UNIVERSITY OF WEST ATTICA
SCHOOL OF ENGINEERING
DEPT. OF BIOMEDICAL ENGINEERING
MSc BIOMEDICAL ENGINEERING AND TECHONOLOGY

Rules and Regulations of the MSc Program

MSc BIOMEDICAL ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BIOMEDICAL ENGINEERING
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Article 1

General Provisions

The Department of Biomedical Engineering, School of Engineering, University of West Attica (UniWA), organizes and operates, starting from the winter semester of the academic year 2025–2026, a Postgraduate Program (MSc) entitled "Biomedical Engineering and Technology", in accordance with the provisions of Law 4957/2022 (FEK 141A'), as amended and currently in force with Law 5094/2024 (FEK 39A').

This document constitutes the Internal Regulation of Operation of the MSc program "Biomedical Engineering and Technology."

Article 2

Purpose – Objectives of the M.Sc. Program

The MSc program *Biomedical Engineering and Technology* aims to advance knowledge, foster research, and meet the educational, research, and developmental needs of the country. The program is characterized by scientific coherence, aligns with the academic fields of the Department of Biomedical Engineering, and ensures a high level of studies.

Purpose:

The purpose of the MSc program is to provide the necessary foundations for the academic and professional advancement of its participants in the rapidly evolving field of Biomedical Engineering and Technology. The program covers a broad range of subjects and areas, including:

- In vitro diagnostics.
- In vivo diagnostics.
- Medical imaging.
- Biomedical instrumentation.
- Biomedical informatics.
- Artificial intelligence and deep learning.
- Emergency medicine technologies.
- Biomaterials.
- Biomechanics.

- Ethics and deontology in Biomedical Engineering.
- Economics, management, marketing, and sales in Biomedical Engineering.
- Research and development in Biomedical Engineering.
- Professional practice in Biomedical Engineering.

The program emphasizes both theoretical knowledge and practical skills, aiming to produce graduates with high-level academic training, technical expertise, and hands-on experience, capable of meeting the demands of positions of responsibility and the challenges posed by technological developments in the global labor market in Biomedical Engineering.

Objectives:

The specific objectives of the program are:

- To strengthen the theoretical and practical background of students in cutting-edge technologies of Biomedical Engineering and Technology.
- To deepen knowledge and enhance skills for both research engineers and practicing engineers, including those in managerial roles.
- To provide graduates with the foundations for pursuing doctoral studies.
- To cultivate their ability to assimilate new knowledge independently under conditions of rapid scientific and technological advancement.
- To expand their interest in scientific research.
- To expand their abilities in addressing practical issues of Biomedical Engineering and Technology in healthcare and industry.
- To prepare graduates capable of contributing to shaping the future directions of the biomedical industry.
- To equip them with knowledge and skills essential for designing and implementing business strategies.
- To provide broad and deep interdisciplinary education and technical training, along with work-related skills in selected specialized technologies.
- To cultivate their ability to work effectively in multifunctional and interdisciplinary environments.
- To develop problem-solving skills and the ability to apply them in innovative solutions that address societal needs.

- To offer opportunities for pursuing personal scientific interests through elective options.

Article 3

Administration of the MSc program

For the organization and general operation of the Postgraduate Program, the responsible bodies are the following:

a) the Senate of the University of West Attica (UniWA),
b) the Assembly of the Department (D.A.),
c) the Steering Committee (S.C.),
d) the Director of the MSc program, and
e) the Postgraduate Studies Committee.

a) The Senate of UniWA

The Senate has the following responsibilities:

1. Approves the establishment of the MSc program or the modification of the decision to establish it.
2. Approves the extension of the duration of operation of the MSc program programs.
3. Establishes the Program Committee in the case of inter-departmental, inter-institutional, or joint MSc program programs.
4. Decides on the abolition of MSc program programs offered by UniWA.

b) The Assembly of the Department (D.A.)

The main responsibility of the Department Assembly is to recommend to the Senate, through the Postgraduate Studies Committee, at least the provisions a) to q) of paragraphs 3 and 4 of Article 80 of Law 4957/2022 (FEK 141A), together with the Internal Regulation of the MSc program

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

1. Forms committees for the evaluation of applications of prospective postgraduate students (P.S.) and approves their enrollment in the MSc program.

2. Assigns teaching duties to the instructors of the MSc program.
3. Submits recommendations to the Senate for modifying the decision of establishment, as well as for extending the duration of the MSc program.
4. Appoints examination committees for the defense of Master's theses and designates the supervisor for each thesis.
5. Confirms the successful completion of studies in order to award the MSc program degree.
6. Approves the annual report of the MSc program, following a recommendation of the Steering Committee (S.C.).
7. Examines applications for exemption from tuition fees and issues a reasoned decision of acceptance or rejection.
8. Approves any other matter required for the smooth operation of the MSc program

By decision of the Department Assembly, responsibilities 1) and 4) may be delegated to the S.C. of the MSc program

c) The Steering Committee (S.C.)

The Steering Committee is established by decision of the Department Assembly, with a two-year term, and consists of the Director of the MSc program and four (4) members of the Department's Academic Staff (faculty members) with relevant expertise, who also undertake teaching duties in the program.

The S.C. is responsible for the supervision and coordination of the program's operation, and in particular:

1. Prepares the initial annual budget of the MSc program and its revisions (if the program has resources according to Article 84 of Law 4957/2022), and submits it for approval to the Research Committee of the Special Account for Research Funds (ELKE).
2. Prepares the program's annual report and submits it for approval to the Department Assembly.
3. Approves expenditures of the MSc program, with the possibility of delegating this authority to the Director.
4. Approves the awarding of scholarships, remunerative or not, according to the founding decision of the MSc program and the postgraduate and doctoral studies regulation.

5. Recommends to the Department Assembly the distribution of teaching duties, as well as the assignment of teaching tasks to categories of instructors under Article 83 of Law 4957/2022.
6. Recommends to the Department Assembly the invitation of Visiting Professors to meet the teaching needs of the MSc program.
7. Prepares proposals for the revision of the study program and submits them to the Department Assembly.
8. Recommends to the Department Assembly the redistribution of courses among academic semesters and issues related to the qualitative upgrading of the curriculum.

Certain responsibilities of the Department Assembly may be delegated to the S.C. for more effective operation of the MSc program, following a relevant decision. Emeritus Professors of the Department or of collaborating Departments may also participate in the S.C., provided they undertake teaching duties in the MSc program.

d) The Director of the MSc program

The Director of the MSc program must be a faculty member of the Department, preferably at the rank of Professor or Associate Professor, and is appointed by decision of the Department Assembly for a two-year term, renewable without limitation.

The Director has the following responsibilities:

1. Chairs the S.C., drafts the agenda, and convenes its meetings.
2. Submits issues related to the organization and operation of the MSc program to the Department Assembly in the case of an autonomous program.
3. Submits proposals to the S.C. and other bodies of the MSc program and the University regarding its effective functioning.
4. Acts as the Scientific Coordinator of the program in accordance with Article 234 of Law 4957/2022 and exercises the corresponding responsibilities.
5. Oversees the implementation of decisions of the governing bodies of the MSc program and of the Internal Regulation of postgraduate programs, as well as the monitoring of the execution of the program's budget.
6. Exercises any other responsibility defined in the founding decision of the MSc program.

The Director and the members of the S.C. are not entitled to any remuneration or compensation for the exercise of their duties.

In the event of resignation, a new Director or member of the S.C. may be appointed by the competent bodies, following submission of a request and a reasoned explanation for the change.

e) The Postgraduate Studies Committee

By decision of the Senate, following a proposal of the Faculties of UniWA, a Postgraduate Studies Committee is established. The Committee consists of:

- one (1) faculty member from each School of UniWA,
- one (1) member from the categories of Special Teaching Staff (E.E.P.), Laboratory Teaching Staff (E.DI.P.), and Special Technical Laboratory Staff (E.T.E.P.), and
- the Vice-Rector for Academic Affairs, who serves as Chair.

The members of the Committee must have experience in the organization and participation in second-cycle study programs. The term of office of the Committee is two (2) academic years.

