



Presentation of Grenoble-INP and ENSIMAG

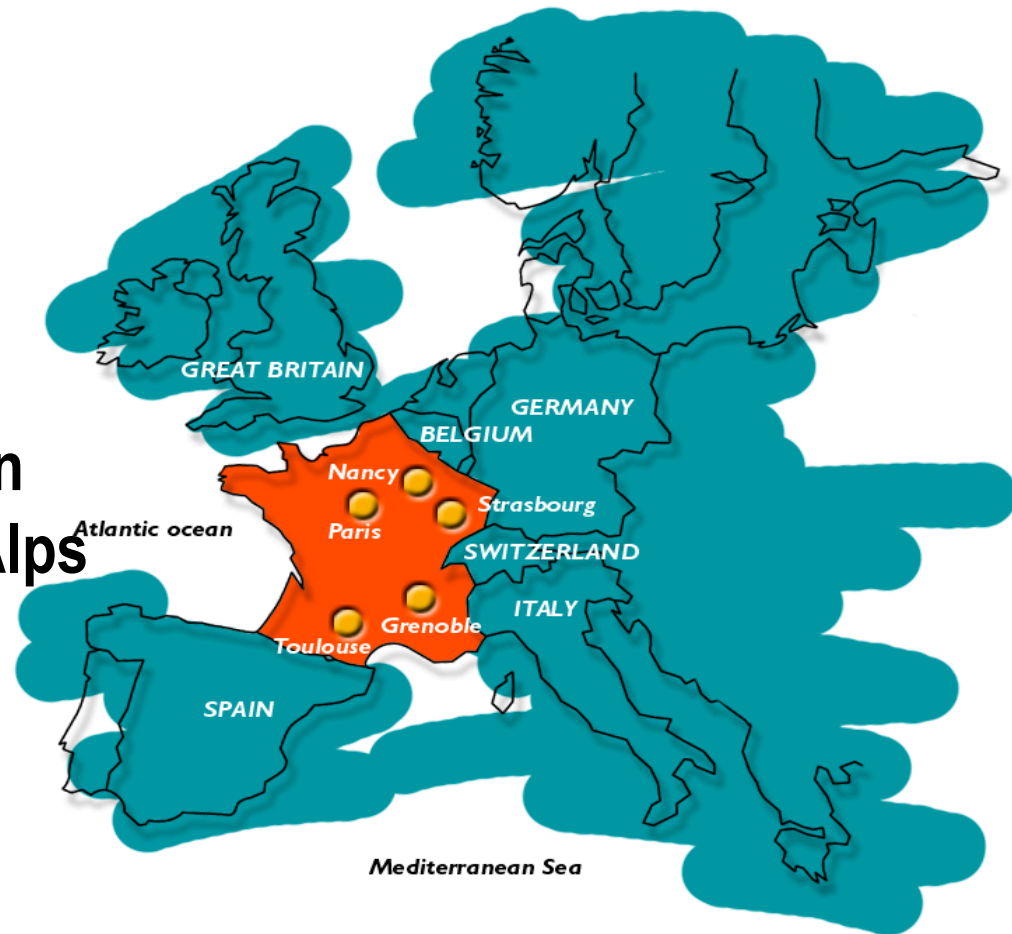
Jean-Louis Roch [Grenoble Univ, INP-ENSIMAG] [INRIA, LIG]

Outline : About international collaborations for student exchanges between UFRGS and Grenoble Universities in **computer science, computer engineering/telecommunications, applied maths** (finance, image, numerical simulation, cryptography, ...), ...

