



HELLENIC REPUBLIC
UNIVERSITY OF WEST ATTICA
SCHOOL OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

Courses offered in English for ERASMUS+ students

Academic Year 2025-2026

Spring/Summer Semester

Table of Contents

LIST OF COURSES OFFERED IN ENGLISH – SUMMARY 3

STUDY PROGRAM: BIOMEDICAL ENGINEERING 4

CONTACT 6

LIST OF COURSES OFFERED IN ENGLISH – SUMMARY

	STUDY PROGRAM	CODE	COURSE TITLE	ECTS
SPRING/SUMMER SEMESTER 2024-2025				
1	Biomedical Engineering	NMB.605	DESIGN AND CONSTRUCTION OF BIOMEDICAL DEVICES	4
2	Biomedical Engineering	NMB.807	IMAGE FORMATION SCIENCE	4
3	Biomedical Engineering	NMB.808	PHYSICAL PRINCIPLES OF NEUROSCIENCE	4
4	Biomedical Engineering	NMB.1001	DIPLOMA THESIS*	30

***IMPORTANT!!!** Learning agreements that list the Diploma Thesis course **will not be approved** without a pre-existing arrangement on the thesis topic with a professor of the Department. For details see page 6.

All the courses mentioned above are **available exclusively** to incoming Erasmus students from the Engineering Faculties, Schools, or Departments that have an active Erasmus agreement with the University of West Attica.

DISCLAIMER

Potential changes in the above list may occur throughout the academic year.

Before including any of the listed courses in your learning agreement, please contact the organizing professors for final confirmation. Contact information is provided on the following pages.

Study Program: Biomedical Engineering

Course Code	NMB.605
Title	DESIGN AND CONSTRUCTION OF BIOMEDICAL DEVICES
Teacher	IOANNIS VALAIS
Contact	valais@uniwa.gr
Level	Professor
Semester	6 th (spring/summer)
Course contents	<p>Theory</p> <p>Theoretical description of the basic electrical and electronic components used in medical devices.</p> <p>Production and measurement of analogue and digital signals</p> <p>Introduction to Electronics and Microcontrollers</p> <p>Architecture and Microcontroller Subsystems</p> <p>Microcontroller circuits and device connectivity</p> <p>Input-Output Devices</p> <p>Signal acquisition and processing by sensors</p> <p>Microcontroller Programming and Application Programs</p> <p>Microcontroller platforms and connectivity issues</p> <p>Laboratory</p> <p>A complete study of a specific device, containing 1) the theoretical approach to the signal that the device will detect, the electronic schematic, the technical description, the design of the electronic board to be used, and the design of the housing.</p> <p>Introduction to the use of microcontrollers in medical devices, basics and programming examples</p> <p>Simulation of device operation and programming of the embedded microcontroller.</p> <p>Construction of the device, based on the study.</p> <p>Testing, and delivering the device in full and safe mode, in its housing, supplied by its user and maintenance manual</p>
ECTS	4

Course Code	NMB.807ε
Title	IMAGE FORMATION SCIENCE
Teacher	NEKTARIOS KALYVAS
Contact	nkalyvas@uniwa.gr
Level	Professor
Semester	8 th (spring/summer)
Course contents	<p>I. Theory of linear systems and mathematical formalization of information and noise transmission in the field and spatial frequencies</p> <p>II. Implementation of the theory of information and noise transmission in Radiology, Nuclear Medicine, Magnetic Resonance Imaging and Ultrasound</p> <p>III. Human observer and subjective image perception.</p> <p>IV. Artifacts in imaging systems.</p> <p>V. Virtual reality and image creation, holography.</p>
ECTS	4

Course Code	NMB.808
Title	Physical principles of neuroscience
Teacher	AIKATERINI SKOURLIAKOU / KALAMATIANOS
Contact	kskouroul@uniwa.gr , tkalamatianos@uniwa.gr
Level	Assistant Professor
Semester	8 th (spring/summer)
Course contents	<p>Nervous system anatomy and physiology</p> <p>Electrical signalling in the nervous system</p> <p>Synaptic transmission</p> <p>Mathematical modelling</p>

	Electrodiagnostic techniques (EEG, EMG) Functional imaging (fMRI, PET, fNIRS, SPECT) Therapeutic techniques (TMS, DBS)
ECTS	4

Title	DIPLOMA THESIS
Teacher	All Professors of the department
Contact	<p>Before adding the course to the learning agreement, candidates are required to consult with the department's Professors must finalize the thesis topic. A learning agreement will not be endorsed without prior agreement on the thesis subject with a department professor.</p> <p>Contact information for the professors of the department can be found here: https://bme.uniwa.gr/profiles/faculty/.</p> <p>IMPORTANT: Learning agreements that list the Diploma Thesis course will not be approved without a pre-existing arrangement on the thesis topic with a department professor.</p>
Semester	10 th (spring/summer)
Course contents	<ul style="list-style-type: none"> • Independent development of a project in the field of biomedical engineering, including literature reviews, software programming, hardware design, and experimental work. • Presentation of the project's findings in both oral and written formats, including writing the thesis and conducting a public defense of the thesis. • <u>Regular physical presence required</u>
ECTS	30

Contact

Erasmus office:

<https://erasmus.uniwa.gr/en/erasmus-studies/contact/>

Ms. Berna Sekercioglu

e-mail: erasmus_incomingstudents@uniwa.gr

For academic inquiries:

Panagiotis Liaparinos, Professor, Departmental Erasmus+ Coordinator

e-mail: liapkin@uniwa.gr