appropriate formatting and citation styles, and communicate research findings to diverse audiences through written assignments and oral presentations.
7. Critically evaluate and apply advanced topics in research methodology, such as meta-analysis, longitudinal studies, and emerging trends in research methods.

BMET103 Biology-Biotechnology

Course Objectives:

The purpose of the course is the study of basic knowledge in biology and its applications in the developing field biotechnology. In particular, basic biological principles and concepts will be analyzed such as the structure and function of biomolecules, biological membranes, the flow of information and energy in the cell as well as basic knowledge about the function of genes and viruses. Presentation of basic biotechnologies such as molecular cloning, PCR transgenic and knock out models. Additionally, presentation of cutting-edge biotechnologies such as multiphoton imaging, stem cell biology and molecular proteomic analysis and the application of the above in the diagnosis and possible therapy of various diseases.

Learning Outcomes:

1. Knowledge of the basic concepts of biology and introduction to the scientific field of biotechnology.
2. Understanding the possibility of exploiting and connecting biological knowledge with biotechnological applications.
3. Understanding the utility of the application of various biotechnologies for the clinical study, treatment and therapy of various human diseases.
4. Ability to evaluate the results of biotechnological applications for the analysis, diagnosis and treatment of various diseases.

BMET104 The biomedical engineering industry sector I

Course Objectives:

Invited experts from the industry sector will deliver specialized seminars regarding the real-world conditions, outlook and prospects of the biomedical engineering profession.

Learning Outcomes:

1. Comprehensive understanding of the roles of biomedical engineering in the labor market, distinguish different career paths and prospects.
2. Recognize the interdisciplinary nature of biomedical engineering and its integration with medicine and technology.
3. Critical evaluation of industry trends and challenges.

BMET105 Biostatistics

Course Objectives:

The aim of the course is to understand the basic concepts of statistical science and their application in health sciences research. The goal is to enable students to assimilate the material taught and to use their knowledge both in their professional field and in broader applications of biostatistics and probability, which are essential in the context of the study of biomedical engineering problems. Students will apply their knowledge to real biostatistics problems, analyzing data with modern biostatistics tools and evaluating the findings.

Learning Outcomes:

The course outcomes aim to provide students with a foundational understanding of statistical concepts and methods. These outcomes are designed to equip students with the necessary skills to analyze and interpret data, make informed decisions, and apply statistical techniques.

1. Develop a solid understanding of fundamental statistical concepts, including probability, hypothesis testing, confidence intervals, and basic descriptive statistics.
2. Learn to summarize and present data effectively using descriptive statistics, such as measures of central tendency, variability, and graphical representations.
3. Understand the principles of inferential statistics, including hypothesis testing, p-values, and the interpretation of statistical significance.
4. Explore common probability distributions, including the normal distribution, binomial distribution, and Poisson distribution.
5. Gain hands-on experience with statistical software tools commonly used in the field, such as R.
6. Develop critical thinking skills to analyze real-world problems and apply appropriate statistical methods to solve them.
7. Learn to create effective data visualizations to communicate statistical findings, using charts, graphs, and other graphical representations.
8. Develop the ability to communicate statistical results clearly and concisely, both in written reports and oral presentations.

9. Familiarity with common statistical tests, such as t-tests, chi-square tests, and ANOVA, and an understanding of when to apply them.
10. Gain experience in conducting small independent research projects, applying statistical methods to analyze data and draw conclusions.

BMET106 Medical Signal and Image Processing

Course Objectives:

The aim of the course is to study the methodologies used in the creation, acquisition and processing of medical signals and medical images resulting from various medical signal generation systems (e.g. cardiogram, myogram, encephalogram) and images (e.g. digital images of MRI, CT, ultrasound, digital angiography, mammography, nuclear medicine, microscopy). Methods of data formation and storage (signals and images), methods of data imaging, as well as methods of data processing will be analysed. Data processing and analysis algorithms will be developed in theory and implemented in programming language. Students will be trained to design and implement in software integrated systems for acquisition, storage, processing, and analysis of medical signals and images using modern software libraries.

Learning Outcomes:

After the end of the course students:

1. Will know the theory and implementation technologies of methodologies related to the acquisition, imaging, processing and analysis of medical signals and images,
2. Will understand the methods used in modern computing systems of medical systems and images,
3. Will be able to distinguish and understand the processing and analysis methods required in the different cases of medical systems,
4. Be able to implement digital signal and image processing algorithms in programming language code and to implement in programming language, using modern software technologies, integrated medical signal and image processing and analysis systems.

BMET107 Biomedical Marketing

Course Objectives:

The purpose of this course is to provide students with a comprehensive understanding of the fundamentals of marketing, focusing particularly on their application to the biomedical field. Through examination of the various aspects of market research, innovation, technology

transfer, and marketing plan development, students are expected to gain specific knowledge that will enable them to operate successfully in the modern biomedical sector.

Learning Outcomes:

By the end of this course, students should be able to:

1. Understand the basic concepts and principles of marketing and their application in the biomedical sector,
2. Apply market research methods, including secondary source analysis, to make marketing decisions,
3. Understand the process of creating and developing biomedical products and services,
4. Judge the importance of innovation in the biomedical industry and its application to marketing strategies,
5. Understand the role of technology transfer as a key component of technology marketing,
6. Understand the life cycle of a biomedical product or service and the challenges it faces during its life cycle,
7. Identify the characteristics of biomedical markets, including size, sectors, and barriers,
8. Develop a marketing plan for biomedical products or services,
9. Understand the importance and strategies of digital marketing in the biomedical sector.

