

Bioprinting Winter School

Monday, 14th February 2022 - Introduction to 3D bioprinting

9:00-9.30	Polo Ingegneria - Aula 7	Registration		
9.30-10.00	Polo Ingegneria - Aula 7	Welcome and School introduction	Organizers	
10.00-11.00	Polo Ingegneria - Aula 7	Student pitch	Organizers, students, and lecturers	Why I am attending the school and what I am expecting to learn for my project
11.00-11.30	Coffee Break			
11.30-13.00	Polo Ingegneria - Aula 7	A comprehensive overview of 3D Bioprinting and new Biofabrication technologies	Gianluca Cidonio (online)	From additive manufacturing to Bioprinting.
13.00-14.00	Lunch			
14.00-16.00	Polo Ingegneria - Aula B1	3D printing: from CAD to G-code (lesson)	Stefania Marconi	3D printing: the process; the link between the design, material, and printer set-up
16.00-16.30	Break			
16.30-18.00	Polo Ingegneria - Aula B1	3D printing: from CAD to G-code (practical session)	Stefania Marconi	Develop an example: from CAD to 3D printed parts under supervision

Tuesday, 15th February 2022 Bio-ink

9.30-11.00	Polo Ingegneria - Aula 7	Biofabricating by harnessing biological organization principles	Alvaro Mata (online)	Precise engineering of novel biomaterials through hierarchical molecular assembling techniques.
11.00-11.30	Coffee Break			
11.30-13.00	Polo Ingegneria - Aula 7	3D printing of bioactive materials and effect of pore architecture on bone and cartilage regeneration	Julian Jones (online)	Engineered biomaterials for tissue engineering application
13.00-14.00	Lunch			
14:00-15:30	Polo Ingegneria - Aula 7	Functionalization strategies and synthetic approaches in 3D printing	Laura Russo	Polymers and functionalization with respect the micro-environment
15.30-16.00	Coffee Break			
16.00-17.00	Polo Ingegneria - Aula 7	Mechanical characterization in bioprinting	Michele Conti	Mechanical tests to measure the mechanical response of bioprinted models
17.00-18.00	Polo Ingegneria - Aula 7	Development of biomaterials relevant for biofabrication of 3D bioprinted tissue models	Itedale Namro Redwan (online)	From rheological assessment to bioink development from an industrial perspective

Wednesday, 16th February 2022 - Biology

9.00-11.00	Polo Ingegneria - Aula 7	Modelling Chronic Lymphocytic Leukemia microenvironment in vitro by exploiting newly-established 3D systems	Cristina Scielzo and Riccardo Pinos	3D printing cells for disease modelling and read-out strategies
11.00-11.30	Coffee Break & Posters session			

11.30-13.00	Polo Ingegneria - Aula 7	Light-Based 3D-4D Imaging as a possible read-out tool to detect biocomponents and their macro and micro structural arrangement	Valeria Caiolfa (online)	Imaging techniques as possible read-out tools
13.00-14.00	Lunch & Posters session			
14.00-16.00	Polo Ingegneria - Aula 7	Computer-Aided Design for Biofabrication: basic procedures and open challenges	Michele Marino	How computational tools can be used to support design of bioprinting process
16.00-16.30	Coffee Break & Posters session			
16.30-17.00	Polo Ingegneria - Aula 7	Industrial session - Hybrid 3D bioprinting technology for scaffold manufacturing	Paolo Scopece	Print by combining biologically active thermoplastic polymer compounds with plasma surface functionalization
17.00-17.30	Polo Ingegneria - Aula 7	Bioprinting and medical device regulation	Andrea Pisani	Quick review of MDR and possible indications for development of 3D bioprinted models
17.30-18.00	Polo ingegneria - Aula 7	Round table on legislative aspects	Maria Grazia Medici, Gianluigi Marino	Discussion of case studies about bioprinting
Thursday, 17th February 2022 - Hands-on				
9:00-11.00	Lab. di Chirurgia Sperimentale	Hands-on (1)	Carmelo De Maria, Irene Chiesa e Amedeo Bonatti	Printer presentation. Get the relationship between the printer set-up and the printed construct
11.00-11.15	Break			
11.15-13.00	Lab. di Chirurgia Sperimentale	Hands-on (2)	Carmelo De Maria, Irene Chiesa e Amedeo Bonatti	Theoretical and experimental identification of bioprinting parameters
13.00-14.00	Lunch			
14.00-15.30	Lab. di Chirurgia Sperimentale	Hands-on (3)	Carmelo De Maria, Irene Chiesa e Amedeo Bonatti	Bioprinting of complex structures
15.30-16.00	Coffee Break			
16.00-16.45	Polo Ingegneria - Aula 5	Student pitch	Organizers, students and lecturers	What I learned during the school for my project – Awards
16.45-17.00	Polo Ingegneria - Aula 5	Final remarks and closing greetings	Organizers and lecturers	