The Committee's responsibilities are:

1. To provide opinions to the Senate of UniWA regarding the establishment of new Postgraduate Programs or the modification of existing ones, following evaluation of departmental requests, feasibility and sustainability reports, and cost assessments, with the possibility of returning cases if recommendations are insufficiently justified or reports are incomplete.
2. To draft regulations for MSc program programs at UniWA and submit them to the Senate.
3. To prepare model regulations for the operation of MSc program programs.
4. To monitor compliance with the regulations of MSc program programs.
5. To oversee the application of legislation, regulations, and Senate decisions by the MSc program programs.
6. To oversee the implementation of the procedure for exemption from tuition fees.
7. To exercise any other responsibility defined by the Internal Regulation of each MSc program

By decision of the Senate, following a recommendation of the Postgraduate Studies Committee, the Regulation of postgraduate programs is approved, forming a distinct section of the University's Internal Regulation.

Article 4

Determination of Minimum and Maximum Number of Admitted Students, Candidate Selection Criteria

The annual number of admitted students is set at a **maximum of thirty (30)** and a **minimum of ten (10)**. If the number of applicants is fewer than ten (10), the Department Assembly (D.A.) decides whether the MSc program will operate or not.

Selection Criteria and Selection Procedure

i. Call for Applications

On dates determined by the D.A., the MSc program issues a **Call for Applications** for admission of postgraduate students. The call is published on the MSc program main website, and on the Department and UniWA websites.

The call specifies:

a) the eligibility conditions for participation in the selection process;

b) the categories of degree-holders and the number of places available;

c) the selection procedure and criteria;

d) application deadlines;

e) the required supporting documents;

f) any other detail deemed necessary to facilitate the selection process.

If the admission method includes a written examination, the call must define the procedure, the number and syllabus of the examined courses, the examination dates, and the grading method.

Applications and required documents are submitted to the **Secretariat of the MSc program**, in hard copy or electronically, within the deadline set in the call; the deadline may be extended by decision of the D.A.

ii. Candidate Evaluation Committee (C.E.C.)

Admission to the MSc program is decided by **a** three-member Candidate Evaluation Committee (C.E.C.) composed of faculty members of the Department who undertake postgraduate teaching, appointed by decision of the D.A. The committee may be assisted by additional faculty members by decision of the D.A.

The Committee has the following responsibilities:

1. Evaluate all submitted documents. (The Secretariat checks completeness.)
2. Verify **language proficiency**.
3. Conduct **individual interviews**.

Required documents may include:

a) application form;

b) copy of degree/diploma or certificate of completion of studies;

c) transcript of records;

d) detailed curriculum vitae (studies, teaching/professional experience, scholarly activity, etc.);

e) evidence of research or professional activity (if any);

f) at least **two letters of recommendation**;

g) copy of a postgraduate degree (if any);

h) publications in peer-reviewed journals (if any);

i) double-sided copy of national ID card;

j) applicant's photograph;

k) motivation letter**;**

i) proof of English proficiency at level B2 or higher (e.g., degree from an English-speaking institution or English-taught program; Cambridge First Certificate; TOEFL ≥ 500 (or 300 in the new scale); IELTS ≥ 6.5; Greek State Language Certificate B2).

Graduates of English-medium universities are exempt from submitting an English certificate.

If the above conditions for adequate English knowledge are not met, the Steering Committee (S.C.) may organize special examinations to ascertain English proficiency. The S.C. decides on the examination method and organizes the exams.

Knowledge of additional foreign languages is positively considered.

iii. Selection Criteria

The candidates are assessed on:

a) Relevance of degree/certificate of completion to Biomedical Engineering (Yes/No).

b) Adequate English proficiency (or successful English proficiency exam) (Yes/No).

c) Overall degree grade (0–40).

d) Research or professional experience in a relevant or related field (0–20).

e) Letters of recommendation (0–15).

f) Oral interview (0–25).

Weighting scheme:

Criterion	Weight
K1. Relevance of degree/certificate to Biomedical Engineering	Yes/No
K2. Adequate English proficiency (or successful exam)	Yes/No
K3. Overall degree grade	40%
K4. Research/professional experience	20%
K5. Letters of recommendation	15%
K6. Oral interview	25%
Total	**100%**

If **K1** or **K2** is not met (K1 = No and/or K2 = No), the application is **rejected** without further evaluation. If **both K1 and K2** are met (K1 = Yes and K2 = Yes), candidates are ranked based on **K3–K6** as follows:

TB = (K3 × 0.40) + (K4 × 0.20) + (K5 × 0.15) + (K6 × 0.25)

Candidates with the highest **Total Score (TB)** are selected, up to the program's maximum number of places.

iv. Selection Procedure

Required documents must be submitted within the deadlines set in the relevant call.

The selection process includes two stages:

- **Stage 1:** Applications are evaluated for completeness and validity of required documents. This is a prerequisite for progressing to Stage 2.
- **Stage 2:** Eligible candidates are invited to an interview before the C.E.C. The goal is to determine which candidates can substantively meet the demands of the MSc program, taking into account motivation and interest, as well as overall academic preparation and scientific adequacy in relation to the program's field.

Upon completion of the evaluation, the C.E.C. compiles a full list of all candidates, ranks them, makes the final selection, and prepares a provisional list of successful candidates, which is ratified by the D.A. Publication is made on the MSc program website in accordance with personal data protection regulations.

If two or more candidates obtain the same total score, they are admitted as ties.

Appeals against the provisional list may be submitted within five (5) working days from the date of its announcement. Appeals must be specific and are decided finally by a three-member faculty committee (members involved in postgraduate teaching) appointed by the D.A.

After the appeal deadline and any final decisions, the final list of successful candidates is published in the same manner as the provisional list.

Successful candidates must declare acceptance of their place and of the terms of operation of the MSc program (as set out in this Regulation) in writing or by email, within the deadline specified in the call.

Acceptance is finalized by paying 50% of the tuition fees within thirty (30) days from the announcement of the evaluation results. If the amount is not paid within the deadline, the application is rejected. Exceptions are permitted only for serious reasons and after consideration by the D.A.

If the MSc program does not run due to not meeting the minimum required number of students, any tuition installments paid by newly registered students are refunded in full**,** without deduction or charge.

Non-acceptance of the place and/or of the terms of operation, as well as failure to pay the above amount within the deadline, entails removal from the final list of successful candidates. Exceptions are permitted only for serious reasons and after consideration by the S.C.

In case of refusal or forfeiture of a place, the Secretariat informs the next candidates on the ranking list, if there are alternates. Alternates are invited to accept their place under the same conditions as above.

v. Enrollment in the MSc program

Successful candidates must enroll at the MSc program Secretariat within the deadlines set by the S.C. For reasons of exceptional necessity, enrollment after the deadline may be allowed by decision of the S.C., following a reasoned request by the candidate. Incoming students may obtain information from the MSc program website and/or the Secretariat.

Enrollment takes place on predetermined dates, announced to successful candidates after they officially accept their place, as described above.

Upon enrollment, students submit—indicatively and in addition to the documents submitted with their application—the following:

- Enrollment application;
- Photocopy of ID card or passport;
- Solemn Declaration (Law 1599/1986) stating that they are not enrolled in another MSc

program**;**

• Two ID-type photographs;

• Copy of proof of payment of **50% of tuition fees** into the MSc program account.

For reasons of exceptional necessity, enrollment may also be permitted after the above deadline, by decision of the S.C., following a reasoned request by the interested party.

Article 5

Categories of Candidates Eligible for Admission to the MSc program

Eligible for admission to the MSc program, following a selection process, are graduates of:

- Departments of Engineering,
- Departments of Technological and Natural Sciences, and
- Departments of Health Sciences of Universities and Technological Educational Institutes (T.E.I.) in Greece,

or of equivalent institutions abroad, in accordance with the provisions of current legislation.

Degrees from other specialties are considered on a case-by-case basis by the Candidate Evaluation Committee and are subject to final approval by the Department Assembly (D.A.).

Final-year students of the above Departments may also apply, provided they submit to the Secretariat of the MSc program a certificate of completion of studies before the start date of the program. In these cases, enrollment is permitted only after submission of the completion certificate, while the official degree or diploma may be submitted to the Secretariat after the program has begun.

Final-year students of foreign institutions not yet listed in the National Register of Recognized Foreign Institutions of DOATAP may also apply. If a foreign institution is not listed on the DOATAP website, the Department applies the procedure described in paragraph 5, Article 304, of Law 4957/2022. Otherwise, the candidate is removed from the program, without any entitlement to reimbursement of tuition fees already paid.

Members of the categories of Special Teaching Staff (ΕΕΠ), Laboratory Teaching Staff (ΕΔΙΠ), and Special Technical Laboratory Staff (ΕΤΕΠ) may, upon request, enroll as supernumerary students (one per year per MSc program), without tuition fees.