- **1. About Grenoble and federation “Grenoble Universities”**
- **2. Grenoble-INP organization and departments [New !]**
 - Presentation of LMD studies scheme at INP and ENSIMAG
- **3. ENSIMAG**
 - student exchanges
- **4. Student exchanges agreements with UFRGS:**
 - **Brafitec** cooperation : UFRGS / Grenoble Universities
 - **Double-degree** diploma: UFRGS / Grenoble-INP [Addendum!]
- **5. International Master in Informatics [New !]**

Grenoble, a University town

- 60 000 students
- 12% of foreign students
- a modern city, among an exceptional natural site, in the middle of the French Alps
- 4 universities federated in Grenoble Universities



Grenoble, a strategic position in Europe

- Rich scientific, technological and industrial environment
- France's second largest economic region
- Major international research centers
- 20 % of the active population is involved in research, higher education or advanced technology
- *In the club of the 10 top-level French universities [May 2008]*

Grenoble
ENSIMAG INP

Research : *Computer Science, applied mathematics & Telecommunications*

- National Institutions: **CNRS**, **INRIA** Rhône Alpes, **CEA**
- Minatec : Grenoble identified as the European nano-technopole
- Minalogic: worldwide competitiveness cluster for micro nano technologies & embedded systems



- Industrial and public research centers:
ESRF, CEA, France Telecom R&D
XEROX RC Europe, ST MicroElectronics, Sun
Labs, Silicomp, Hewlett-Packard, MGE, Schneider
-Electrics, Cap Gemini, Yahoo (Kelkoo) ...
- 25 start-ups issued from ENSIMAG labs between 2001
and 2008

Outline

- 1. About Grenoble and federation “Grenoble Universities”
- 2. **Grenoble-INP organization and departments**
- 3. ENSIMAG
- 4. Student exchange agreements with UFRGS
 - ◆ Brafitec cooperation : UFRGS / Grenoble Universities
 - ◆ Double-degree diploma: UFRGS / Grenoble-INP
- 5. International Master in Informatics: MoSIG



INP Grenoble

Institute of Technology

Developer of Expertise

1900 - ENSIEG Electrical engineering, Signal processing, Automatic control

1907 - EFPG Paper Engineering and Chemical Engineering

1921 - ENSEEG Materials, Electrochemistry, Chemical Engineering

1928 - ENSHMG Fluid Mechanics, Civil and Mechanical Engineering

1958 - ENSERG Electronics

1960 - ENSIMAG Computer Science and Applied Mathematics

1985 - ENSPG Nuclear, Thermal and Solid State Physics

1990 - ENSGI Industrial Engineering

1995 - ESISAR Electrical Engineering and Embedded Systems

1999 - TELECOM Telecommunications [ENSIMAG / ENSERG]

2007 – Grenoble-INP

- **ENSIMAG:** Applied Mathematics, Informatics, Telecommunications
- **PHELMA:** Physics, Applied Physics, Electronics and Materials Science
- **ENSE³:** Energy, Water and Environmental Sciences
- **ESISAR:** Advanced Systems
- **GENIE INDUSTRIEL:** Industrial Engineering
- **PAGORA:** Paper Science, Print Media and Biomaterials



Grenoble INP
ACCÉLÉRATEUR D'AVENIRS
SPRINGBOARD TO THE FUTURE



Grenoble INP
ACCÉLÉRATEUR D'AVENIRS
SPRINGBOARD TO THE FUTURE

Welcome to
Grenoble Institute of Technology



Grenoble Institute of Technology

Developer of Expertise

- A federation of engineering graduate schools (« Grandes Ecoles »)
- 6 Bachelor degrees
- 22 Master's degrees in engineering
- 5 international master's programs
(taught in english)

ESISAR: Advanced Systems and Networks

Electronics, Computer Systems

Computer Networks

ENSE³: Energy, Water and Environmental Sciences

Control Science, Information and Systems

Electrical Power Engineering

Hydraulics, Structural Engineering and the Environment

Mechanics and Energetics

Nuclear Energy and Engineering

Power Systems and Market Forces

Product Engineering

Signal and Image Processing, Communication Systems, Multimedia

Génie Industriel: Industrial Engineering

Supply Chain Management
Product Engineering

Ensimag: Applied Mathematics, Informatics Telecommunications

Embedded Systems and Software
Financial Engineering
Mathematical Modeling, Vision, Graphics and Simulation
Telecommunications