BMET108 [Quality Assurance and Medical Device Regulations](#)

Course Objectives:

The primary aim of this course is to explore the concept of quality assurance in Medical Devices (MD), and the jurisprudential and regulatory framework that regulates the Delivery, Maintenance and disposal of Medical Devices within the European Community (EC) and internationally. The concepts of Quality Control and Quality Assurance will be analyzed, as well as how to compose, establish and perform quality control procedures. The course will cover Basic Quality Control Procedures for patient and user safety as well as specialized knowledge on the principles of Radiation Protection from Ionizing and non-ionizing radiation. Additionally, Radiation Protection Protocols used in X-ray and Nuclear Medicine Departments will be analyzed. The key-point parameters in Total Quality Management Systems in conjunction with the integration of quality control procedures in these systems will be analyzed. Students will learn and emphasize in the design of quality control protocols and they will study cases of implementation and integration of these protocols into a Quality Management System. They will become familiar with the application of medical image quality

control software using digital models and evaluate methods for the improvement of medical image quality.

Learning Outcomes:

1. Acquire fundamental knowledge regarding the European Regulations and the European Directives for the Manufacture, Management and Disposal of Medical Devices,
2. Acquiring knowledge of Greek and International legislation regarding Radiation Protection and Quality Control of Medical Equipment that use radiation
3. Evaluation of the effects of radiation (ionizing and non-ionizing) on humans based on radiation characteristics (intensity, frequency, energy, etc.) and awareness of the factors that influence the reduction of radiation exposure of examinees, patients and staff in order to choose the appropriate prevention and protection, from radiation, methods Analysis of serious incidents and field safety corrective actions (FSCA) in Hospital environment for Medical Devices using ionizing and non-ionizing radiation and Radiation Protection (RP) methods
4. Distinguish and differentiate between standards and quality assurance systems applied to Medical Devices
5. Understanding of the importance of assessing the Conformity of existing and innovative medical devices (CE marking) and the obligations arising from it and the good administrative practice between Manufacturers, Users-Operators and Notified Bodies,
6. Theoretical and experimental application of medical image quality controls using digital phantoms
7. Understanding of the established principles regarding risk assessment and risk management, vigilance data and complaints Understanding the classification and categorization of medical devices and methods of reporting serious adverse events or incidents to notified bodies and parties engaged.

BMET109 Biomechanics and Biomaterials

Course Objectives:

The aim of the course is to understand the basic principles of biomechanics, focusing on the field of rehabilitation through prosthetic and orthotic systems of the human body, especially for the upper and lower limbs using robotic systems and the concept of human performance. Also, after defining the concept of biomaterials, all their types and basic applications and their microscopic structure will be presented. Applications in molecular simulation of biomaterials will be mentioned and the basic concepts of the use of supercomputers in biomaterials

research, advanced multi-purpose biomaterials and their use in targeted cancer therapies will be discussed. The basic parts of tissue engineering systems will be analysed and the types of materials used will be presented. In this context, modern applications in the field of nano-materials in medicine and dentistry, antibacterial coatings on medical and dental implants will be presented. Finally, the basic concepts of regenerative medicine and its connection with tissue engineering will be presented.

Learning Outcomes:

1. Comprehensive understanding of the scientific field of biomechanics and biomaterials, including tissue engineering, knowledge of definitions and key concepts.
2. Description and discrimination of the used prosthetic and orthotic systems, quantitative and qualitative analysis of human performance.
3. Understanding basic principles of robotics and interface between brain and prosthetic body parts.
4. Understanding of the types of biomaterials and ability to distinguish and compare between them.
5. Distinguish and evaluate specific characteristics by type of biomaterials.
6. Understanding basic principles of nanomaterials and their applications in medicine and dentistry as coating materials and antibacterial protection of implants.
7. Understanding of new technologies in targeted cancer therapies and regenerative medicine, using multi-purpose biomaterials.

BMET1010 Optical Microscopy

Course Objectives:

This course provides a comprehensive introduction to optical microscopy, covering fundamental concepts, historical developments, and the essential technologies and components of optical microscopes. It extends to the physics of light, the interaction of light with matter, and the function of the human visual system. The course discusses the fundamental optical elements and concepts crucial for microscopy, including lenses, filters, magnification, focus, diffraction, and resolution. Students will gain insights into various types of optical microscopes and their components, with a focus on practical applications in medicine and biology. Additionally, the course addresses advanced topics in digital image processing and analysis tailored for microscopy images.

Learning Outcomes:

By the end of this course, students should be able to:

1. Demonstrate a solid understanding of the fundamental concepts of optical microscopy,
2. Understand the physics of light, the human visual system and the interaction of light with matter,
3. Recognize and differentiate between various types of optical microscopes, such as bright-field, phase-contrast, dark-field, polarization, fluorescence, confocal, and super-resolution microscopes,
4. Recognize, differentiate and understand the functions of basic elements of the microscope, such as filters, prisms, diaphragms, objectives, eyepieces, condensers, lenses, microscope stage, digital detectors, and light sources,
5. Evaluate and engage in a critical analysis to differentiate the application domain in medicine and biology of each different microscopy technique,
6. Develop analytical and problem-solving skills in digital image processing and analysis, allowing for the extraction of meaningful information from microscopy images.

2ND SEMESTER

BMET201 Diagnostic Medical Imaging Systems

Course Objectives:

The purpose of this course is to study the basic structure of diagnostic medical imaging systems that use non-ionizing and ionizing radiation. The basic parts (block diagrams) of various diagnostic imaging systems such as Ultrasound and Magnetic Resonance Imaging (MRI) scanners as well as the general radiology (Diagnostic x-ray, Mammography and Computed Tomography-CT) and Nuclear Medical Imaging (γ - camera, SPECT and PET) systems will be analyzed.

