
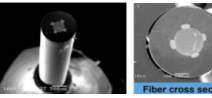








Summer school of the MINT-class from the Gymnasium Lerbermatt-Köniz at EPFL - 2019





Program overview (39 Participants)





Monday July 1	Tuesday July 2		Wednesday July 3		Thursday July 4		Friday July 5
	09:00 – 11:45		09:00 – 11:45		09:00 – 11:45		Holidays
10:15 – 12:00 Welcome SPE	Module 1: Microfab- rication	Module 2: Space center	Module 1: Computer science	Module 2: Robotics	Module 1: Physics	Module 2: Structures in civil engineering	
Lunch	Lunch		Lunch		Lunch		
13:15 – 16:00	13:15 – 16:00		13:15 – 16:00		13:15 – 17:00		
Module 1: Materials science 1	Module 2: Materials science 2	Module 1: Robotics	Module 2: Computer science	Module 1: Environ- mental enginee- ring	Module 2: Electrical & electronic eng.	Module 1: Physics	
					Closing event		

Program in detail

Monday, July 1	10:15	Meeting point: Esplanade
	10:20 – 12:00	Welcome / Maya Frühauf - Introduction to EPFL (salle CM 1106) Campus tour
	13:15	Meeting point: Entrance MX F1 Auditorium
		Introduction: Materials world, Prof. Holger Frauenrath
	Module 1	 <p>Discovering the fabrication and assembly of complex fibers, Ines Richard, PhD student</p>  <p>Process, characterize implants and biomaterials for the spinal column, Céline Wyss, PhD student</p>
	Module 2	 <p>Metals and alloys, how to build a phase diagram, Cyril Dénéreaz</p> <p>Supra molecular cuisine, Prof. F. Stellacci This workshop combines culinary art and chemistry of polymer materials. Between experiments and tastings, you will get a glimpse of the many applications in the field of chemistry, and understand how one can create such small spheres with surprising tastes, colours and texture.</p> 

Tuesday, July 2	08:55	Meeting point: Module 1: Entrance Building BM - middle Module 2: Entrance Building BC
	Module 1 	Microfabrication Dr Adrien Toros In this module, the students will follow a simple microfabrication process on a silicon wafer using the cleanroom facilities of the EPFL Center of MicroNanoTechnology (CMi). max. 15 pers.
	Module 2 	Orbital Debris Swiss space Center, Yannick Delessert et Martine Harmel In this module, we will look at the issue of waste in the Universe (Orbital Debris). In small groups, the students are going to look for possible solutions bringing their own creativity. We will explain draft solutions that are being developed at EPFL. In the second part of the module, the students will have the possibility to catch satellite models using remote-controlled drones, in order to familiarize themselves with the challenges of space debris removal. This last part will be organized in a form of competition.
	13:15	Meeting point: Module 1: Building MED 2 nd floor Module 2: Entrance Hall building BC
	Module 1 	Robotics Prof. Francesco Mondada The students will simulate the access to a distant robot (in another room), as if it was located on another planet, in a place of an environmental disaster, or very tiny inside the body of a person. The participants will learn how to use a robot connected to their computer to understand the reactions, the sensors and the actuators, and then connect to the distant one and use what they have learnt to perceive its environment. All these operations will be done with Thymio, a robot developed at EPFL.
	Module 2 	Computer science Dr Barbara Jobstmann The students will learn about the life of an app and how to create their own (Android) phone apps.

08:55	Meeting point: Module 1: Building MED 2 nd floor Module 2: Entrance Hall building BC
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<p>Module 2</p> 	<p>Computer science Dr Barbara Jobstmann</p> <p>The students will learn about the life of an app and how to create their own (Android) phone apps.</p>
13:15	Meeting points: Module 1: Entrance Building GR 2 nd floor Module 2: MED 2 nd floor
<p>Module 1</p> 	<p>Environmental engineering Dr Nicola Deluigi, Mr Vincent De Staercke, Mr Matteo Tolosano</p> <p>This module will take place “in the field” and offers the opportunity to explore the Sorge stream, an aquatic ecosystem situated nearby the EPFL campus. In groups, the students will discover what organisms live in this environment and how they interact, how they modify the chemical/physical characteristics of the water by performing some field experiments.</p>
<p>Module 2</p> 	<p>Biomedical technology Cédric Meinen</p> <p>Construction of a device for the optical measurement of the heart pulse. It will be done in successive stages.</p> <ul style="list-style-type: none"> • Infrared detector (transmitter - receiver) • Filter (simulation of its characteristic feature) • Optical measurement of the heart pulse (combination of all elements)

Thursday, July 4	08:55	Meeting points: Module 1: Room PH C1425 Module 2: Entrance Building GC, 2 nd floor
	Module 1	 <p>Physics Dr Daniele Mari Build a vacuum installation and measure the electric resistance of a superconductor (résistance = 0) in liquid nitrogen. Establish the resistance - temperature curve of this material.</p>
	Module 2	 <p>Design a Seismic-Resistant Building Prof. Dimitrios Lignos, Mr. Alexander Hartloper, Dr Albano Sousa In this module, the students will explore the concepts of structural design and how this is linked with concepts they learn in school. The challenge: In groups of two or three, a 3 storey building will be developed using the MOLA™ educational kit. The building models will be tested on a shaking table with two historical earthquakes!</p>
	13:15-16:00	Meeting points: Module 1: Room PH C1425 Module 2: MED Building Entry, then MED 3 1519
	Module 1	 <p>Physics (2nd group) Dr Daniele Mari Build a vacuum installation and measure the electric resistance of a superconductor (résistance = 0) in liquid nitrogen. Establish the resistance - temperature curve of this material.</p>
	Module 2	 <p>Brief overview of synthetic biology Students of the iGEM-team 2018 General introduction into synthetic biology and the international competition iGEM. Participants will get the chance to perform simple experiments in the laboratory and design their own project.</p>
	Closing event	Thursday 16:15 – 17:00

April 2019