Pagora: Paper Science, Print Media and Biomaterials

Paper Engineering, Print Media and Biomaterials

Phelma: Physics, Applied Physics, Electronics and Materials Science

Electrochemical and Process Engineering

Physics, Nanoscience

Materials Science and Engineering

Signal and Image Processing, Communication Systems, Multimedia

Integrated Circuits (Nanotech, in partnership with Politecnico di Torino and Ecole Polytechnique Fédérale de Lausanne)

Systems and Microsystems for Physics and Biotechnology

Nuclear and Energy Engineering

Telecommunications

Embedded Systems and Software

5 international master's degrees:

- Nanotech (Micro and Nanotechnologies for Integrated Systems)
in partnership with Politecnico di Torino and EPF Lausanne
- Communication Systems Engineering
in partnership with Politecnico di Torino
- FAME Functionalized Advanced Materials and Engineering
(Erasmus Mundus)
- Engineering Rheology (Erasmus Mundus)
- Master of Science in Informatics at Grenoble
Opening in September 2008

A global research center

26 laboratories specialized in engineering sciences

6 key domains:

Energy

The Environment

Information and
Communication

Materials

Micro and
Nanotechnology

Production Systems

Grenoble Institute of Technology

A Hothouse of Innovation

A major influence in the world of innovation both nationally and internationally

A close partnership with the industrial sector

One of the driving forces behind French R&D development

Minatec

2 global centers for R&D

Minalogic

Tenerrdis

2 Carnot Institutions

Energies of the Future

Software and Intelligent

Systems

Advanced Research Network « Nanoscience »

