



Main information on teaching	
Teaching title	BIOENGINEERING: MOVEMENT ANALYSIS
Course of Study	COURSE OF STUDIES IN MEDICINE AND SURGERY
Formative credits	2 credits
Italian name	Bioingegneria : analisi del movimento
Attendance obligation	YES
Delivery language	Italian

Responsible teacher	Name surname	Email address
	SABINA ILARIA TATO'	Ilaria.tato@medicamilano.it

Details of training credits	Area	SSD	CFU/ETCS
		ENG. IND / 34	2

Delivery mode	
Disbursement period	SECOND SEMESTER
Year of study	IV
Delivery mode	FRONTAL LESSONS

Organization of teaching	
Total hours	48
Course hours	24
Hours of individual study	24

Calendar	
Start of teaching activities	February 2024
End of teaching activities	May 2024

Syllabus	
Prerequisites	High school diploma. Test of admission to Medicine. Basic knowledge of Mechanical Engineering
Expected learning outcomes	<ul style="list-style-type: none">• <i>Knowledge and understanding</i><ul style="list-style-type: none">o Understanding biomaterialso Gait dynamicso Medical devices• <i>Applied knowledge and understanding</i><ul style="list-style-type: none">o Application of biomaterialso Application of electromedical instruments• <i>Independence of judgement</i><ul style="list-style-type: none">o Autonomy on the best care and rehabilitation paths• <i>Communication skills</i><ul style="list-style-type: none">o Communication in teams between professionalso Communication with Healthcare Managemento Communication with the patient



	<ul style="list-style-type: none">• <i>Ability to learn o</i> Independent learning
Teaching contents	<p>Biomaterials:</p> <p>Organic – Inorganic</p> <p>Metals</p> <p>Ceramics</p> <p>Polymers</p> <p>Composites</p> <p>Natural</p> <p>Sterilization</p> <p>Newton's laws</p> <p>Elastic behavior</p> <p>Elastic module</p> <p>Plastic Behavior</p> <p>Viscoelastic behavior</p> <p>Biocompatibility</p> <p>Biological environment</p> <p>Phenotypes</p> <p>Sensors</p> <p>Applications of Biomaterials</p> <p>Stories of Biomechanics</p> <p>Pace Analysis</p> <p>Rating scales</p> <p>Instrumental analyses</p> <p>Optical system</p> <p>Dynamometer system</p> <p>Electromyographic techniques</p> <p>Inertial systems</p> <p>Application areas</p> <p>Walking: Stance – Swing</p> <p>Space-time parameters</p> <p>Medical devices</p> <p>Classification of medical devices</p> <p>Labeling</p> <p>UNI–EN–ISO–CE–FDA</p>

Plan	
Reference texts	<p>Biomaterials from materials sciences to clinical applications - Patron Editore</p> <p>Foot and gait pressure study – Principles and practical applications – Luca Russo Ph.D</p> <p>Medical devices and quality assurance – by Silvia Stefanelli (Author), Lia Rimondini (Author)</p>



Notes to reference texts	• PubMed – SCOPUS - WOS
Teaching methods	Face-to-face and
Evaluation methods	<p>Verification of learning takes place through an oral interview. The topics of the questions will be relevant to the topics covered during the lessons, as part of the Course.</p> <p>The evaluation of the exam will be expressed in 30/ths. Honors may be awarded at the discretion of the examination commission.</p>
Evaluation criteria	<p>The purpose of the test is to highlight the level of specific knowledge achieved by the student, evaluate the ability to orient oneself in the problems covered, evaluate the skills acquired regarding the proposal of solutions to the problems being studied.</p> <ul style="list-style-type: none">• <i>Knowledge and understanding:</i><ul style="list-style-type: none">or Unsatisfactoryor Adequateor Goodor Excellent• <i>Applied knowledge and understanding:</i> or Unsatisfactory<ul style="list-style-type: none">or Adequateor Goodor Excellent• <i>Independence of judgement:</i><ul style="list-style-type: none">or Unsatisfactoryor Adequateor Goodor Excellent• Communication skills:<ul style="list-style-type: none">or Unsatisfactoryor Adequateor Goodor Excellent• Ability to learn:<ul style="list-style-type: none">or Unsatisfactoryor Adequateor Good• Excellent
Other	none