In addition, specialized knowledge related to:

- physical principles of ultrasound generation and propagation
- physical principles of magnetic resonance, superconductivity
- Interactions of high energy photons (X-rays and γ -rays) and high-energy particles with matter.
- Interactions of x-ray production and methods of radioisotope production
- types of radioactivity and radiation attenuation through tissues and detectors
- imaging techniques for energy integration detectors (used in x-ray detectors)
- photon counting imaging techniques (used in nuclear imaging, γ -ray detectors) will be provided.

The course includes a laboratory exercise in photon-gamma spectroscopy with a sodium iodide detector NaI:Tl and individual projects and oral presentations on modern and combined medical imaging methods.

Learning Outcomes:

Students will be able to distinguish and compare different methods of various diagnostic Medical Imaging systems, to understand the basic principles of their operation and to evaluate imaging systems knowing the spatial resolution limit of them.

Upon completion of the course, students will have:

1. Deep knowledge of the basic principles of physics regarding ultrasound, magnetic resonance, photon interactions (X-ray and gamma-ray) with matter and high-energy particle interactions with matter.
2. A comprehensive understanding of the scientific field of ionizing and non-ionizing radiation diagnostic medical imaging systems.
3. The ability to describe and distinguish all the individual parts (block diagrams) of described diagnostic medical imaging system.
4. Understand in a deep way the operational principles of each imaging system in order to be able to make a comparative evaluation among them.
5. In addition, students will have developed research abilities and collaborative activities through of a literature/review study and oral presentations, and experimental skills in γ -photon spectroscopy calibration of a sodium iodide (NaI:Tl) scintillator detector.

BMET202 Biomedical Instrumentation

Course Objectives:

The primary aim of this course is to explore the fundamental structure of selected biomedical systems, particularly biosignal recording systems. A detailed analysis will be conducted on the constituent components of an integrated digital biomedical system, elucidating how each element contributes to the overall functionality of the system. The course will cover essential principles, including measurement sensors, preamplification, amplification, analog signal modulation, signal processing circuits, digitization circuits, digital signal modulation and processing using microcontrollers and microprocessors, and user interface modes. Students will gain theoretical insights into designing an integrated digital biomedical system for biosignal recording (e.g., temperature, pressure, heart rate), acquire practical skills in constructing and implementing such systems in a laboratory setting, learn to apply the systems for recording measurements, and develop proficiency in analyzing the obtained data.

Additionally, the course will delve into the foundational aspects of neuroengineering and implants.

Learning Outcomes:

1. Gain a comprehensive understanding of biomedical instrumentation, encompassing neuroengineering and implants, with knowledge of key definitions and concepts.
2. Describe and differentiate the individual components constituting an integrated biomedical biosignal recording system.
3. Comprehend the operational principles and conduct a comparative evaluation of various biosignal recording systems, such as electrocardiographers, electroencephalographers, and electromyographers.
4. Understand, investigate and experimentally assess the reliability of biomedical systems.
5. Theoretically design and experimentally implement an integrated digital biosignal recording system using microcontrollers and microprocessors.
6. Acquire knowledge of the fundamental principles of biosensor circuit implementation, preamplification, amplification, filtering, digitization, and software implementation for programming microcontrollers and microprocessors.

BMET203 The biomedical engineering industry sector II

Course Objectives:

Invited experts from the industry sector will deliver specialized seminars regarding the real-world conditions, outlook and prospects of the biomedical engineering profession, with emphasis in how to build a start-up company from a scratch.

Learning Outcomes:

1. Comprehensive understanding of the roles of biomedical engineering in the labor market, distinguish different career paths and prospects.
2. Recognize the interdisciplinary nature of biomedical engineering and its integration with medicine and technology.
3. Critical evaluation of industry trends and challenges.

BMET204 Emergency medicine

Course Objectives:

The aim of the course is to provide an understanding of the basic principles of emergency medicine as well as the means of patient transport and medical equipment used. This equipment, although it is part of the general medical equipment used in the health sector,

due to the conditions prevailing during emergency medical and rescue assistance to the patient, is accompanied by certifications against demanding and strict standards of quality and efficiency. The presentation of these, and the safety rules that accompany them, will enable students to study the most stringent framework for the operation of medical devices.

Learning Outcomes:

1. Comprehensive understanding of the scientific field of emergency medicine and the medical equipment that surrounds it, with a clear distinction between patient vital signs support equipment, patient transport and patient extrication.
2. A clear distinction between patient vital signs support equipment, patient transport and patient extrication.
3. Knowledge of the terms of European quality and efficiency standards relating to emergency medicine, staff and patient safety and the medical equipment used.
4. Discrimination and ability of students to describe the means of transport and evacuation used in emergency medicine and relating to life support, transport and extrication of the patient.
5. Knowledge of the key points of sanitary evacuation - MEDEVAC under extreme conditions, after presenting the available and used means of extrication and stabilization of the patient with the help of medical equipment.

BMET205 Control systems in biomedical engineering

Course Objectives:

The course will assist students towards understanding the fundamentals of control systems, acquire the skills to mathematically model biophysical systems, translating real-world phenomena into mathematical equations for analysis and control system design, explore and comprehend the application of control systems in the regulation of physiological processes within the human body, gain hands-on experience in implementing control systems through numerical control, utilizing hardware such as Arduino for practical applications.

