CORSO DI LAUREA

BIOMEDICAL ENGINEERING

CLASS: L-8
DURATION: 3 YEARS
ECTS Credits: 180

SUMMARY

The Biomedical Engineering Bachelor's Degree Course is entirely taught in English and is designed to **train professionals able to function in various rapidly evolving fields in Biomedical Engineering.**
The Degree Course uses **engineering principles and technologies to describe**, understand and solve **problems in the fields of medicine and biology**. The curriculum has been developed through close collaboration between the Departmental Faculties of Engineering and Medicine and Surgery of our University.

PROFESSIONAL SKILLS

_ At the core of the course lay the fundamentals of engineering such as electronics, transport phenomena and measurements. In addition, we provide **a solid foundation** in mathematics and basic sciences whilst also providing **some basic medical knowledge**, such as Physiology and Anatomy.
_ These teachings are complemented by **specific bio-engineering skills** such as **bioengineering and biomechanics** courses, software tools for analysis of physiological data and specific training for for developing wearable devices.
_ Some of our teachings are delivered alongside Medical students to favour **disciplinary cross-contamination.**
_ Throughout the course students acquire the tools and methodologies necessary to solve **complex bio-engineering** problems.
_ In addition, there is a focus on **humanities for bioengineering** essential for understanding and developing new technologies for bio-medical applications.
_ We aim at training well-rounded professionals able to **solve problems and develop new technologies in bioengineering.**

EMPLOYMENT OPPORTUNITIES

The degree fully qualifies students to become **Junior Biomedical Engineers**. Graduates in Biomedical Engineering can work in companies that operate in the production of medical devices, equipment and systems, biomaterials, in vitro medical diagnostic devices and active implantable medical devices.
Biomedical Engineering graduates will also be able to work in healthcare facilities and/or in companies that provide global services in the testing of electromedical devices and in the management of (preventive and corrective) **maintenance of the aforementioned equipment, and in the commercial sector of electromedical device companies**. They may also be included in multifunctional teams within hospitals and healthcare facilities in collaboration with healthcare professionals.

We are committed to guiding our students
from admissions to graduation day
step by step.

STUDY PLAN

1st YEAR

INTEGRATED COURSE	ECTS
Fundamentals of Computer Science	10
Mathematics	10
Chemistry	7
General Physics - Physics Part I	7
General Physics - Physics Part II	5
Economics and Management	6
General English/Italian	1
Humanities for Bioengineering The History of Biomedical Engineering in Twelve Machines	1
Physiology	6
Anatomy	4

2nd YEAR

INTEGRATED COURSE	ECTS
Advanced Physics	6
Mathematics II	13
Probability and Statistics	6
Healthcare Information Systems and Telemedicine	6
Electrotechnics	5
Fundamentals of Electronics	6
Mechanics of Solids	6
Transport Phenomena and Termodynamics	6
Technical English/Italian	2
Humanities for Bioengineering Fundamentals of Anthropology and Ethics	3

3rd YEAR

INTEGRATED COURSE	ECTS
Biomedical Signal Processing	10
Automatic Control	9
Biomechanics Modeling and Technologies	6
Biomechanics Physiology and Anatomy Musculoskeletal System	3
Fundamentals of Bioengineering	12
Measurements and Instrumentation in Biomedical Engineering and Standards for Medical Devices	7
Philosophy of Science, Human Development, and Technology	2
To be chosen***	12
Thesis	3

*** EXAMS TO BE CHOSEN BY THE STUDENT FOR A TOTAL OF 12 ECTS

Biomechatronics and Biomaterials	6
Healthcare Robotics	6
AI and Data Mining	6
Biomedical Research and Innovation Management and Assessment	6
Laboratory fo Measurements	6

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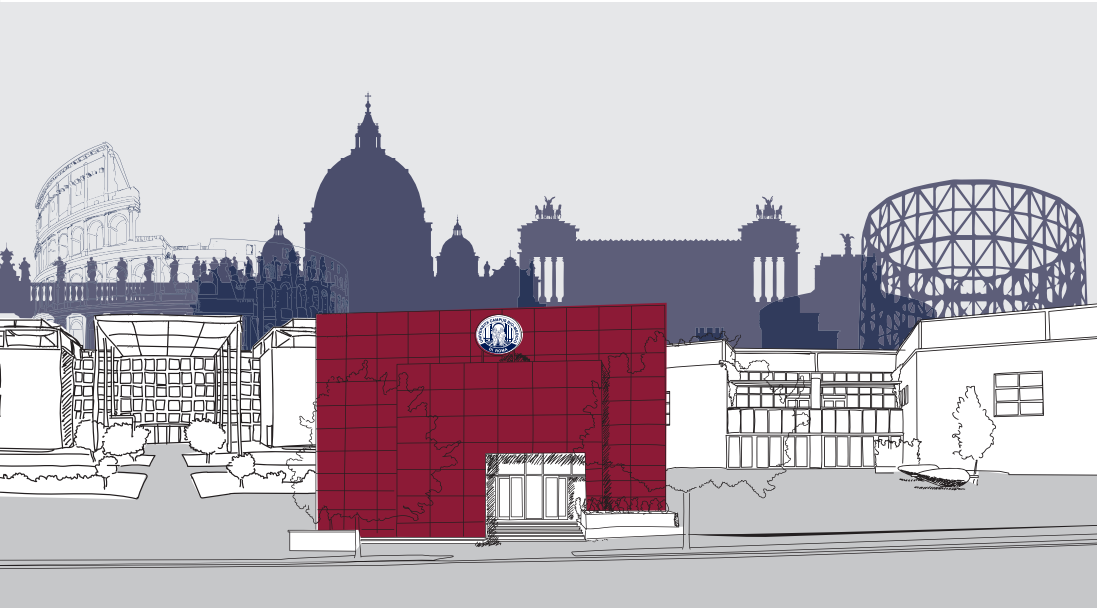
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