Article 6

Duration of studies – Suspension of studies

1. Duration of Studies

The structure of the study program is organized in such a way as to include educational activities corresponding to ninety (90) ECTS (European Credit Transfer and Accumulation System) credits (thirty (30) ECTS per academic semester). The maximum duration of study for the MSc program is five (5) academic semesters. The duration of courses per semester is at least thirteen (13) weeks, corresponding to thirty (30) ECTS. Compulsory courses must not be fewer than thirty-nine (39) teaching hours. Upon completion of the maximum duration of study, and subject to the following paragraphs, the Department Assembly shall issue a dismissal decision.

2. Suspension of Studies

Postgraduate students may, upon request, apply for a justified suspension of studies (e.g., military service, illness, stay abroad, etc.), provided that they submit the relevant supporting documents. The decision is taken by the D.A. following a recommendation by the S.C. The semesters of suspension of student status are not counted toward the prescribed maximum duration of regular study. The right to suspend studies may be exercised once, either in full or in parts, for a minimum period of one (1) academic semester, but the total duration of suspension may not exceed two (2) academic semesters in aggregate. Postgraduate students on suspension lose their student status for the entire duration of the suspension. Upon resuming studies, the student continues under the study regime of the year of their initial enrollment.

If a postgraduate student applies for a suspension of studies during the first semester, the suspension cannot be shorter than two (2) semesters, as studies must commence in the first semester.

A postgraduate student who has not successfully completed the first (1st) semester cannot be directly admitted into the second (2nd) semester.

Completion of the first semester is defined as attending at least 80% of classes in a minimum of five (5) courses of that semester. Exceptions are permitted only for serious reasons and following review of the case by the Coordinating Committee.

Article 7

Study Program

The MSc program may begin in either the winter or spring semester of each academic year, as defined in the approved academic calendar of UniWA. Successful completion of all courses in the curriculum, successful preparation of the Master's Diploma Thesis, and the accumulation of 90 ECTS credits are required conditions for the awarding of the Master's Degree (M.Sc.).

Weekly timetable

At the beginning of each semester, the semester timetable is announced to the postgraduate students. It is determined by decision of the D.A., following a recommendation by the S.C. In extraordinary circumstances, where it is not possible to organize classes (e.g., illness of teaching staff, inability to access UniWA facilities), the timetable may be altered regarding the days and times of teaching and/or the initially scheduled mode of delivery may be modified (e.g., a face-to-face class may, if conditions of the distance education regulation of this program are met, be exceptionally delivered online). Students are informed of such changes via the official website of the P.M.S. and by the coordinator and instructors of each course affected by rescheduling.

Attendance of Courses

Postgraduate students are required to attend all activities of the MSc program. A student is considered to have attended a course (and therefore has the right to participate in the examination) only if they have participated in at least 80% of the teaching hours of that course. Exceptions are allowed only for serious reasons and following review of the matter by the S.C. In all cases, participation and attendance are verified under the responsibility of the course instructors.

Detailed Curriculum

The detailed curriculum of courses per semester is as follows:

1st SEMESTER		
Course title	**C: Compulsory E: Elective**	**ECTS**
Biomedical engineering, Research Methodology and Bioethics	C	4
Biology-Biotechnology	C	5
Biomedical Engineering and Career Opportunities I	C	4
Diagnostic Medical Imaging Systems I	C	5
Biostatistics	E	4
Machine Learning in Medicine and Biology	E	4
Biomedical marketing	E	4
Biomaterials Science and Engineering	E	4
Applied Neuroanatomy and Neurological Disorders	E	4
TOTAL NUMBER OF REQUIRED ECTS OF SEMESTER		**30**

2nd SEMESTER		
Course title	**C: Compulsory E: Elective**	**ECTS**
Diagnostic Medical Imaging Systems II	C	5
Biomedical Instrumentation	C	5
Biomedical Engineering and Career Opportunities II	C	5
Emergency medicine	E	5
Control systems and human machine interaction in biomedical engineering	E	5
Bioinformatics	E	5
Medical signal and image processing	E	5
Biomechanics	E	5
Continuum Mechanics of Biological and Physiological Systems	E	5
TOTAL NUMBER OF REQUIRED ECTS OF SEMESTER		**30**

3rd SEMESTER		
Course title	**C: Compulsory E: Elective**	**ECTS**
Diploma thesis	C	30
TOTAL NUMBER OF REQUIRED ECTS OF SEMESTER		**30**

Beyond the above courses, the MSc Program may also organize specialized optional seminars without the awarding of ECTS (such as workshops on learning a programming language). Additional seminars, provided that they last more than 26 total hours and are assessed through examinations, will be recorded in the Diploma Supplement in the case of successful completion.

The educational approach emphasizes encouraging student initiative in developing research methodology through the assignment of individual projects to each student for each course. It includes the following methodologies:

- **Lectures** in the classroom using information technologies (digital slides).
- **Laboratory sessions** in the premises of the Department of Biomedical Engineering, utilizing the available specialized equipment.
- **Field visits** to companies, collaborating research centers, and healthcare institutions such as hospitals.
- **Special seminars** delivered by professional Biomedical Engineers at the Department of Biomedical Engineering and at the facilities of collaborating organizations/companies.
- **Assignments** for in-depth study of the subject matter of each course, aimed at encouraging student initiative and practicing research methodology.

All educational material is uploaded to the UniWA eClass platform and includes slides, scientific articles, e-books, educational videos, self-assessment questionnaires, etc.

The following provides a summary description of the course content and learning objectives:

1st SEMESTER

BMET101 Biomedical Engineering, Research Methodology and Bioethics

Course content:

This course introduces the science of biomedical engineering, defining its scope and analyzing its main fields, such as biomedical instrumentation, medical imaging, medical signal and image processing, biomedical informatics, biomaterials, neuromechanics, and biomedical optics. It also examines research methodology, scientific writing, and professional prospects in the field of biomedical engineering. Special emphasis is placed on bioethics and professional ethics, with an analysis of historical, theoretical, and legal frameworks as well as the contemporary ethical challenges arising from technological advancement.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Acquire comprehensive and specialized knowledge of the scientific field of biomedical engineering, identifying and analyzing in depth its key areas.
2. Critically evaluate the roles and applications of biomedical engineering in the modern professional and research environment, anticipating developments and emerging trends.
3. Design and implement advanced research studies by applying sophisticated methods of data collection and analysis, using specialized statistical and computational tools.
4. Analyze and resolve complex ethical issues in research and professional practice, proposing evidence-based solutions consistent with current regulatory and legal frameworks.
5. Prepare and present complete scientific papers and research proposals, applying advanced documentation techniques, and effectively communicate results to both specialized and non-specialized audiences.
6. Apply advanced research skills for the interpretation and evaluation of scientific data.
7. Demonstrate in-depth understanding of the ethical challenges posed by continuous technological progress, formulating strategies for responsible professional practice in the field of biomedical engineering.

BMET102 Biology-biotechnology

Course content:

The course focuses on the study of fundamental topics in biology and biotechnology. In particular, it will analyze basic biological principles and concepts such as the structure and function of biomolecules and biological membranes, the flow of information and energy within the cell, as well as fundamental knowledge regarding the function of genes and viruses. It will also present core biotechnologies such as molecular cloning, PCR, transgenic and knock-out models. Furthermore, cutting-edge biotechnologies will be introduced, including multiphoton imaging, stem cell biology, and proteomic analysis of molecules, along with their applications in the diagnosis and potential treatment of various diseases.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Demonstrate knowledge of the fundamental concepts of biology and gain an introduction to the scientific field of biotechnology.
2. Understand the potential for utilizing and linking biological knowledge with biotechnological applications.
3. Comprehend the usefulness of applying various biotechnologies to the clinical study, management, and treatment of human diseases.
4. Evaluate the results of biotechnological applications for the analysis, diagnosis, and treatment of various diseases.

BMET103 Diagnostic Medical Imaging Systems I

Course Content:

The purpose of the course is to study the fundamental structure of diagnostic imaging systems using non-ionizing radiation. The course analyzes the main components of Ultrasound systems and Magnetic Resonance Imaging (MRI) systems.

In addition, fundamental concepts will be examined, including:

- Physical principles of ultrasound generation and propagation
- Physical principles of magnetic resonance and superconductivity
- Imaging techniques and instrumentation of clinical imaging systems

The course includes individual assignments and presentations on topics related to modern and combined imaging methods using non-ionizing radiation.

