

MASTER COURSE IN BIOENGINEERING FOR PERSONALIZED MEDICINE (LM 21) - A.A. 2025-26

A2 Curriculum Emerging and Sustainable Medical Technologies

FIRST YEAR												
FIRST SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146249	1	System physiology and integrated biological processes	BIO/09	BIOS-06/A	6	6					48	
146250	2a	Medical devices quality and safety (Mod. 1 Medical devices quality and safety)	ING-IND/34	IBIO-01/A	6	6					52	
	2b	Medical devices quality and safety (Mod. 2 Value based health care)	ING-INF/06	IBIO-01/A	3	3					24	
146251	3a	Fundamentals of materials engineering and biomechanics for healthcare applications (Mod. 1 Materials)	ING-IND/22	IMAT-01/A	6	6					48	
	3b	Fundamentals of materials engineering and biomechanics for healthcare applications (Mod. 2 Biomechanics)	ING-IND/14	IIND-03/A	6		6				48	
		SAFETY COURSES										(1)
				Tot. 1° sem	27	21	6	0	0	0		
SECOND SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146252	4a	Informatics and electronics for healthcare 4.0 (Mod. 1 Cloud computing and Distributed systems)	ING-INF/05	IINF-05/A	6		6				48	
	4b	Informatics and electronics for healthcare 4.0 (Mod. 2. Embedded electronics and sensors)	ING-INF/01	IINF-01/A	6	6					52	
146253	5a	Complements of bioengineering (Mod. 1 - Design and manufacturing of biomedical products)	ING-IND/34	IBIO-01/A	6	6					52	
	5b	Complements of bioengineering (Mod. 2 - Data engineering for biomedical sciences)	ING-INF/06	IBIO-01/A	6	6					52	
146254	6	Engineered materials for precision medicine	ING-IND/34	IBIO-01/A	6	6					54	
		Other activities			3					3		(2)(3)
				Tot. 2° sem	33	24	6	0	0	3		
				Tot. 1st year	60	45	12	0	0	3		

PROFESSOR
Piccoli Giovanni
Bucciarelli Alessio
Nollo Giandomenico
Pegoretti Alessandro
Fontanari Vigilio

PROFESSOR
DA DEFINIRE
Brunelli Davide
Tirella Annalisa
Rovati Luigi
Maniglio Devid

SECOND YEAR												
FIRST SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146258	7	Diagnostic and therapeutic technologies for personalized medicine	ING-IND/34	IBIO-01/A	6	6					52	
146256	8	Technologies and innovation in health: food and medical grade products	ING-IND/34	IBIO-01/A	6	6					52	
146259	9	Laboratory diagnostics for precision medicine	MED/04	MEDS-02/B	6	6					48	
	12a	Elective course			6			6			48	
				Tot. 1° sem	24	18	0	6	0	0		
SECOND SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146255	10	Additive technologies for customized metallic implants	ING-IND/21	IIND-03/C	6		6				48	(4)
146257	11	Transport phenomena in living systems	ICAR/01	CEAR-01/A	6		6				52	(4)
	12b	Elective course			6			6			48	
146265		Final project			18				18			
				Tot. 2° sem	36	0	12	6	18	0		
				Tot. 2nd year	60	18	12	12	18	0		

PROFESSOR
Maniglio Devid
Tiirella Annalisa
Quattrone Alessandro

TOTAL CFU	120	63	24	12	18	3
-----------	-----	----	----	----	----	---

ELECTIVE COURSES												
FIRST SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146261	12a	Advanced signals processing and modeling of physiological systems	ING-INF/06	IBIO-01/A	6			6			52	
146262	12a	Modelling and analysis of human movement	ING-IND/13	IIND-02/A	6			6			52	
SECOND SEMESTER												
Esse3 code	N°	Courses	SSD	SSD 2024	CFU	B	C	D	E	F	Duration (hours)	Notes
146264	12b	Artificial intelligence for biomedical problems solving	ING-INF/06	IBIO-01/A	6			6			52	
146263	12b	Robotics and assistive devices in medicine	ING-INF/04	IINF-04/A	6			6			48	
146260	12b	Medical imaging laboratory	ING-INF/06	IBIO-01/A	6			6			52	

PROFESSOR
Masè Michela
Biral Francesco

PROFESSOR
Masè Michela
De Cecco Mariolino
Boscolo Galazzo Ilaria

NOTES:

(1) = All students must fulfill **safety training requirements**:

- **General safety training**
- **Specific safety training - Medium Risk**

For any further informations: <https://www.unitn.it/en/study/register/documents-and-certificates/safety-training>

(2) = The curriculum is considered complete with a total of 3CFU - type F. The credits have to be obtained during the master with the following regulation: <https://www.dii.unitn.it/en/121/other-activities-type-f-credits>.

(3) = **International students** are required to demonstrate an adequate level of competence of the Italian Language (Level A1 CEFR – 3 ECTS/CFU – type F) before starting the exam session of the second year.

(4) = Course not offered in the academic year 25/26.