Learning Outcomes:

By the end of this course, students should be able to:

1. Understanding of fundamental control system concepts, able to differentiate between various types of control systems and explain the importance of feedback in control processes.
2. Ability to represent complex biological processes using mathematical equations.
3. Application of control system principles to understand and analyze the regulation of physiological processes in the human body.

4. Through hands-on projects and exercises using Arduino, students will demonstrate the ability to implement numerical control systems, write code for hardware interfaces, and troubleshoot practical challenges.
5. Critically evaluation and discussion of the application of control systems in biomedical devices, understanding the role of control systems in artificial organs and medical interventions.
6. Develop problem-solving skills and critical thinking in the context of control systems, enabling students to analyze, design, and optimize control systems for various biomedical scenarios.

BMET206 Bioinformatics

Purpose of the course:

The purpose of the bioinformatics course is to provide students with specialized knowledge and skills needed to analyse, design, and apply computational methods and techniques in the field of biology and medicine. Bioinformatics applications cover a wide range of fields, including genomic data analysis, representation and analysis of protein structures, systems biology, drug development, and other fields of biology and medicine. Students taking this course will gain specialized knowledge of the use of advanced computational methods for the processing, analysis, and interpretation of biological data. It also focuses on the development of new computational methods and tools that can help address the challenges facing biology in the era of big data.

Learning Outcomes:

After the end of the course students:

1. Will know basic concepts of bioinformatics for solving basic and translational research problems.
2. Will develop basic programming principles in the R environment.
3. Will understand and execute Big Data Analysis algorithms at a professional level, selecting correct operating parameters for these tools.
4. Will develop specialized skills in solving complex computational biology problems that can be applied in research fields of Universities, Research Centers and Bio/Pharmaceutical Companies.
5. Develop knowledge mining skills on huge databases of omics data.

Course Objectives:

The main objectives of the course are:

1. Describe the Principles of Human-Machine Interaction (HMI) in healthcare:
 - a. Define key concepts related to human-machine interaction and their application in healthcare contexts.
 - b. Identify and discuss the factors influencing successful HMI design in healthcare, including user needs, usability, and accessibility.
2. Describe Healthcare Technology Trends and Innovations:
 - a. Evaluate current trends and emerging technologies in healthcare, such as telemedicine, wearable devices, and artificial intelligence.
 - b. Critically assess the potential benefits and challenges associated with the adoption of new technologies in healthcare.
3. Design and Evaluate User-Centered Healthcare Interfaces:
 - a. Apply user-centered design principles to create healthcare interfaces that prioritize user experience and meet the needs of diverse user groups.
 - b. Conduct usability testing and analyze user feedback to iteratively improve healthcare interfaces.
4. Explore Ethical and Regulatory Considerations:
 - a. Examine ethical issues related to human-machine interaction in healthcare, including privacy, data security, and the responsible use of AI.
 - b. Understand the regulatory landscape governing healthcare technology and its implications for design and implementation.
5. Demonstrate Effective Communication of HMI Concepts:
 - a. Articulate HMI concepts, design decisions, and research findings through written reports, presentations, and interactive demonstrations.
 - b. Tailor communication for both technical and non-technical audiences to facilitate knowledge dissemination.
6. Apply Practical Skills in HMI Prototyping and Development:
 - a. Gain hands-on experience in prototyping and developing human-machine interaction solutions for healthcare applications.Utilize relevant tools and platforms to implement and test interactive healthcare technologies.

Learning Outcomes:

By the end of this course, students should be able to:

1. Describe human-machine interaction (HMI) technologies applied to the healthcare context.
2. Propose solution for a given HMI problem while considering design requirements, technological possibilities and restriction.
3. Design evaluation scenarios for HMI technology and identify metrics for performance assessment.
4. To address ethical concerning within the HMI context as well as in application cases.

BMET208 Machine Learning in Medicine and Biology**Course Objectives:**

The purpose of this course is to study the methodologies used in the design of Machine Learning systems for applications in medicine and biology. The methods (a) for data acquisition and cleaning (usually files in csv, excel, json, xml, yaml formats), (b) for generating features from medical and/or biological images of patients, (c) for statistical analysis of data will be analyzed. Supervised Machine Learning methodologies will also be analyzed in the design of machine learning algorithms in programming language, and will be used for the design of Machine Learning systems in disease discrimination and also in disease assessment. Students will also be trained in the design of unsupervised learning and deep learning systems, in a programming language using real medical or biological data and using modern software libraries.

Learning Outcomes:

After the end of the course students:

1. Will know the theory and implementation technologies of methodologies related to the application of Machine Learning in Medicine and Biology,
2. Will understand the methods used in modern computing systems where Machine Learning is applied,
3. Will be able to distinguish and understand the processing and analysis methods required in the different cases of data cleaning and analysis as well as the selection of appropriate Machine Learning algorithms,
4. Be able to apply Machine Learning algorithms, in programming language code and using modern software technologies, to integrated engineering systems in medicine and biology.

Course Objectives:

The course analyses the critical ethical and bioethical dimensions related to the development of technology in the field of biomedical engineering. Students will explore the history of ethics and bioethics, general ethical principles and theories, and the legal frameworks that shape practice in this field.

Learning Outcomes:

After the end of the course students will be able to:

1. Understand the evolution of ethical values and challenges in the field of bioethics.
2. Recognize and apply the key ethical principles and theories underlying biomedical engineering.
3. Understand the normative frameworks that shape bioethical practice.
4. Analyze the role of government, scientific societies, education, and health care institutions in biomedical engineering ethics.
5. Recognize the ethical challenges posed by technological advances.
6. Understand the need for ethics in practice, scientific research, data mining and industry in biomedical engineering.
7. Understand the importance of ethics and code of ethics in the professional practice of biomedical engineers.