Learning Outcomes:

Upon completion of the course, students will:

1. Gain knowledge of the basic physical principles of ultrasound, magnetic resonance, and the interactions of wave attenuation with matter.
2. Acquire a comprehensive understanding of the scientific field of diagnostic imaging systems using non-ionizing radiation.
3. Develop the ability to describe and distinguish the individual components (block diagrams) that make up a complete imaging system.
4. Understand the operating principles in order to carry out comparative evaluations among different medical imaging systems.
5. Develop research skills through literature review and project presentations.

BMET104 Biomedical Engineering and Career Opportunities I

Course Content:

Invited experts from the biomedical industry deliver specialized seminars focusing on real working conditions, challenges, and professional prospects for biomedical engineers, thereby strengthening the connection between theory and practice.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Fully understand the roles and applications of biomedical engineering in the job market, recognizing different career paths and future prospects.
2. Identify and analyze the interdisciplinary nature of biomedical engineering, understanding its interaction with medicine, technology, and other related fields.
3. Critically evaluate current trends, challenges, and developments in the field, proposing strategies for professional adaptation and growth.

BMET105 Biostatistics

Course Content:

This course focuses on understanding the fundamental concepts of statistics and their application in health sciences research. Its aim is to enable students to assimilate the taught material and apply their knowledge both in their professional environment and in broader applications of biostatistics and probability, which are essential for studying problems encountered by biomedical engineers. Students will apply their knowledge to real-world biostatistical problems, analyze data using modern biostatistical tools, and evaluate findings.

Learning Outcomes:

The learning outcomes of the course are designed to provide students with a fundamental understanding of statistical concepts and methods. These outcomes aim to equip students with the necessary skills for data analysis and interpretation, evidence-based decision-making, and the application of statistical techniques. Upon completion, students will be able to:

1. Develop a solid understanding of fundamental statistical concepts, including probability, hypothesis testing, confidence intervals, and basic descriptive statistics.
2. 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 interpretation of statistical significance.
4. Explore basic probability distributions.
5. Gain practical experience with statistical analysis tools commonly used in the field, such as the R programming language.
6. Develop critical thinking skills to analyze real-world problems and apply appropriate statistical methods to solve them.
7. Create effective data visualizations to communicate statistical findings using charts, graphs, and other graphical representations.
8. Communicate statistical results clearly and concisely, both in written reports and oral presentations.
9. Become familiar with common statistical tests and understand when they should be applied.
10. Gain experience in conducting small independent research projects, applying statistical methods to analyze data and draw conclusions.

BMET106 – Machine Learning in Medicine and Biology

Course Content:

The purpose of this course is to study the methodologies used in the design of Machine Learning systems for applications in medicine and biology. Topics include:

- Data acquisition and preprocessing (e.g., csv, excel, json, xml, yaml formats).
- Feature extraction from medical and biological images.
- Statistical data analysis.

The course also covers supervised Machine Learning methodologies for algorithm design in programming languages, applied to classification of diseases and disease prediction. Students

are further trained in the design of unsupervised and deep learning systems using real medical or biological data and modern software libraries.

Learning Outcomes:

Upon completion of the course, students will be able to:

1. Understand the theory and implementation technologies of Machine Learning methodologies applied to Medicine and Biology.
2. Comprehend the methods employed in modern computational systems utilizing Machine Learning.
3. Distinguish and understand the data preprocessing and analysis methods required for various applications, as well as select appropriate Machine Learning algorithms.
4. Apply Machine Learning algorithms in programming code using modern software technologies, developing integrated Machine Learning systems for Medicine and Biology.

BMET107 – Biomedical Marketing

Course Content:

- Introduction
- Fundamentals of Marketing with examples from the biomedical sector
    - Customer Value
    - Components of perceived Value & Cost
    - Customer satisfaction
    - Market oriented companies
    - Marketing micro and macro environment
    - Porter Five Forces Analysis
    - SWOT Analysis
    - The Marketing mix
    - Products and brands
    - Product's levels
    - Value Proposition Canvas & Unique Value Proposition
    - Product lifecycle
    - Market Segmentation and market targeting strategies
- Figures of the Biomedical Market
- Innovation and Technology Transfer
    - Innovation (general aspects)

- Technology Transfer
- The operation of Technology Transfer
- Technology Transfer in the Biomedical Sector
- Sources of Funding
- Intellectual Property Rights
- R&D Figures in EU
- Innovations in the biomedical sector

Learning outcomes:

Upon completion of the course, students will be able to critically analyze and apply fundamental marketing concepts within the context of the biomedical industry. They will demonstrate an understanding of customer value, perceived cost, satisfaction, and how these influence the success of biomedical products and services. Students will apply tools such as SWOT analysis, Porter's Five Forces, and the marketing mix to assess market opportunities, segment biomedical markets, and develop targeted marketing strategies. They will evaluate product levels and life cycles, construct compelling value propositions, and differentiate products through branding and innovation. Moreover, they will gain insight into the structure and dynamics of the biomedical market, including key figures and trends. Through the integration of innovation and technology transfer principles, students will learn how intellectual property rights, funding mechanisms, and R&D performance shape the commercialization of biomedical technologies. The course will enhance students' critical thinking, strategic planning, and communication skills, enabling them to develop and present coherent, evidence-based marketing plans for biomedical products or services.

BMET108 – Biomaterials Science and Engineering

Course Content:

This course familiarizes graduate students with the science and engineering of biomaterials and their modern applications, emphasizing the relationship between structure–properties–processing–performance for optimizing biomaterial design across scales, tailored to biomedical applications.

It covers the microscopic structure of biomaterials, their physicochemical, mechanical, and interfacial properties. Special attention is given to in vivo corrosion and degradation, and the mechanical response of materials to applied loads comparable to those in biological tissues.

The course explores both traditional biomaterials (metals, ceramics, polymers, composites) and advanced biomaterials (Porous Coordination Polymers, Metal-Organic Frameworks,

Zeolitic Imidazolate Frameworks, Graphene, Carbon Nanotubes, Lipid and Lipopeptide Nanoparticles, etc.) for targeted therapies, genetic vaccines, multifunctional scaffolds for tissue engineering, and novel in vitro diagnostic tools.

The course concludes with the study of molecular interactions between materials and biological tissues, aiming to understand the mechanisms of successful in vivo integration of biomaterials and minimizing adverse biological responses.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Distinguish and compare traditional and advanced biomaterial categories, analyze their physicochemical and mechanical properties, and formulate and evaluate the structure–properties–processing–performance relationship across scales.
2. Describe and analyze the processes involved in molecular interactions between materials and biological tissues, aiming to design advanced multifunctional biomaterials with optimal performance for biomedical applications.

BMET109 – Applied Neuroanatomy and Neurological Disorders

Course Content:

The aim of the course is to understand the structural and functional organization of the nervous system and how this knowledge supports modern diagnostic and therapeutic applications in neurological disorders.

The course consists of:

- Theoretical lectures, practical exercises, and seminars on human macro- and micro-neuroanatomy and related imaging methods.
- Training in 3D printing methodologies and applications for educational and clinical purposes in neuroanatomy, including hands-on 3D printing practice.
- Introduction to biomarkers, related technologies/clinical platforms, and their clinical utility in traumatic brain injury and Alzheimer's disease.
- Study of the pathophysiology and diagnostics of neurological diseases such as Parkinson's disease, dystonia, and epilepsy, along with modern neuromodulation techniques for their management.

Learning Outcomes:

Upon completion of the course, students will:

1. Acquire comprehensive knowledge of the structural and functional organization of the nervous system and related imaging methods.

2. Develop the ability to identify anatomical and vascular structures of the human brain.
3. Gain theoretical knowledge and practical expertise in 3D printing of neuroanatomical structures.
4. Understand the pathophysiological mechanisms, diagnostic methods, and modern therapeutic approaches for common neurological disorders, such as Alzheimer's disease, Parkinson's disease, dystonia, epilepsy, and traumatic brain injury.
5. Understand the concept of molecular biomarkers, related technologies, and their clinical applications in neurological diseases.
6. Comprehend the fundamental principles and modern therapeutic applications of neuromodulation in neurological disorders.

2nd SEMESTER

BMET201 – Diagnostic Medical Imaging Systems II

Course Content:

This course studies the fundamental architecture of medical imaging systems that use ionizing radiation. It analyzes the components of Diagnostic Radiology systems (Conventional Radiography, Mammography, and Computed Tomography—CT) and Nuclear Medicine imaging (gamma camera, SPECT, PET). Core concepts include:

- Interactions of photons (X-rays, gamma rays) and high-energy particles with matter
- X-ray and radioisotope production methods
- Types of radioactivity and attenuation in tissues and detectors
- Specialized X-ray imaging techniques
- Photon-counting imaging techniques (nuclear imaging detectors, gamma radiation) The course includes a laboratory exercise on gamma-photon spectroscopy with a NaI:Tl detector and individual assignments/presentations on contemporary and hybrid imaging methods.