Grenoble Institute of Technology

A Boost to Careers

A renowned off-the-job training offer

Quality of training provided

Competence of its instructors

Adaptability and awareness of the business skill requirements

Train engineers and managers looked for by business

A varied offer from 1 day to 36 months

40,000 Grenoble IT Alumni worldwide

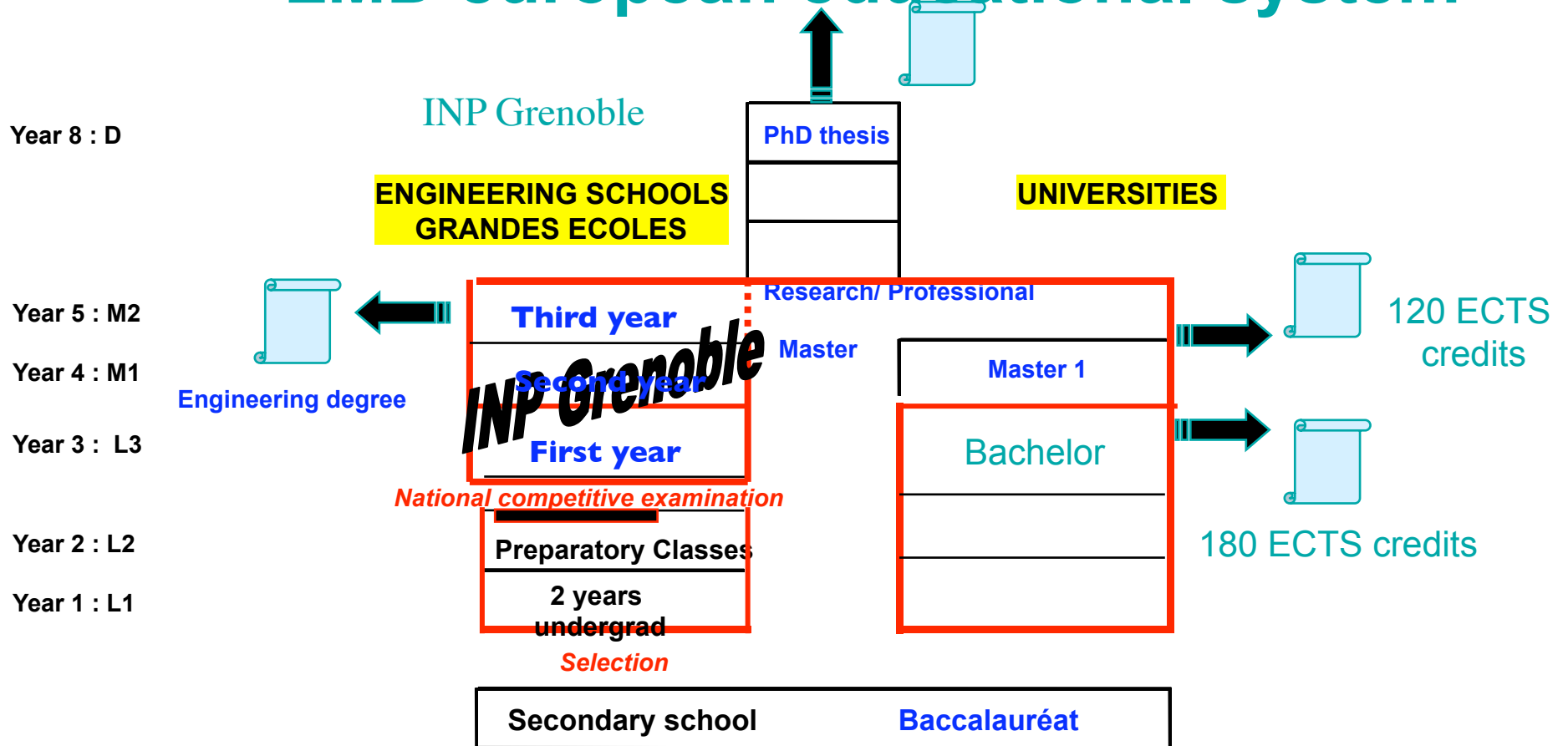
A help throughout studies

A help in the search for employment

A contact with Grenoble Institute of Technology and its alumni

Studies at Grenoble-INP

LMD european educational system



Outline

- 1. About Grenoble and federation “Grenoble Universities”
- 2. Grenoble-INP organization and departments
- 3. **ENSIMAG**
- 4. Student exchange agreements with UFRGS
 - ◆ Brafitec cooperation : UFRGS / Grenoble Universities
 - ◆ Double-degree diploma: UFRGS / Grenoble-INP
- 5. International Master in Informatics: MoSIG



Ecole Nationale Supérieure d'Informatique et de Mathématiques Appliquées De Grenoble



<http://www.ensimag.fr>

Computer Science

Computer
Engineering

Telecommunications

Applied Mathematics

Ensimag some figures



Permanent staff

57 Teaching/Research Faculty members

12 Technical and administrative



Students **500**

Among them, 40 % are foreign students



Ensimag : a prestigious French « Grande École »

■ Features :

- ◆ Middle size : 220 graduates per year
- ◆ highly selective admission process (national competitive examination)
- ◆ An approach based on fundamentals
- ◆ Significant research and development activities
- ◆ Close links with companies
- ◆ Awarding of a « Diplôme d'Ingénieur » (Master's degree)

Key words - ENSIMAG

- Synergy mathematics /computer science
- Conceptual training
- Autonomy and creativity
 - ◆ Free choices regarding options and courses
 - ◆ Personalized course path
- Educationnal process :
 - ◆ Practical work (tutorials, projects)
 - ◆ teamwork

Ensimag: an international policy



- **160 current agreements of cooperation in 45 countries**
- **60 % of our students spending at least 3 months abroad**
- **40 % of Ensimag students are foreign students**

9 double-degree agreements





Ensimag: an international policy

Internationalization is one of our goal

Favourite destinations

Latin, Northern and Central Americas

Brazil, Canada, Chile, Mexico, United States...

Europe

Czech Republic, Ireland, Italy, Germany, Great Britain, Norway, Poland, Romania, Russia, Spain, Sweden, ...