3RD SEMESTER

Diploma Thesis: The preparation of the Diploma thesis is intended to demonstrate the postgraduate student's possession of skills in analysis, synthesis, evaluation, argumentation (and sometimes data collection), their use in the research of a specific topic, as well as his/her ability to contribute to the scientific dialogue and to participate in the research process.

In particular, the thesis aims at the following:

- Selection, analysis and clear formulation of a research topic,
- design of a research plan,
- a critical review of the relevant literature (and reference to the relevant debate) on the selected topic,
- identification of the relevant general research questions,
- organising a specific argument, leading to new theoretical questions that will contribute to the relevant literature,

- discussion/evaluation of the results (or conclusions),
- contributing to the scientific debate through original findings.

Implementation issues

Part of the above elective courses will be available for teaching each academic year. The exact list of electives for each academic year will be announced together with the annual call for applications on the MSc program website, ensuring in any case that the curriculum will offer at least 30 ECTS for each semester of study.

In the case that an elective course is registered by less than thirty percent (30%) of the registered students, the SC decides whether or not to organize the course, ensuring in any case that the MSc program of study will offer at least 30 ECTS for each semester of study.

The implementation of the course will be modular and intensive. Each course will be completed within two to four (2-4) weeks, after which the course will be examined. Required courses shall not be less than thirty-nine (39) hours of educational activities. Upon completion of the course examinations, the teaching of the next course will begin immediately.

The language of instruction is English.

Article 8

Diploma Thesis

The postgraduate student is required to prepare and successfully defend his/her diploma thesis in the respective semester of study as stated in the internal regulations of the MSc. The postgraduate student is entitled to apply for a diploma thesis if he/she has successfully completed at least 80% of the courses of the MSc program. The subject of the diploma thesis must be related to the subject of the MSc program.

Specific topics of the diploma thesis are defined by Diploma Thesis Guide of the MSc program, which may include the following:

1. the educational purpose of the diploma thesis,
2. the process for submitting of the diploma thesis,
3. the fields of research interest,
4. the stages of carrying out the diploma thesis,

5. the change of title of the diploma thesis,
6. the good practices of drafting the text and the electronic or printed reading of the diploma thesis,
7. the study and finding of bibliographic sources,
8. writing research papers,
9. the criteria for evaluating of the diploma thesis,
10. the change of supervisor, etc.

Article 9

Student evaluation - examinations

At the beginning of each semester, the academic calendar of the MSc program is announced to postgraduate students, which is determined by the decision of the Department Assembly, after a recommendation from the SC. The academic calendar of the MSc program includes the start and end dates of the semesters, holidays, as well as the dates of the examinations.

The re-examination period for each academic year is organized within the month of September.

The evaluation of postgraduate students and their performance in the courses they are required to attend as part of the MSc program is conducted through written or oral examinations or through the completion of assignments throughout the semester. The method of evaluation is described in the syllabus of each course. Performance in each course is assessed by the instructor(s) and is graded using the scale applicable to undergraduate students. Specifically, the grades given range from zero (0) to ten (10). Passing grades are five (5) and above. For addressing extraordinary needs or circumstances that are considered force majeure, electronic means may be used for the evaluation of courses, provided that the integrity of the evaluation process is ensured.

Alternative methods may be applied for the evaluation of students with disabilities and special educational needs, as provided for in the Internal Regulation of the UniWA.

A student has the right to improve a grade in a course that has been successfully passed, following an application to the Secretariat of the MSc program. In these cases, students are

examined during the examination periods in which the exams of the specific course are held, not by exception. The application is submitted on specific dates determined by the Department Assembly. A student has the right to improve a grade in up to one (1) course per academic semester during their studies, and only once per course. Between the grades of the examination and the re-examination taken by the student, the higher of the two is selected.

If a postgraduate student fails the same course more than three (3) times, they may request, through an application to the Director of the MSc program, to be evaluated by a three-member committee, consisting of teaching staff from the same or another Department of the University, with a field of study identical or related to that of the course under examination, in which the instructor of the course cannot participate. If the Director of the MSc program does not appoint the members of the committee within one (1) month from the submission of the application, the student may request their appointment from the President of the Department Chair.

Article 10

Rights and Obligations of Postgraduate Students – Disenrollment

Postgraduate students have all the rights and benefits provided for undergraduate students, except the right to free textbooks. Postgraduate students may use the existing infrastructure of the University of West Attica, which includes suitably equipped teaching spaces with modern teaching aids and computers, the library, and departmental facilities.

Postgraduate students who do not have other medical and hospital care are entitled to full medical and hospital care in the National Health System with coverage of related expenses by the National Organization for the Provision of Health Services in accordance with the application of Article 33 of Law 4368/2016 (A' 83), as amended and in force.

Postgraduate students are entitled to free meals based on their individual and family financial situation and locality.

Postgraduate students may seek external funding for their studies from various Foundations or public and private sector entities and Research Institutes.

Postgraduate students may be financially covered by funded research programs in which they participate. The relevant details are defined by the decision of the SC after the recommendation of the Director of the MSc program.

The University of West Attica is obliged to ensure accessibility for students with disabilities and/or special needs to the proposed textbooks and teaching.

Postgraduate students are required to renew their enrollment at the beginning of each academic semester.

Renewal takes place at the beginning of each semester, within deadlines set by the SC of the MSc program.

Postgraduate students have the following obligations:

To attend the courses of the current study program continuously.

To submit the required assignments within the set deadlines.