Learning Outcomes:

Upon completion, students will:

1. Understand fundamental interaction mechanisms of photons and high-energy particles with matter.
2. Gain a comprehensive view of medical imaging systems using ionizing radiation.

3. Describe and distinguish the subsystems (block diagrams) of a complete imaging system.
4. Understand principles of operation to compare and evaluate different medical imaging modalities.
5. Develop research skills through literature review/presentations and hands-on gamma spectroscopy with a NaI:Tl detector, including collaborative activities.

BMET202 – Biomedical Instrumentation

Course Content:

Focus on the core architecture of selected biomedical systems, with emphasis on biopotential and biosignal acquisition. Topics: sensors, pre-amplification, amplification, analog conditioning and signal processing, A/D conversion, and digital signal handling via microcontrollers/microprocessors, plus user-interface techniques. Students design a complete digital biosignal acquisition system (e.g., temperature, pressure, heart rate), implement it in the lab, collect measurements, and analyze results. Introductory principles of neuromechanics and implant technology are also covered.

Learning Outcomes:

1. Develop advanced knowledge in biomedical instrumentation, neuromechanics, and implant technology.
2. Design and critically analyze complete biomedical systems, assessing performance and proposing improvements.
3. Solve complex technical problems and optimize biosignal acquisition systems in varied environments.
4. Design and implement digital systems with microcontrollers/microprocessors, ensuring functionality, safety, and performance.
5. Program, test, and optimize software for end-to-end biosignal management.
6. Work autonomously and collaboratively in multidisciplinary settings, contributing to process and know-how improvements.

BMET203 – Biomedical Engineering and Career Opportunities II

Course Content:

Industry experts deliver specialized seminars focused on real working conditions, career prospects, and challenges for biomedical engineers, with particular emphasis on strategies to found and grow a startup from scratch.

Learning Outcomes:

1. Attain in-depth understanding of roles and applications of biomedical engineering in the job market, evaluating career paths and prospects.
2. Analyze the field's interdisciplinarity and its convergence with medicine and technology, assessing contributions to innovative projects and ventures.
3. Critically evaluate current trends, challenges, and strategies, proposing evidence-based actions for new entrepreneurial initiatives in biomedical engineering.

BMET204 – Emergency Medicine

Course Content:

Covers the principles of emergency medicine, patient transport modes, and the medical devices used in prehospital and emergency care. Emphasis on rigorous quality/safety standards and certifications governing such equipment. Students study the strictest operational frameworks for medical devices used in emergency settings.

Learning Outcomes:

1. Achieve a comprehensive understanding of emergency medicine and its supporting medical technology, distinguishing equipment for vital support, patient transport, and extrication.
2. Differentiate among equipment categories for vital support, transport, and extrication.
3. Understand European quality and performance standards for emergency medicine, staff/patient safety, and medical devices.
4. Describe transport and evacuation means (vital support, transfer, extrication) used in emergency medicine.
5. Understand key aspects of medical evacuation (MEDEVAC) under extreme conditions, including available extrication/stabilization means and supporting devices.

BMET205 – Control Systems and Human–Machine Interaction in Biomedical Engineering

Course Content:

Provides advanced knowledge and skills in control systems and HMI for healthcare. Focus on mathematical modeling of biophysical systems, analysis and design of control systems for physiological regulation, and hands-on implementation using tools such as Arduino. Examines Human–Machine Interaction design principles, innovations (telemedicine, AI), and ethical/regulatory issues, fostering leadership in designing and evaluating health technologies.

Learning Outcomes:

1. Deeply analyze and evaluate fundamentals of control systems and HMI in biomedical engineering.
2. Independently design mathematical models of biological processes and develop functional digital control systems (e.g., Arduino).
3. Design and assess health interfaces grounded in usability, accessibility, and user experience.
4. Apply evaluation methodologies and performance metrics, analyze data, and draw evidence-based conclusions.
5. Communicate technical concepts and design decisions clearly via reports, presentations, and prototypes to varied audiences.
6. Manage complex HMI/control projects, improving processes, disseminating knowledge, and driving innovation.

BMET206 – Bioinformatics

Course Content:

Equips students with specialized knowledge to analyze, design, and apply computational methods in biology and medicine. Applications span genomic data analysis, protein structure representation/analysis, systems biology, drug development, and other areas. Emphasis on advanced computational methods for processing, analyzing, and interpreting biological data, and on developing new methods/tools for big-data challenges.

Learning Outcomes:

1. Master core bioinformatics concepts for basic and translational research problems.
2. Develop foundational programming skills in R.
3. Understand and execute large-omics data analysis at a professional level, selecting appropriate tool parameters.

4. Build specialized problem-solving skills in computational biology for academia, research centers, and bio/pharma industries.
5. Develop knowledge-discovery capabilities across large omics databases.

BMET207 – Medical Signal and Image Processing

Course Content:

Studies methodologies for generating, acquiring, and processing medical signals (e.g., ECG, EMG, EEG) and images (e.g., MRI, CT, Ultrasound, Digital Angiography, Mammography, Nuclear Medicine, Microscopy). Covers data formation and storage, visualization, and processing methods. Algorithms are developed theoretically and implemented programmatically. Students design and implement software systems for acquisition, storage, processing, and analysis using modern libraries.

Learning Outcomes:

1. Understand theory and implementation technologies for acquisition, visualization, processing, and analysis of medical signals and images.
2. Comprehend methods used in modern computational systems for medical imaging and instrumentation.
3. Distinguish and select appropriate processing/analysis methods for different medical systems.
4. Implement DSP and image-processing algorithms in code and build complete software systems using modern technologies.

BMET208 – Biomechanics

Course Content:

Introduces the fundamentals of biomechanics and their application to analyzing, assessing, and improving human movement, performance, and rehabilitation. Emphasis on mechanical analysis of the musculoskeletal system, forces and motions of the human body, and the use of prosthetic, orthotic, and robotic systems to support or enhance function.

Learning Outcomes:

Upon successful completion, students will be able to:

1. Demonstrate deep understanding of core biomechanics principles and key definitions/concepts.
2. Describe and distinguish types and applications of prosthetic, orthotic, and robotic systems for upper and lower limbs.

3. Analyze mechanical forces and motions in the musculoskeletal system and evaluate human performance using quantitative and qualitative methods.
4. Understand basic robotics principles and human–assistive system interfaces.
5. Apply ergonomics and kinesiology to assess or improve human function.
6. Recognize modern rehabilitation technologies and methods, including computational simulations and models.

BMET209 – Continuum Mechanics of Biological and Physiological Systems

Course Content:

Studies motion and deformation of materials under the continuum hypothesis in biological/physiological systems. Covers fundamentals of solid and fluid mechanics. Introduces stress/strain in solids and analyzes tissue mechanical response under loads. In cardiovascular mechanics, examines vessel wall structure (healthy/pathological), mechanical behavior, and remodeling. In fluids, introduces viscous stresses and strain rate; formulates integral and differential conservation equations (mass, momentum, energy) for flow analysis. Classifies biological fluids as Newtonian/non-Newtonian and delves into hemodynamics (physiological/pathological flow and vascular models). Extends to the respiratory system (airflow, lung compliance, alveolar deformation, gas exchange across membranes). Emphasizes numerical methods for solving and parametrically analyzing models to design biomedical systems with optimal performance.

Learning Outcomes:

Students will be able to explain stress–strain relationships governing tissue mechanics; analyze tissue responses to applied loads and relate structural remodeling to function; classify biological fluids by rheology; apply conservation equations to flow problems in physiology; and formulate/evaluate models of biological solids/fluids with emphasis on cardiovascular and respiratory mechanics.

3RD SEMESTER

BMET301 – Diploma thesis

The Diploma Thesis thesis demonstrates the student's ability to analyze, synthesize, evaluate, and argue rigorously (and, where appropriate, to collect data), to apply these skills to the investigation of a specific topic, and to contribute to scholarly dialogue and the research process.

Specific Objectives:

- Select, analyze, and articulate a clear research problem.
- Design an appropriate research plan.
- Conduct a critical review of the relevant literature and situate the work within ongoing scholarly debates.
- Identify broader research questions connected to the chosen topic.
- Develop and structure a coherent argument leading to new theoretical questions or insights that advance the field.
- Discuss and evaluate results/conclusions.
- Contribute to scientific dialogue through original findings.