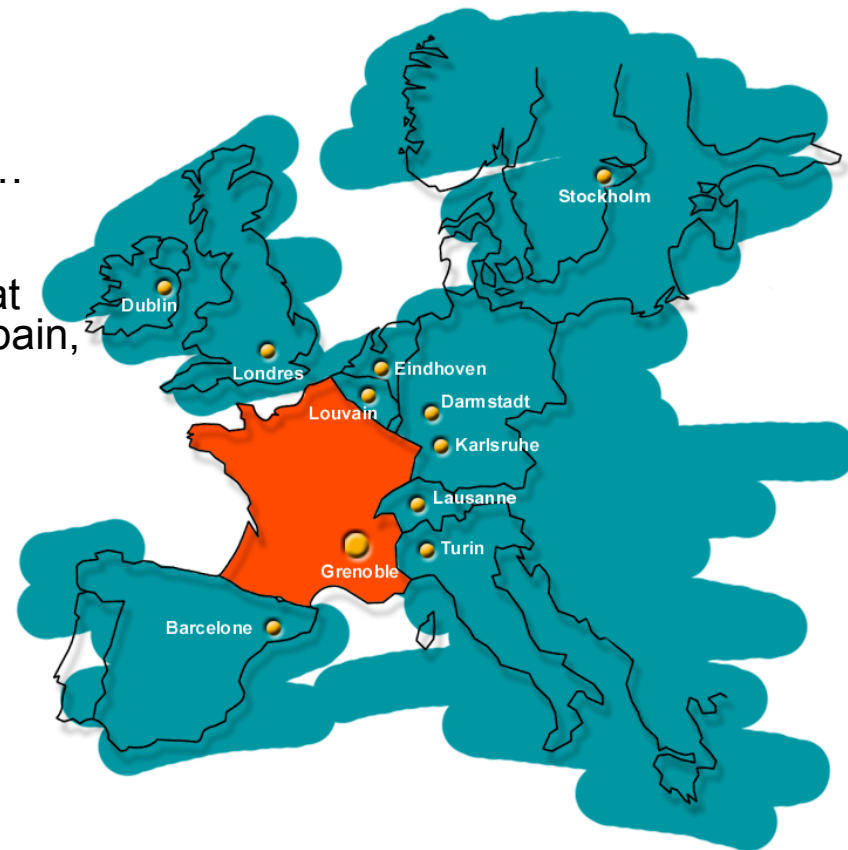
Asia

China, Japan, Korea, Singapore, Vietnam, ...

Oceany

Australia, New-Zealand

**The CLUSTER
Network**



Student exchanges - Outgoing students

- **Summer internships or final year projects**
- **3rd year in a foreign country**
 - **30 ECTS of courses (1 semester)**
 - **6-month Final Year Project (Masters' thesis)**
- **Double degree agreement**
 - **2 semesters of courses + master's project**
 - **According to the rules of the host institution**
- **9 double degrees**

■ TU Karlsruhe	UPC Barcelone (FIB – FME- ETSETB)
■ UPM Madrid - FI	Politecnico di Torino
■ TU Darmstadt	KTH Stockholm
■ UPB Bucarest	NTNU Trondheim
■ UFRGS Porto Alegre	

Student exchanges : Incoming students

- **Full year :**
 - **Either 3rd year (M2)**
 - **Or 2nd year (M1)**
- **One term**
 - **Modularity within each semester**
 - **internship in a lab**
- **Double degree agreement**
 - **2 semesters of courses**
 - **1 summer internship (company/lab)**
 - **1 Final Year Project**



Outline

- 1. About Grenoble and federation “Grenoble Universities”
- 2. Grenoble-INP organization and departments
- 3. ENSIMAG
- 4. **Student exchange agreements with UFRGS**
- 5. International Master in Informatics: MoSIG

■ BRAFITEC agreement (from 2003)

- ◆ Successfull story: **26** UFRGS students / **25** Grenoble students
- ◆ Engineer schools:
 - ◆ **INP-Grenoble & UJF-PolyTech**
 - ◆ **UFRGS: Instituto de Informática & Escola de Engenharia** – Dept de Engenharia: *Elétrica; Produção; Materiais ; Mecânica; Química*
- ◆ Each selected student receives a fellowship for a 1 year stay

■ Double-degree UFRGS / Grenoble-INP (from 2006)

