

# PROJECT



1 February 2017



Physics, Applied Physics, Electronics & Materials Science Department

## Phelma semester (2<sup>nd</sup>)

1 Feb 2017  
24 May 2017

“Engineering package”

	ECTS	Professors
<b>UE Microtechnology</b>		
CAD for microsystems	2	Libor RUFER
Microsystems II	2	Matteo COCUZZA
Optoelectronics	2	Jean-Emmanuel BROQUIN
<b>UE Microelectronics</b>		
Analog circuits design	1,5	Davide BUCCI
Integrated digital circuits design	1,5	Lorena ANGHEL
TP : Micro and nanosystems	3	several
<b>UE Nanophysics and Nanostructures</b>		
Advanced CMOS devices	1,5	Quentin RAFHAY
Nanostructures : physics and transports	2,5	Thierry OUISSE
Nanostructures for optical and magnetic applications	2	PREJBEANU / MONTES / CUGAT
<b>UE Speciality courses</b>		
Advanced microscopy	2	H. COURTOIS/ H. SELLIER
Advanced lithography	2	J. BOUSSEY/ J. PRADELLES
Planar lightwave circuits	2	Jean-Emmanuel BROQUIN
<b>UE SHS / SME</b>		
Strategy & Finance	2	Alexandre ETUY
Project	3	several professors
Project of professional insertion	1	Michèle INGMAN
<b>UE REX</b>		
REX	1	
<b>TOTAL SEMESTRE 4</b>		

## “Engineering package”

This part is mandatory for Phelma engineering degree

- Strategy & Finance** (20h, Alexandre Etuy)
- Communication at work** (16h, Michele Ingman)
- PROJECT**

**Management of Technology & Innovative Projects**  
(21h, Michele Coletti, Pierre-Paul Jobert, Danilo Mura,  
Stéphanie Berard from Grenoble School of Management)

**Technical Project (3 sessions)**

## Management of Technology & Innovative Projects

### **Michele Coletti & Pierre-Paul Jobert**

Basics of Project management and innovation (3h)

Managing the fuzzy front-end of innovation - from idea to concept (3h)

Managing resources for technological innovation (3h)

### **Danilo Mura**

Lean start-up and market study (6h)

### **Stephanie Berard**

Project management – Simultrain Serious Game (6h)

## Technical PROJECT



**Maryline  
BAWEDIN**



**Davide  
BUCCI**



**Anne  
KAMINSKI**



**Laurent  
MONTES**



**Liliana  
PREJBEANU**

PROJECT

The screenshot shows the website for the Master Nanotech program. At the top, there are navigation links for 'Annuaire', 'Intranet', and 'Plan d'Accès'. The main header features the 'Master Nanotech Micro & Nano Technologies' logo. Below this is a navigation bar with tabs for 'Présentation', 'Formation', 'International', 'Entreprises&Laboratoires', and 'Vie Etudiante'. The 'Formation' tab is active. The main content area is divided into several sections: 'La Formation' with a description of the program, 'Recrutement' with a search bar and filters, and 'Détail des enseignements' with a table of courses for Semestres 1, 2, and 3. On the right side, there are sidebars for 'Contacts', 'À télécharger', 'Documents utiles Grenoble INP', and 'Documents utiles EPF Lausanne'. The footer includes logos for Grenoble INP and EPFL (Ecole Polytechnique).

1<sup>st</sup> Floor Phelma (Minatec)

100 PCs with Comsol Multiphysics : login & password

The screenshot shows the website for Master Nanotech. It features a navigation bar with 'Presentation', 'Courses', 'International', 'Business & Laboratories', and 'Student Life'. The main content area is titled 'Nanotech Projects' and includes a text block about the project's purpose and final deliverables. On the right, there are sections for 'Contacts' (listing institutions like Politecnico Di Torino and Grenoble INP), 'Download' (with links for project presentation, bibliographic research, and guidelines), and 'Older projects' (listing Nanotech8 through Nanotech12). Blue arrows point to these sections with labels: 'Contacts', 'Information', and 'Old projects'.

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Free slots to work for the Project