Details of Curriculum Implementation

A selection of the above elective courses will be available for teaching each academic year. The exact list of electives offered in a given academic year will be announced together with the annual call for applications on the official MSc program website, ensuring in all cases that the curriculum provides at least 30 ECTS credits per semester.

If an elective course is chosen by fewer than thirty percent (30%) of the enrolled students, the S.C. will decide whether or not to offer the course, while guaranteeing in all cases that the curriculum provides at least 30 ECTS credits per semester.

Compulsory courses include no fewer than thirty-nine (39) teaching hours.

The official language of instruction of the MSc program is English.

Exceptionally, in cases where all students in a specific educational activity are Greek-speaking, Greek may be used complementarily by Greek-speaking teaching staff for clarification or reinforcement of understanding during the teaching process, without undermining the English-language character of the MSc program. In addition, Greek may be used for procedural matters, such as issuing certificates and administrative communication with Greek-speaking students.

Article 8

Master's Diploma Thesis

The postgraduate student is required to prepare and successfully defend their Master's Diploma Thesis (M.D.T.) in the 3rd semester or a later semester (including spring semesters),

provided the conditions below are met. If an approved extension is granted, the preparation and defense may take place within the semester specified in the relevant extension decision.
A student has the right to apply to undertake the Master's Diploma Thesis once they have successfully completed at least 80% of the courses in the curriculum. The thesis topic must fall within the scope of the MSc program.
Specific matters regarding the preparation of the Master's Thesis are defined in the Master's Thesis Guide of the MSc program, which may indicatively include:

1. the educational purpose of the M.D.T.;
2. the stages for submitting the M. D.T.;
3. the fields of research interest;
4. the stages of conducting the M. D.T.;
5. procedures for changing the M. D.T. title;
6. good practices for writing and for electronic/print reading of the M. D.T.;
7. literature search and review;
8. preparation of research papers;
9. evaluation criteria of the M. D.T.;
10. procedures for changing the supervisor, etc.

The language of the Master's Diploma Thesis is English.

Article 9

Student Evaluation – Examinations

At the beginning of each semester, the academic calendar of the MSc program is announced to postgraduate students (P.S.), as determined by decision of the D.A., following a recommendation from the S.C.
The academic calendar includes:

- the start and end dates of semesters,
- public holidays, and
- examination periods.

The re-examination period for each academic year is organized during September.
The evaluation of P.S. and their performance in the courses they are required to attend within the framework of the MSc program is carried out through written or oral examinations or

through the preparation of assignments throughout the semester. The method of evaluation is described in the course syllabus.

Performance in each course is assessed by the course instructor(s) and graded according to the grading scale applicable to undergraduate students. Specifically, grades range from zero (0) to ten (10)**.** Passing grades are five (5) and above**.**

In cases of force majeure or emergency situations, electronic means may be used for course evaluation, provided the integrity of the evaluation process is safeguarded.

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

P.S. retain the right to improve their grade in a course in which they have already been successfully examined, by submitting a request to the Secretariat of the MSc program. In such cases, students are re-examined during the regular examination periods of the course and not exceptionally.

Applications must be submitted within the deadlines set by the S.C. Students may improve their grade in up to one (1) course per academic semester during their studies, and only once per course. Between the grade of the original examination and the re-examination, the higher grade is retained.

If a student fails a course more than three (3) times, they may request, by 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 UniWA, with expertise in the subject area of the course. The course instructor cannot participate in this committee.

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 Head of the Department**.**

Article 10

Rights and Obligations of Postgraduate Students – Dismissal

Rights of Postgraduate Students

Postgraduate students (P.S.) have all the rights and benefits provided to undergraduate students, except the right to free textbooks.

P.S. may use the existing infrastructure of UniWA, which includes properly equipped teaching rooms with modern teaching tools and computers, the library, and the Department's facilities.
P.S. who do not have other medical and hospital care are entitled to medical and hospital care according to the current Greek legislation provisions**.**
P.S. are entitled to free meals based on their individual and family financial status and place of residence.
P.S. may seek external funding for their studies from various institutions or public/private sector bodies and research institutes.
P.S. may also be financially supported through funded research projects in which they participate. Relevant details are determined by decision of the S.C., following a proposal by the Director of the MSc program.
P.S. may participate in student exchange programs (e.g., ERASMUS) of the University or in other research programs of foreign universities, within the framework of international agreements of the Department with equivalent institutions, enrolling as guest students.
UniWA is obliged to ensure accessibility to teaching materials and instruction for students with disabilities and/or special needs.
P.S. are required to renew their enrollment at the beginning of each semester within deadlines set by the competent bodies.

Obligations of Postgraduate Students

- To attend all courses of the official curriculum regularly.
- To submit required assignments within the prescribed deadlines.
- To attend the scheduled examinations.
- To declare responsibly that their thesis is not a product of plagiarism, either wholly or in part.
- To pay the prescribed tuition fees as defined in the Internal Regulation of the MSc program.
- To respect and comply with the Regulation of Postgraduate Studies, the decisions of the MSc program bodies, the Department, and UniWA, as well as academic ethics.

P.S. are expected to participate in and attend seminars, discussions, conferences/workshops**,** and other scientific events related to the subject area of the MSc

program They may also undertake auxiliary teaching duties in undergraduate programs, by decision of the competent MSc program body.
P.S. are required to obtain an academic ID card through the Electronic Service for the Issuance of Academic Identity of the Ministry of Education.

Dismissal of P.S.

The dismissal of a student is decided following a recommendation of the S.C. to the D.A., which issues the final decision. The decision is communicated within 15 days to the student, who has the right to submit an appeal within 15 days from the date of notification. Appeals are judged definitively by the above bodies.
The D.A., upon the recommendation of the S.C., may decide to dismiss a student for the following reasons:
a. Failure to fulfill obligations, as described in this regulation.
b. Non-payment of tuition fees (in any case, a student who has not met their financial obligations is not entitled to a certificate of completion of studies or a Master's Degree).
c. Disciplinary offenses, such as violations of academic ethics or any breach of current legislation and UniWA's Internal Regulation.
d. Voluntary withdrawal upon the student's request.
e. Repeated failure in the examination of a course or courses, as defined in this regulation.
f. Failure to renew enrollment or attend classes for two (2) consecutive semesters.
g. Plagiarism or violations of intellectual property law (Law 2121/1993).
h. In exceptional cases not explicitly foreseen in this Regulation, if serious and documented reasons exist, following a reasoned recommendation by the S.C. and a decision of the D.A.
In cases of permanent discontinuation of studies or dismissal for any reason, tuition fees already paid are non-refundable**.**

Article 11

Tuition Fees

The tuition fees are set at **two thousand (2,000€) euros**.

They are paid in **three (3) installments**:

- One (1) installment of **one thousand (1,000€) euros** for reservation of a place and enrollment in the program,
- Two (2) subsequent equal installments of **five hundred (500€) euros** each.

Tuition fees may differ between foreign students from EU member states and foreign students from third countries (Law 5094/2024). The Steering Committee (S.C.) of the MSc program will make an annual decision on this matter, which will be specified in the Call for Applications for the respective academic year of admission.

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

Postgraduate students must have settled all financial obligations before the issuance of a certificate of completion of studies and the award of the Master's Degree.

In Postgraduate Programs with tuition fees, there is the possibility of exemption from fees in accordance with current legislation.

Article 12

Scholarships

The MSc program may award scholarships (with or without service obligations) or excellence awards to full-time P.S., in accordance with a decision of the Department Assembly.

Scholarships are granted on the basis of objective academic, financial, and social criteria**,** which may indicatively include the following:

1. Academic**:**

   a) Attendance.

   b) Grade point average of the previous semester.

   c) Undergraduate degree grade with which the student was admitted to the MSc program.

   d) Recent academic achievements (awards and honors).

2. Financial**:**

   Enrolled students of the MSc program may attend the program **free of tuition fees**, provided that tuition is required, if they meet the financial or social criteria in accordance with Article 86 of Law 4957/2022 and Ministerial Decision No. 108990/Z1/8-9-2022 (B' 4899/2022).

3. Social**:**

   a) Divorced student with dependents (children).

   b) Candidate with a disability.

   c) Single-parent family.

   d) Orphan of both parents, under the age of 25.

   e) Child of a large family.

   f) Siblings enrolled in the same family.

