



# FACOLTA' DI INGEGNERIA DI PISA

## ATTIVITA' FORMATIVE 2017-2018

### Laurea Magistrale

### Bionics Engineering

#### Sezione 1: Manifesto degli studi

Anno di corso	[SSD]	CFU		Per	Note	Lab
<b>Primo anno</b>						
Biomechanics of human motion	ING-IND/34	6		1		
Statistical Signal Processing	ING-INF/03	6		2		
Bioinspired computational methods	ING-INF/05	6	6	1 e 2	1	
Applied brain science	[MPSI/02-INF/01]	6	6	1 e 2	2	
Materials and instrumentation for bionics engineering	ING-INF/06-ING-IND/34	6	6	1 e 2	3	
A scelta dello studente		12		E		
<b>Secondo anno</b>						
Final Test		15				
Lab training		3		2		
<b>Neural Engineering (42CFU)</b>						
Social robotics and affective computing	ING-INF/06	6	6	1 e 2	4	
Neural Prosthesis	ING-INF/06-ING-IND/34	6	6	1 e 2	5	
Bionic Senses	ING-INF/06	6		2		
Integrative cerebral function	MPSI/02-ING-INF/06	6	6	1 e 2	6	
<b>Biorobotics (42 CFU)</b>						
Human and animal models in biorobotics	ING-IND/34	6		1		
Prosthetics and Rehabilitation robotics	ING-IND/34	6	6	1 e 2	7	
Robotics for Surgery and targeted therapy	ING-IND/34	6	6	1e2	8	
Robotics for Assisted Living	ING-IND/34	6	6	1 e 2	9	

Dettagli insegnamenti integrati (nota INT)				
Insegnamento Integrato o plurisetoriale	Modulo (solo se integrato)	[SSD]	CFU	Per.
1) Bioinspired computational methods	Neural and fuzzy computation	ING-INF/05	6	2
	Biological data mining	ING-INF/05	6	1
2) Applied brain science	Behavioral and cognitive Neuroscience	MPSI/02	6	1
	Computational neuroscience	INF/01	6	2
3) Materials and instrumentation for bionics engineering	Instrumentation and measurement for bionic systems	ING-INF/06	6	1
	Soft and smart materials	ING-IND/34	6	2
4) Social robotics and affective computing	Social robotics	ING-INF/06	6	1
	Affective computing	ING-INF/06	6	2
5) Neural Prosthesis	Neural interfaces and bioelectronic medicine	ING-IND/34	6	2
	Neural tissue engineering	ING-INF/06	6	1
6) Integrative cerebral function	Integrative cerebral functions	MPSI/02-ING-INF/06	6	1
	Advanced image processing	ING-INF/06	6	2
7) Prosthetics and Rehabilitation robotics	Artificial limbs	ING-IND/34	6	1
	Robotic exoskeletons.	ING-IND/34	6	2
8) Robotics for Surgery and targeted therapy	Robotics for minimally invasive therapy	ING-IND/34	6	1
	Miniaturized therapeutic and regenerative systems	ING-IND/34	6	2
9) Robotics for Assisted Living	Robot companions for assisted living	ING-IND/34	6	1
	Cloud robotics	ING-IND/34	6	2

#### Sezione 2: Dettagli attività a scelta

Insegnamenti dell'Ateneo consigliati come attività a scelta dello studente				
Insegnamento	[SSD]	CFU	Per.	Note



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Electronics for Bionics Engineering	[ING-INF/01]	6	2
Principles of bionics engineering	[ING-IND/34]	6	1
Neuromorphic engineering	[ING-IND/34]	6	1
Economic assessment of medical technologies and robotics for healthcare	[SECS-P/08]	6	2