LABS schedule

			G1	G2	G3	G4	G5	5p	G6	G7	G8	G9	G10	5p	
Wed	08/02/17	PM	S2	AK	S2	S2	S2	S2	Communication at work						
Thurs	09/02/17	PM	S1	AK	S1	S1	S1	S1	Communication at work						
Mon	13/02/17	AM	S3	S3	S3	S3	S3	S3	N1	SLD					
Wed	15/02/17	AM	T1	MB	T1	Aku			N1	CW	Communication at work				
Wed	15/02/17	PM	T2	MB	T2	Aku	Projet		N2	XM	Communication at work				
Mon	27/02/17	PM	S4	S4	S4	S4	S4	S4	Projet	N2	XM				
Wed	01/03/17	AM	T3	MB	T3	Aku		N1	SLD	S1	S1	AK	S1	S1	
Wed	01/03/17	PM	T4	MB	T4	Aku	Projet	N2	XM	S2	S2	AK	S2	S2	
Wed	08/03/17	AM	C1	DD	C2	T1	MB	T1	Aku	S3	S3	S3	S3	S3	
Wed	08/03/17	PM	C2	DD	C1	T2	MB	T2	Aku	S4	S4	S4	S4	S4	
Wed	15/03/17	AM	C3	CT	N1	CW	T3	MB	T3	Aku	Projet		Projet	Projet	
Wed	15/03/17	PM		C3	CT	T4	MB	T4	Aku	Projet		Projet	Projet	Projet	
Wed	22/03/17	AM			N2	XM	C1	DD	C2	T1	JEB	T1	AK	Projet	
Wed	22/03/17	PM	Projet		C2	DD	C1	T2	JEB	T2	AK	Projet		Projet	
Wed	29/03/17	AM	Projet		C3	CT	Projet	T3	JEB	T3	AK	Projet		N1	
Wed	29/03/17	PM	Projet		C3	CT	Projet	T4	JEB	T4	AK	Projet		N2	
Wed	05/04/17	AM	Projet		N1	SLD		C1	DD	C2	T1	MB	T1	DB	
Wed	05/04/17	PM	Projet		N2	XM	Projet	C2	DD	C1	T2	MB	T2	DB	
Wed	12/04/17	AM	Communication at work						C3	CT	T3	MB	T3	DB	Projet
Wed	12/04/17	PM	Projet		Projet		C3	CT	Projet	T4	MB	T4	DB	N2	
Wed	26/04/17	AM	Projet		Projet		Projet	N1	SLD	C1	DD	C2	T1	JEB	
Wed	26/04/17	PM	Communication at work						N2	CW	C2	DD	C1	T2	
Wed	03/05/17	AM	Communication at work						Projet	C3	CT	N1	SLD	T3	
Wed	03/05/17	PM	Communication at work						Projet	Projet	C3	CT	T4		
Wed	10/05/17	AM			Projet		Projet	Projet		N2	CW	C1	DD	C2	
Wed	10/05/17	PM	N1	SLD		Projet		Projet		Projet		C2	DD	C1	
Wed	17/05/17	AM	N2	CW								C3	CT		
Wed	17/05/17	PM											C3	CT	
Thur	15/05/17	PM													
Mon	22/05/17	PM													
Wed	24/05/17	AM	BULATS 8h00-12h00												
Wed	24/05/17	PM	BULATS 8h00-12h00												

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## Project objectives

- ✓ Promote team work
- ✓ Initiation to project management
- ✓ Closing the gap between theory and practice

Approach selected:

- 8 students teams
- Call for projects in pre-defined areas
  - Phase I State of Art → 7 March
  - Phase II Product Specification → 11 April
  - Phase III Product Development → 23 May

## Topics

1. Microstructured photovoltaic devices
2. Displacement sensor in integrated optics
3. Lidar systems for flight positioning
4. Dielectrophoresis
5. Micromotors
6. Pressure sensors
7. Micropumps
8. Energy harvesting
9. Biometric sensors
10. Electronic nose
11. Electronic tongue
12. Electronic ear
13. Electronics eye
14. Bio-chemical detection with MOS-like devices
15. Field sensors
16. ... open list for your own proposals



**Maryline Bawedin**: microelectronics devices, TCAD simulations

**Davide Bucci**: analog electronics, photonics, measuring systems

**Anne Kaminski**: photovoltaic, technology, Silvaco simulations

**Laurent Montes** : optical application, simulation, MEMS, technology

**Liliana Prejbeanu** : multiphysical modelling, magnetic devices, spintronics

### **Phase I: State of Art**

Tasks: listing of the existing solutions, physical principles, laboratories/companies

Tuesday, March 7<sup>th</sup>, 13:30-17:00

10 min talk + 20 min discussion (designation of 2 tutors)

### **Phase II: Product Specification**

Tasks: Market analysis + product specifications + define building blocks of the product architecture + schedule (Gantt diagram)

Tuesday, April 11<sup>th</sup>, 10:15-12:15 and 15h45-17h45

10 min talk + 20 min discussion

Written hand-out (10 pages maximum)

due on Friday 7<sup>th</sup> April 12:00 (template on Chamilo)

### **Phase III: Final Product Development**

Oral Examination: Tuesday, May 23<sup>th</sup>

25 min talk + 30 min discussion

End-of-project report (20 pages maximum)

due on Friday, May 20<sup>th</sup>, 12:00 (template on Chamilo)

**Score 1:** 0-20 for the documents (Written hand-out and End-of-Project report)  
(average between the evaluation of both Phelma tutor)

**Score 2:** 0-20 given by the jury (5 Phelma professors) for the oral presentations

**Self-evaluation:** each team member must give an evaluation on his/her team workers for the participation (a list of scores 0-20 sent by email to the coordinator) ,  
The role is to eventually detect existing problem in the team and finally attribute differentiate score for each team member)

**(Score1+Score2)/2 counts for 75% of the final score**

**25% of the final score is the evaluation for the GEM contribution**

## Same groups for labs and for projects

Groups for labs = 4 students/group : G1, G2, G3, G4, G6, G7, G8, G9,  
5 students/group : ----- G5,----- G10

Teams for projects = 2 lab groups (with consecutive numbers)

- Project 1 : G1 + G2**
- Project 2 : G3 + G4**
- Project 3 : G5 + G6**
- Project 4 : G7 + G8**
- Project 5 : G9 + G10**

**Mixed groups:** nationalities, girls/boys,...

## Constraints for groups formation

### Thursday 2<sup>nd</sup> of February:

- email with the members of each group

one email / group received until 7pm

### Friday 3<sup>rd</sup> of February:

- list of 3 choices (preference order)

one email / project received between 7am and 7pm

### Monday 6<sup>th</sup> of February:

- confirmation of the topic of each group

Use only one single email address: [liliana.prejbeanu@phelma.grenoble-inp.fr](mailto:liliana.prejbeanu@phelma.grenoble-inp.fr)