To attend the scheduled examinations.

To declare responsibly that the diploma thesis is not a product of plagiarism, either in whole or in part.

To pay the prescribed tuition fees as set out in the Internal Regulations of the MSc program.

To respect and comply with the Postgraduate Studies Regulations, the decisions of the bodies of the MSc program, the Department, and the University of West Attica, as well as academic ethics.

Postgraduate students are invited to participate in and attend seminars, discussions, conferences/workshops with a subject matter related to that of the MSc program, lectures, or other scientific events of the MSc program. Postgraduate students may undertake auxiliary teaching work in undergraduate study programs by decision of the competent body of the MSc program. Postgraduate students must compulsorily issue an academic ID through the Electronic Service for Obtaining an Academic ID of the Ministry of Education and Religious Affairs.

The disenrollment of a postgraduate student takes place following a relevant recommendation of the SC of the MSc program to the Department Assembly and the adoption of a related decision. The decision is communicated within fifteen (15) days to the interested postgraduate student, who has the right to submit an objection within fifteen (15) days from the date of its issuance. The objection is definitively judged by the above bodies.

The Department Assembly, after the recommendation of the SC, may decide to disenroll postgraduate students for the following reasons:

a. Inadequate fulfillment of the obligations of the postgraduate student, as described in the Internal Regulations of the MSc program.

- b. Non-payment of the prescribed tuition fees (in any case, a student who has not met their financial obligations is not entitled to receive either a certificate of study completion or a Postgraduate Diploma).
- c. Disciplinary offenses, such as violation of academic ethics and generally any violation of the existing legislation and the Internal Regulations of the University of West Attica.
- d. Request for disenrollment by the postgraduate student themselves.
- e. Repeated failure in the examination of a course or courses as defined in the Internal Regulations.
- f. Failure to renew their enrollment or attend courses for two (2) consecutive semesters.
- g. Committing plagiarism or an offense that falls under intellectual property rights law (Law 2121/1993).
- h) For any other reason deemed necessary.

In the event of definitive discontinuation of studies or disenrollment of a postgraduate student for any reason, the already paid tuition fees are not refunded.

Article 11

Tuition fees

The tuition fees are set at one thousand two hundred (1.200€) euros. It is payable in three (3) equal instalments of four hundred (400€) euros.

In cases of interruption of studies, the total amount paid is non-refundable.

Postgraduate students are required to have paid all their financial obligations prior to the issue of a certificate of completion of studies and the award of the Diploma of Postgraduate Studies.

MSc programs with tuition fees may be exempted from these fees in accordance with the legislation in force.

Article 12

Scholarships

The MSc program may grant merit-based and non-merit-based scholarships, as well as awards of excellence to full-time postgraduate students, according to a decision of the Department Assembly. Scholarships are granted based on objective criteria, academic, economic, and social, which may indicatively include:

Academic:

- a) Study performance.
- b) The average grade of the previous semester.
- c) The degree grade with which they were admitted to the MSc program.
- d) Recent academic achievements (awards and honorary distinctions).

Economic:

Registered students of the MSc program may study for free if tuition fees are applicable, provided they meet the economic or social criteria according to the provisions of Article 86 of Law 4957/2022 and the Ministerial Decision no. 108990/Z1/8-9-2022 (B' 4899/2022).

Social:

- a) Divorced with dependents (children).
- b) Disability of the candidate.
- c) Single-parent family.
- d) Orphan of both parents and has not exceeded the age of 25.
- e) Child of a large family.
- f) Members of the same family.

Procedure:

After a recommendation from the SC of the MSc program, a call for scholarship applications is announced. Candidates must complete all mandatory fields of the application with the required documents for each case and submit them to the Secretariat of the MSc program within the calendar deadlines set in the call. The application constitutes a Responsible Declaration as per Law 1599/1986.

The competent body evaluates and ranks the candidacies based on the criteria of the announcement and recommends the list of candidate names to the Department Assembly.

A scholarship is not granted if the postgraduate student is already receiving a scholarship from another source or to a postgraduate student who has been admitted to the MSc program without the obligation to pay tuition fees.

Article 13

Postgraduate Diploma

The Postgraduate Diploma is a public document. Its format is defined by a decision of the Senate and is signed by the Rector, the President of the Department, the Director of the MSc program, and the Department Secretary or their legal substitutes, and bears the seal of the University.

Before the awarding of the diploma, graduates of the MSc program may be given a certificate stating that they have successfully completed the MSc program and a detailed transcript.

Attached to the Postgraduate Diploma is a Diploma Supplement, which is an explanatory document and does not replace the official title of study or the detailed transcript of courses. The Diploma Supplement is attached to the Postgraduate Diploma and provides information about the nature, level, general education framework, content, and status of the studies successfully completed by the person named in the original title. The Supplement does not make evaluative judgments and contains no statements of equivalence or correspondence or recommendations regarding the recognition of the Postgraduate Diploma abroad. The Diploma Supplement is automatically issued without any financial burden in both Greek and English, and must meet the authenticity requirements required for the awarded title of study. The issuance date of the Supplement does not necessarily coincide with the date of award of the Postgraduate Diploma, but can never be earlier than this.

The grade of the Postgraduate Diploma results from the assessment grade in the courses and the Diploma Thesis and/or practical training, if provided by the MSc program. Specifically, each semester, the student receives a grade for each course they are examined in and, if successfully evaluated, is credited with the corresponding ECTS credits. The final grade of the Postgraduate Diploma results from the evaluation grade:

- a) in the courses,
- b) in the MSc program Diploma Thesis.