Procedure:

Following a recommendation by the S.C. of the MSc program, a call for scholarship applications is announced. Candidates must complete all required fields in the application form, attach the necessary supporting documents, and submit them to the Secretariat of the MSc program within the deadlines set in the call.

The application serves as a Solemn Declaration under Law 1599/1986.

The competent body evaluates and ranks the applications based on the criteria of the call and submits the list of proposed candidates to the Department Assembly.

Scholarships are not granted in cases where the student is already receiving a scholarship from another source, or to students admitted to the MSc program without an obligation to pay tuition fees.

Article 13

Master's Diploma Degree (M.D.D.)

The **Master's Diploma Degree (M.D.D.)** is an official public document. Its format is determined by decision of the University Senate and is signed by the Rector, the Chair of the Department, the Director of the MSc program, and the Department Secretary (or their legal deputies) and bears the official seal of UniWA.

Graduates of the MSc program may be issued, prior to the award of the degree, a certificate of successful completion of the program along with a detailed transcript.

Attached to the Master's Diploma Degree is the Diploma Supplement, which is an explanatory document and does not substitute the official degree or the transcript of records. The Diploma Supplement, which accompanies the M.D.D., provides information regarding the nature, level,

general framework of education, content, and status of the studies successfully completed by the named graduate.

The Diploma Supplement does not include evaluative judgments, equivalence statements, or suggestions for recognition of the M.D.D. abroad. It is issued automatically, free of charge, in both Greek and English, and must meet the authenticity requirements applicable to the awarded degree. The issue date of the Supplement does not necessarily coincide with the award date of the M.D.D., but it can never precede it.

The final grade of the M.D.D. is calculated based on the evaluation grades of the courses and the Master's Diploma Thesis.

Specifically, in each semester, the student receives a grade for every course examined; upon successful evaluation, they are credited the corresponding ECTS credits. The final grade of the M.D.D. is calculated from the following components:

a) the course grades,

b) the grade of the Master's Diploma Thesis.

The final grade of the Master's Diploma Degree is expressed to two decimal places and is calculated according to the formula:

B = (B1 × C1 + B2 × C2 + … + Bn × Cn) / (C1 + C2 + … + Cn)

where **B1, B2, …, Bn** are the grades of all courses successfully completed, and **C1, C2, …, Cn** are the corresponding ECTS credits.

Passing grades **are** five (5) and above**.**

The grading scale for evaluating student performance is as follows:

- **Excellent:** 8.50 – 10.00
- **Very Good:** 6.50 – 8.49
- **Good:** 5.00 – 6.49
- **Fail:** 0.00 – 4.99

Article 14

Teaching Staff

The teaching duties of the Postgraduate Programs are assigned, by decision of the competent body of the MSc program, to the following categories of instructors:

a) Faculty Members (ΔΕΠ), Special Educational Staff (ΕΕΠ), Laboratory Teaching Staff (ΕΔΙΠ), and Special Technical Laboratory Staff (ΕΤΕΠ) of the Department or of other Departments of the same or another Higher Education Institution (H.E.I.) or Higher Military Educational Institution, with additional employment beyond their statutory obligations, provided that the MSc program has tuition fees.

b) Emeritus Professors or retired ΔΕΠ members of the of the Department or of other Departments of the same or another H.E.I.

c) Collaborating professors.

d) Appointed instructors.

e) Visiting professors or visiting researchers.

f) Researchers and specialized scientific staff of research and technological bodies as per Article 13A of Law 4310/2014 (A' 258) or other research centers and institutes in Greece or abroad.

g) Scientists of recognized standing, possessing specialized knowledge and relevant experience in the subject area of the MSc program

The assignment of teaching duties in the MSc program is made by decision of the D.A., following the recommendation of the S.C. of the MSc program.

By decision of the D.A., supplementary teaching tasks may also be assigned to doctoral candidates of the Department or School, in areas related to the supplementary teaching of the MSc program, under the supervision of a MSc program instructor, following the proposal of the S.C.

The right to supervise Master's Diploma theses is held by instructors falling under categories (a) to (f) above, provided they hold a doctoral degree. By decision of the competent body of the MSc program, supervision of theses may also be assigned to members of ΔΕΠ, ΕΕΠ, and ΕΔΙΠ of the Department who have not undertaken teaching duties in the MSc program.

All categories of instructors may be remunerated exclusively from the resources of the MSc program. Payment or other benefits from the state budget or the public investment program are not permitted. The remuneration of each instructor is determined by the decision of the competent body of the MSc program assigning the teaching duties. Specifically, members of

the ΔΕΠ may receive additional compensation for their work in the MSc program, provided they fulfill the minimum statutory obligations defined in Article 155, paragraph 2 of Law 4957/2022. This provision applies analogously to members of ΕΕΠ, ΕΔΙΠ, and ΕΤΕΠ, provided they also fulfill their minimum statutory obligations.

The obligations of instructors include, among others: defining and describing the course, providing related bibliography, determining the method of assessment, and maintaining communication with postgraduate students.

The MSc program, by decision of the Department Assembly, may also establish the role of the Academic Advisor.

The purpose of this role is to provide personalized academic guidance to postgraduate students during their studies. The expected outcome is to facilitate students in completing their studies while making the best use of their particular skills and interests within the educational and research process. The Academic Advisor determines the method of approach and counseling for the postgraduate students assigned to them each academic year.

Article 15

Supplementary Teaching Work of Postgraduate Students

By decision of the D.A. of the MSc program, it is possible to approve the participation of postgraduate students, doctoral candidates, and postdoctoral researchers in the provision of supplementary teaching work in undergraduate or postgraduate programs.

The UniWA may grant compensatory scholarships to postgraduate students, with the obligation to support the educational process and provide supplementary teaching work.

Supplementary teaching work includes:

- assisting members of the Teaching and Research Faculty in carrying out their teaching duties,
- training students,
- conducting tutorials,
- supervising laboratory exercises,
- overseeing examinations, and
- correcting assignments.

Article 16

Funding – Financial Management of the MSc Program

1. The resources and funding of the MSc Program may come from:
   a) tuition fees,
   b) donations, sponsorships, and all types of financial contributions,
   c) bequests,
   d) resources from research projects or programs,
   e) the University of West Attica's own resources, and
   f) the state budget or the Public Investment Program.
2. Payment of tuition fees is made by the student or by another natural or legal person on behalf of the student.
3. The management of the MSc program resources is carried out by the Special Account for Research Funds (ΕΛΚΕ) of the UniWA.
4. 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 ΕΛΚΕ. This amount includes the withholding percentage in favor of ΕΛΚΕ. for the financial management of the MSc program. By decision of the Governing Council, taken by the end of March each year, it is decided whether the remaining amount—after deducting the withholding in favor of ΕΛΚΕ—is transferred to the regular budget or allocated to the creation of projects/programs through ΕΛΚΕ. for the purpose of covering, as a priority, the needs of MSc program that operate without tuition fees, as well as covering research, educational, and operational needs of the University of West Attica. For the revenues of the MSc program referred to in items (b) to (d) of paragraph 1, the withholding in favor of ΕΛΚΕ is applied, as is the case for revenues from corresponding sources of funding.
   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 admitted students, is as follows:

INCOME:

- Tuition fees: 30 students x €2000 = €60,000
- Tuition fee exemption at 30%: 9 students x €2000 = €18,000
- **Total:** €42,000

EXPENDITURE:

- Equipment and software expenses: €2,500
- Scholarships for postgraduate students: €2,400
- Consumables: €2,000
- Travel expenses for MSc program faculty: €2,000
- Travel expenses for MSc program students for educational purposes: €1,000
- Teaching fees for permanent staff of universities and research centers/institutes participating in the organization of the MSc program: €0
- Teaching fees for other teaching staff: €8,000
- Administrative and technical support fees: €3,500
- Other expenses, such as publicity/promotion, purchase of educational materials, organization of conferences: €8,000
- Institutional operating costs (30%): €12,600
- **Total:** €42,000

Article 17

Plagiarism

The postgraduate student (P.S.) is required to properly acknowledge if they have used the work and views of others.

In addition, students who have used Artificial Intelligence (AI) services and assistance for the preparation of assignments within the MSc program or for their Master's Thesis must include in the preface of their text a "Declaration on the use of generative Artificial Intelligence and AI-assisted technologies during the writing process", specifying which tool was used and for what purpose.

Plagiarism is considered a serious academic disciplinary offense. Plagiarism includes copying another person's work, as well as using someone else's work—published or unpublished—without proper citation. Copying any supporting material, even from the candidate's own previous studies, without relevant reference, may justify a decision by the Department Assembly for their expulsion.

