

Laboratorio di Tecnologie Biomediche

Introduzione

Carmelo De Maria
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Course info

- Laboratorio di Tecnologie Biomediche (6 CFU)
- Part of the course Tecnologie Biomediche (12 CFU)
- Objective:
 - Learning how to prototype medical devices, following international quality standards and using advanced fabrication technologies

Course info

- Prerequisites
 - Fundamentals in Math, Statistics, Physics, Chemistry, Material Science, Mechanics, Electronics, Computer Science
 - Computer skills: use of spreadsheets, slide show preparation

Course info

- Topics:
 - Medical devices: standards, regulations and design principles
 - Fundamentals of Manufacturing Engineering and Technology
 - Fundamentals of Computer Aided Design
 - Electronic and electromechanical rapid prototyping
 - Case studies

Course info

Scuola di Ingegneria - a.a.2016/2017 - ORARIO delle Lezioni II periodo (01/03-30/05) agg. 15/02/2017- pagina 13/80

1M Biomedica						
	Lu	Ma	Me	Gi	Ve	Sa
8:30/9:30	Modelliz. biofis. dei sist. compl. B25	Strumen.di anal.elettromag.in amb.biomed. PN8	Analisi mod. segn. biomed. II SI 3	Radiazioni ionizzanti e interaz. biol. B32		
9:30/10:30	Modelliz. biofis. dei sist. compl. B25	Strumen.di anal.elettromag.in amb.biomed. PN8	Analisi mod. segn. biomed. II SI 3	Radiazioni ionizzanti e interaz. biol. B32		
10:30/11:30	Analisi mod. segn. biomed. II SI 5	Contr. proc. fisiologici PN8	Analisi mod. segn. biomed. II SI 3	Modelliz. biofis. dei sist. compl. B32		
11:30/12:30	Analisi mod. segn. biomed. II SI 5	Contr. proc. fisiologici PN8	Radioprotezione B22	Lab.di tecn.biomediche SI 5		
			Elettron.biomed. I F01			
12:30/13:30			Radioprotezione B22	Lab.di tecn.biomediche SI 5		
			Elettron.biomed. I F01			
13:30/14:30	Contr. proc. fisiologici PN8	Lab.di tecn.biomediche SI 5			Modelliz. biofis. dei sist. compl. F07	
14:30/15:30	Contr. proc. fisiologici PN8	Lab.di tecn.biomediche SI 5	Radiazioni ionizzanti e interaz. biol. C21	Strumen.di anal.elettromag.in amb.biomed. B33	Modelliz. biofis. dei sist. compl. F07	
				Radioprotezione C44		
15:30/16:30	Contr. proc. fisiologici PN8	Elettron.biomed. I C32	Radiazioni ionizzanti e interaz. biol. C21	Strumen.di anal.elettromag.in amb.biomed. B33		
				Radioprotezione C44		
16:30/17:30	Lab.di tecn.biomediche PN8	Elettron.biomed. I C32	Radiazioni ionizzanti e interaz. biol. C21	Strumen.di anal.elettromag.in amb.biomed. B33		
				Radioprotezione C44		
17:30/18:30	Lab.di tecn.biomediche PN8	Elettron.biomed. I C32				

Course info

- Teaching material:
 - Slides and notes, with free web resources provided by the lecturer:
 - <http://www.centropiaggio.unipi.it/course/laboratorio-di-tecnologie-biomediche>
 - <http://dionisio.centropiaggio.unipi.it/cdemaria/>
 - The Biomedical Engineering Handbook - Joseph D. Bronzino, Donald R. Peterson

Course info

- Final exam:
 - Prototype of a medical device
 - Explanation of physical principles
 - Identification of appropriate standards
 - Basic blueprints (mechanical, electronic, software)
 - Identification of fabrication technologies for prototyping and manufacturing

Teachers



Centro E. Piaggio
bioengineering and robotics research center



- Carmelo De Maria and Giovanni Vozzi
 - Research Center E. Piaggio at University of Pisa
 - www.unipi.it. and www.centropiaggio.unipi.it
- Research interests:
 - Biofabrication
 - Additive manufacturing technologies
 - Open source resources in Biomedical Engineering
- Contact:
 - carmelo.demaria@unipi.it
 - g.vozzi@ing.unipi.it

Opportunity



- **UBORA Eu Project**

- **Open** source co-design of new solutions to face the current and future healthcare challenges of Europe and Africa
- Networking, knowledge on rapid prototyping of new ideas and sharing of **safety criteria** and performance
- A new EU-Africa e-Infrastructure, **UBORA**



Grant Agreement no. 731053
Coordination and Support Action

Opportunity



- **UBORA Design Competition**

- The 2017 UBORA Design Competition seeks innovative biomedical engineering solutions from students (individuals or teams) to **reduce child mortality** globally
- Finalists of the 2017 UBORA Design Competition will be fully sponsored to attend the UBORA Design School which will be held at Kenyatta University, Nairobi, Kenya from 23rd to 27th October 2017



Grant Agreement no. 731053
Coordination and Support Action

Opportunity



- **UBORA Design Competition**

1. Project brief submission as per template – due on 8th April, 2017 (Midnight CET)
2. Notification to applicants accepted for full proposal submission – 28th April, 2017
3. Submission of full proposals as per template – due on 11th August, 2017 (Midnight CET)
4. Announcement of finalists – 28th August, 2017



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Opportunity



- **UBORA info**

- www.ubora-biomedical.org

- @uborabiomedical 

- UBORA 



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