The grade of the Postgraduate Diploma is rounded to two decimal places and results from the formula:

$$G=(G1E1+G2E2+.....+Gn*En)/(E1+E2+.....En)$$

where G1, G2....Gn are the grades of all the courses the student successfully examined and E1, E2.....En are the ECTS credits corresponding to each course.

Passing grades are five (5) and above. The grading scale for the evaluation of the performance of postgraduate students is defined from zero (0) to ten (10) as follows:

- Excellent: from eight and fifty (8.50) to ten (10),
- Very Good: from six and fifty (6.50) to eight and forty-nine (8.49),
- Good: from five (5) to six and forty-nine (6.49), or
- Fail: from zero (0) to four and ninety-nine (4.99).

Article 14

Teaching staff

The teaching responsibilities of the Postgraduate Program are assigned, following a decision of the competent body of the MSc program, to the following categories of instructors:

- a) Members of the Teaching and Research Staff, Special Teaching Staff, Laboratory Teaching Staff, and Special Technical Laboratory Staff of the Department or other Departments of the same or other Higher Education Institution or Higher Military Education Institution, with additional employment beyond their legal obligations, if the MSc program has tuition fees.
- b) Emeritus Professors or retired teaching staff of the Department or other Departments of the same or other Higher Education Institution.
- c) Collaborating professors.
- d) Delegated instructors.
- e) Visiting professors or visiting researchers.
- f) Researchers and specialized functional scientists of research and technological entities of Article 13A of Law 4310/2014 (A' 258) or other research centers and institutes in Greece or abroad.
- g) Scientists of recognized reputation, who possess specialized knowledge and relevant experience in the field of the MSc program.

The assignment of teaching duties in the MSc program is made by the decision of the Department Assembly, following a recommendation from the SC of the MSc program.

By decision of the Department Assembly, auxiliary teaching work may be assigned to doctoral candidates of the Department or the School, in a field related to the auxiliary teaching work provided by the MSc program, under the supervision of an instructor of the MSc program, following a recommendation from the SC.

Instructors from categories α) to f) in paragraph 1 are entitled to supervise dissertations, provided they hold a doctoral degree. By decision of the competent body of the MSc program, supervision of dissertations may also be assigned to other teaching staff members of the Department, who have not undertaken teaching duties in the MSc program.

All categories of instructors may be exclusively remunerated from the resources of the MSc program. Payment of remuneration or other benefits from the state budget or the public investment program is not allowed. The amount of remuneration for each instructor is determined by the decision of the competent body of the MSc program regarding the assignment of teaching duties. Specifically, instructors who are Greek University or relevant body tenure teaching/research staff may be additionally remunerated for work provided to the MSc program, provided they fulfill their minimum legal obligations, as defined in paragraph 2 of Article 155 of Law 4957/2022.

The responsibilities of the instructors include, among others, defining and describing the course, providing relevant bibliography, determining the method of examination of the course, and communicating with postgraduate students.

The MSc program, by decision of the Department Assembly, may appoint an Academic Advisor.

The purpose of the Academic Advisor is to provide advisory to postgraduate students during their studies on academic matters in a personalized manner. The expected outcome is to facilitate postgraduate students in completing their studies while utilizing their unique skills and interests in the field of educational and research processes. The Academic Advisor chooses the approach and method of providing advice to the students assigned to them in each academic year.

Article 15

Teaching assistantship of postgraduate students

By a decision of the Department Assembly of the MSc program, it is possible to approve the participation of postgraduate students, doctoral candidates, and postdoctoral researchers in providing auxiliary teaching work in first or second cycle study programs.

The University may grant merit-based scholarships to postgraduate students with the obligation to support the educational process and provide auxiliary teaching work.

Auxiliary teaching work is defined as assisting the members of the Teaching and Research Staff in their teaching duties, conducting student exercises, managing tutorials, laboratory exercises, supervising exams, and correcting assignments."

Article 16

Funding- Financial Management

The resources and funding of an MSc program can come from:

- a) Tuition fees,
- b) Donations, sponsorships, and all kinds of financial support,
- c) Bequests,
- d) Resources from research projects or programs,
- e) Own resources of the University of West Attica, and
- f) The state budget or the public investment program.

The payment of tuition fees is made by the student themselves or by a third natural or legal person on behalf of the student.

The management of the resources of the MSc program is carried out by the Special Account for Research Funds (S.A.R.F.) of the University of West Attica.

The resources of the MSc program are allocated as follows:

- a) An amount corresponding to thirty percent (30%) of the total revenues from tuition fees is withheld by the S.A.R.F. This amount includes the withholding percentage in favor of S.A.R.F. for the financial management of the MSc programs.

By a decision of the Management Council taken by the end of March each year, it is decided whether the remaining amount after the S.A.R.F. deduction is transferred to the regular budget or is allocated for the creation of works/programs through S.A.R.F., primarily covering the needs of tuition-free MSc programs and the research, educational, and operational needs of the University of West Attica. The revenues of the MSc program from sections b) to d) of paragraph 1 are subject to the S.A.R.F. withholding applicable to revenues from similar funding sources.

b) The remaining amount of the total revenues of the MSc program (70%) is allocated to cover the operational expenses of the MSc program.