In such cases, the Department Assembly may decide on the student's expulsion, after first giving them the opportunity to present their views on the matter, either orally or in writing.

Any misconduct or violation of academic integrity is referred to the Department Assembly for resolution. Violations include acts of cheating or plagiarism, and more broadly, any infringement of intellectual property rights by postgraduate students when preparing assignments in the context of courses or when carrying out their Master's Thesis.

Article 18

Award of Diplomas – Graduation Ceremony

A postgraduate student (P.S.) who has successfully completed their postgraduate studies is required to take the oath in a public graduation ceremony before the Rector, or the Vice-Rector as the Rector's representative, and the Chair of the Department. The ceremony takes place after the end of each examination period, on a date and time set by the Rector in cooperation with the Department Chairs.

The oath is not a constitutive element of the successful completion of studies, but it is a necessary condition for the conferment of the Master's Degree**.**

For reasons of force majeure (e.g., health reasons, residence or employment abroad, military obligations) and upon written request to the Department Secretariat, a graduate may request:

- to be awarded the degree without participating in the graduation ceremony, or
- to participate in a later graduation ceremony.

Exemption from the obligation to attend the graduation ceremony is approved by the Chair of the Department. Before the graduation ceremony or exemption from it, graduates may be issued a relevant certificate attesting to the successful completion of their studies.

A Master's Degree that has been conferred may be revoked or annulled if it is proven that the legal and institutional requirements for its award were not met at the time of its acquisition. Revocation or annulment is decided by the relevant Department Assembly and communicated to the Rector of the University.

Article 19

Website of the MSc Program

The website of the MSc program *"Biomedical Engineering and Technology"* is available at: https://bmet.uniwa.gr/.

The website is regularly updated and provides information such as:

- the structure of the program (regulation of operation, study guide, semester courses and credit units, mobility opportunities through the Erasmus+ program, etc.),
- the teaching staff,
- international collaborations,
- the procedure for submitting applications for admission to the program,
- the admission and application evaluation criteria,
- daily academic matters (organization of courses, academic calendar, timetable, websites for uploading teaching material, study guide, etc.), and
- contact details of instructors and the Secretariat.

The MSc program website is available in both Greek and English**.**

Article 20

Evaluation of the MSc program

At the end of each semester, every course and every instructor is evaluated by the postgraduate students (P.S.). The evaluation is conducted through a special form or electronic questionnaire completed by the students.

The courses are evaluated in terms of:

- their content,
- the teaching method,
- the educational material, and
- the degree to which they align with the principles and philosophy of the postgraduate program.

The instructors are evaluated on several levels, which may indicatively include:

- their knowledge and ability to convey it to the students,
- their preparation,
- their use of up-to-date literature,

- their willingness to answer questions,
- the timely grading and return of assignments and written exams, and
- their adherence to the teaching schedule of the course.

The annual internal evaluation of the MSc program is carried out in collaboration with the Quality Assurance Unit (ΜΟΔΙΠ) of the University of West Attica, within the framework of the internal evaluation of the Department/School to which it belongs, and in accordance with the procedures of the University's Internal Quality Assurance System.

The external evaluation of MSc program programs is conducted in cooperation with ΜΟΔΙΠ, within the framework of their certification according to the procedure established by the Hellenic Authority for Higher Education (HAHE).

The MSc program, administratively supported by the relevant Department, is evaluated within the framework of the periodic evaluation/certification of the academic unit by the HAHE. This evaluation covers:

- the overall assessment of the program's activities,
- the degree to which the objectives set at its establishment have been achieved,
- its sustainability,
- the employability of its graduates,
- its contribution to research,
- the internal evaluation by the postgraduate students,
- the justification for extending its operation,
- as well as other elements relating to the quality of its output and its contribution to the national strategy for higher education.

If, during its evaluation as described above, the MSc program is deemed not to meet the conditions for its continuation, its operation is concluded with the graduation of the already enrolled students, in accordance with the founding decision and the regulations of postgraduate and doctoral study programs.

Article 21

Special Collaboration Protocols

The MSc program may sign Special Collaboration Protocols with Higher Education Institutions (HEIs), research centers, and public or private organizations active in the field of Biomedical Engineering, either in Greece or abroad. These protocols are established within the

framework of educational and research activities that contribute to the implementation and enhancement of the quality of the study program.

The Special Collaboration Protocol will define:

- the details of the educational and research cooperation,
- the obligations and rights of the collaborating entities,
- the opportunities for mobility of teaching staff or postgraduate students among the institutions,
- the possibility of establishing internship positions for postgraduate students,
- the joint use of infrastructure and resources, and
- the modalities of implementing the collaboration, etc.

Article 22

Organization of the Educational Process with Distance Learning Methods

The MSc program utilizes modern technological tools for the organization and implementation of its educational process, applying distance learning methods either entirely or in a blended format (combining online and face-to-face courses). The percentage of teaching delivered through synchronous distance education may reach up to **80% of the program's total ECTS credits**.

The use of distance learning methods in the MSc program is allowed exclusively for courses and activities deemed pedagogically appropriate and not involving compulsory in-person practical or laboratory training, field visits, or seminars requiring physical presence. Exceptionally, laboratory courses may be taught remotely provided they are specifically designed for digital/distance delivery (e.g., with the use of specialized software or simulations).

The delivery of courses through distance learning methodology is carried out using synchronous and asynchronous tools (such as MS Teams and Open eClass), in accordance with the decisions of the Department Assembly, the present regulation, the general framework for distance education of UniWA, and the applicable legislation.

In cases of extraordinary circumstances (e.g., illness of teaching staff or inability to access facilities), the timetable may be temporarily modified, and appropriate courses may be delivered remotely, provided the above pedagogical and technical conditions are met and with the approval of the Department Assembly.

Suitability of the Field of Study for Distance Learning

The field of Biomedical Engineering**,** due to its interdisciplinary nature that combines engineering, informatics, and biomedical sciences, is well-suited for distance learning, offering flexibility and accessibility to postgraduate students without compromising educational quality, in line with international practice.

Biomedical engineering integrates theoretical, computational, and technological components. Key areas of the field, such as biomedical imaging, signal/image processing, machine learning and artificial intelligence, biomedical systems, and biomedical instrumentation, allow for the use of advanced digital teaching tools and the creation of simulations, remote assignments, and data analyses. Thus, the focus on theoretical grounding and systems analysis, combined with remote access to software and educational material, makes the subject particularly appropriate for distance learning.

Pedagogical Framework

Distance teaching in the MSc program is not treated as a technological substitute for in-person instruction but as a pedagogically designed process. It is based on:

- the active participation of students,
- two-way communication (student–instructor and student–student),
- structuring courses into thematic units with clear learning outcomes and study guidelines,
- integrating diverse educational material (lectures, articles, educational videos, simulations, etc.),
- providing feedback and support in individual and group activities.

Teaching Methods

Teaching may be conducted through:

- **Synchronous distance learning**, via MS Teams,
- **Asynchronous distance learning**, via Open eClass and Moodle,
- **Blended format**, with appropriate distribution between remote and in-person sessions.

All teaching methods integrate interactive methodologies and techniques that foster active student participation.

Digital Infrastructure and Materials

The educational process is supported by:

- multiple forms of digital material (presentations, notes, multimedia, assignments),
- modern technological infrastructure of the Department and UniWA for synchronous and asynchronous learning,
- continuous technical support and upgrading of information systems,
- enhancement of digital skills and training of teaching staff.

Digital Skills of Teaching Staff

Since the teaching staff are scientists in fields related to biomedical engineering and engineering sciences, it is assumed that they possess both the required expertise and the necessary experience for the successful implementation of distance learning activities.

Examinations

All final examinations are conducted, as a rule, in person, regardless of the form of teaching. Exceptionally, examinations may be conducted remotely, provided this is explicitly stated in the course's assessment methods and is consistent with the provisions of the MSc program Examination Regulations.

Regulatory Framework

This Regulation on Distance Learning for the MSc Program *"Biomedical Engineering and Technology"* follows the provisions of the Regulation on the Organization of the Educational Process of Postgraduate Programs with Distance Learning Methods of the University of West Attica (Government Gazette B' 786/24.02.2025)**,** as well as the applicable legislation.

Article 23

Other Provisions

Any matters not regulated by the applicable legislation, by the present regulation, or by the Regulation of Postgraduate Studies of the UniWA, shall be governed by decisions of the competent bodies of the Postgraduate Programs.