The indicative budget of the MSc program, by category, for 30 students, is as follows:

INCOME:

Tuition fees: 30 students x €1200 = €36000

Tuition fee exemption of 30%: 9 students x €1200 = €10800

Total: €25200

EXPENSES:

Equipment and software expenses: €3000

Scholarship expenses for postgraduate students: €1200

Consumables expenses: €1000

Travel expenses of MSc program instructors: €1500

Student travel expenses of the MSc program for educational purposes: €1000

Teaching fees of regular staff of H.E.I.s and research centers and institutes participating in the organization of the MSc program: €0

Teaching fees of other teaching staff: €5440

Administrative and technical support fees: €3500

Other expenses, such as publicity expenses, purchase of educational materials, conference organization: €1000

Institutional operational expenses (30%): €7560

Total: €25200

Article 17

Plagiarism

"The postgraduate student is required to appropriately cite if they have used the work and views of others. Furthermore, postgraduate students who have used Artificial Intelligence (AI) services and assistance for the preparation of assignments assigned within the framework of the MSc program and/or the Diploma Thesis must include a 'Statement on the use of generative AI and AI-assisted technologies in the writing process' in the introduction of the text, where they will declare which tool was used and for what purpose.

Plagiarism is considered a serious academic offense. Plagiarism is defined as copying someone else's work, as well as using another's work - published or not - without proper citation. Copying any material for documentation, even from the candidate's own studies, without relevant citation, may lead to a decision by the Department Assembly for the student's dismissal. In these cases, the Department Assembly may decide on the dismissal of the student, after first giving them the opportunity to present their views on the matter, either orally or in writing.

Any offense or violation of academic ethics is referred to the Department Assembly for addressing the issue. Violations include instances of copying or plagiarism and generally any violation of intellectual property regulations by a postgraduate student in the course of writing assignments or preparing the Diploma Thesis.

Article 18

Awarding of diplomas – graduation ceremony

A student who has successfully completed their postgraduate studies takes an oath in a public graduation ceremony, in the presence of the Rector or the Vice-Rector as the Rector's representative, and the Department Chair. The ceremony is held after the end of each examination period, on a day and time set by the Rector in cooperation with the Department Chairs. The oath is not a constituent element of successful completion of the studies but is a necessary prerequisite for the granting of the Postgraduate Diploma. For reasons of force majeure (e.g., health reasons, living or working abroad, military obligations), and upon their request to the Department Secretariat, the graduate may ask for the diploma to be awarded without participating in the swearing-in ceremony or request to participate in a subsequent ceremony. The exemption from the obligation to participate in the swearing-in ceremony is

approved by the Department Chair. Before the swearing-in ceremony or exemption from it, a certificate may be given to the graduates for the successful completion of their studies.

A Postgraduate Diploma that has been awarded can be revoked or annulled if it is proven that the legal and institutional requirements for its acquisition were not met at the time of its award. The revocation or annulment is made after a decision by the respective Assembly, which is communicated to the Rector of the Institution."

Article 19

Webpage of the MSc program

The website of the MSc program can be found at: <https://bmet.uniwa.gr/>. The website is constantly updated and provides information, such as on the structure of the program (operating regulations, study guide, semester courses and ECTS credits, mobility opportunities through the Erasmus+ program, etc.), about the teaching staff, international collaborations, the application submission process for admission to the program, criteria for admission and evaluation of applications, daily academic matters (organization of courses, academic calendar, timetable, websites for posting teaching materials, study guide, etc.), and contact details of the instructors and the secretariat.

Article 20

Evaluation of the MSc program

At the end of each semester, an evaluation of each course and each instructor is conducted by the postgraduate students of the MSc program. The evaluation is carried out using a special form/questionnaire filled out by the postgraduate students. Courses are evaluated in terms of content, teaching methods, educational materials, and their correlation with the principles and philosophy of the MSc program. Instructors are evaluated on multiple levels, which may indicatively include assessment of their knowledge and ability to convey it to students, their preparation, the use of modern literature, their willingness to answer questions, timely grading and return of assignments and written exams, and adherence to the teaching hours of the course.

The annual internal evaluation of the MSc program is conducted in collaboration with the Quality Assurance Unit of the University of West Attica within the framework of the internal evaluation of the Department/School to which it belongs, according to the corresponding process of the internal Quality Assurance System of the Institution.

The external evaluation of the MSc programs is conducted in cooperation with the Quality Assurance Unit within the framework of their certification according to the procedure provided by the Hellenic Authority for Higher Education.

The MSc program, whose department undertakes administrative support, is evaluated in the context of the periodic evaluation/certification of the academic unit by the National Authority for Higher Education. In this context, the overall assessment of the work performed in the MSc program, the degree of achievement of the objectives set at its establishment, its viability, the absorption of graduates into the labor market, the degree of its contribution to research, the internal evaluation by the postgraduate students, the advisability of extending its operation, as well as other elements related to the quality of the work produced and its contribution to the national strategy for higher education are evaluated.

If the MSc program, at the stage of its evaluation according to the above paragraph, is deemed not to meet the conditions for continuing its operation, its operation is completed with the graduation of the already enrolled students according to the decision of establishment and the regulation of postgraduate and doctoral study programs.

Article 21

Special Cooperation Agreements

The MSc program is able to sign Special Cooperation Agreements with Higher Education Institutions, research centers, public and private entities active in the field of Biomedical Engineering, both national and international. These agreements are part of educational and research actions that contribute to the implementation and improvement of the quality of the study program. The Special Cooperation Agreement will specify the details of the educational and research collaboration, the obligations and rights between the collaborating entities, the possibilities for the mobility of teaching staff or students among the entities, opportunities for establishing internship positions for students, the joint use of material and technical infrastructure, and the implementation of the collaboration, etc.

Article 22

Other provisions

Any matters not regulated by the current legislation, the Regulations of the MSc program, and the Regulations of the University of West Attica for MSc programs, are regulated by decisions of the competent bodies of the MSc programs.