- ◆ Instituto de Informática
 - ◆ Cursus: Engenharia de Computação & Bacharel Ciência da Computação
- ◆ Escola de Engenharia, Departamento de Engenharia Elétrica
 - ◆ Cursus Engenharia de Computação & Engenharia Elétrica
- ◆ INP-Grenoble: previously Enserg/Ensipag/Ensieg/Esisar/Telecom
 - ◆ *Addendum* to suit to Grenoble-INP reorganization [2008, in progress]



Outline

- 1. About Grenoble and federation “Grenoble Universities”
- 2. Grenoble-INP organization and departments
- 3. ENSIMAG
- 4. Student exchange agreements with UFRGS
- 5. **International Master in Informatics: MoSIG**

Masters of Science in Informatics at Grenoble

Plan

- Objective and approach
- Overview of program
- Action Plan
- Provisions for Sept 2008
- Academic program and teaching teams

Objective and Approach

Objectives:

- 1) Establish Grenoble as a World Class center for Graduate Education in Informatics
- 2) Draw best students from around the world into our doctoral programs
- 3) Offer international education to ENSIMAG and UJF students.

Approach:

- 1) Use local internationally prominent research groups to attract students
- 2) Build on existing academic programs (ENSIMAG, UFRIMA)
- 3) Offer courseware in English
- 4) Encourage teaching by INRIA and CNRS researchers at M1 and M2
- 5) Offer academic Exchanges with partner institutions

Academic Domains

1. Parallel, Distributed and Embedded Systems
2. Mobile and Interactive Systems
3. Graphics, Vision and Robotics.
4. Security and Cryptology of Information Systems

Academic Program

M1 Semester 1: 30 ECTS. Core Courses: choose 24 from 36 ECTS .

(e.g. Operating Systems, Math, Software Engineering, Programming, Data Bases, Image and Signal Processing, French or English)

M1 Semester 2: 30 ECTS. Core Courses: choose 24 from 48 ECTS .

(e.g. Algorithms, Software Engineering, Networks, Intelligent Systems, Graphics, Robotics and Vision, Cryptography, Distributed Algorithms)

M2 Semester 3: Specialisation. 30 ECTS.

Parallel, Distributed and Embedded Systems, Mobile and Interactive Computing, Graphics-Vision-Robotics, Security and Crypto

M2 Semester 4: Project (Research or Professional)

Admissions: Origin of Students

48 to 96 Students drawn from Five students groups:

- 1) Non-Local and Foreign Students
 - 2 year Masters program (M1 and M2.).
 - Registration and diploma UJF and/or INPG
- 2) ENSIMAG Dual-Diploma and Cluster Exchange Students
 - Registration at partner institution
 - Minimum 2 semesters for Dual masters
- 3) Ensimag students
 - 1 or 2 semester at a Partner Institution (2 semesters for Dual Engineer Degree).
 - INPG-ENSIMAG: Inscription and diploma
- 4) UFR-IMAG Masters Students
 - UJF: Inscription and diploma, exchange semester optional
- 5) Polytech Masters Students
 - UJF: Inscription and diploma, exchange semester optional

International Partners

- 1) INPG CLUSTER partners: Univ. Karlsruhe, UPC Barcelona, KTH, TKK, IST, Politecnico-Torino, UCL, EPFL, U. Darmstadt, ICL, ..
- 2) Tsinghua University, Beijing, China (Pekin), HK-UST, HKB (Hong Kong)
- 3) The Singapore Universities: NUS and NTU
- 4) UFRGS, Porto Alegre (Brazil)
- 5) KAIST (Korea)
- 6) LAFMI partners, ITESM (Monterrey), Mexico
- 7) CMU, U-Penn, Stanford, MIT, Univ. of Illinois, Georgia Tech, UCLA, USC, Berkeley.
- 8) IIT Delhi, Kampur, Bangalore, Bombay (India)
- 9) European Project partners (Marie Curie Networks, NoEs, IPs).

Action Plan - Progress report

July 2007	Define contours for the initial academic program ✓
October 2007	Define the M1 and M2 curriculum ✓ Discuss Dual Diplomas with partners ✓ Define contents for publicity and web site ✓
February 2008	Define Admission procedures for M1 and for M2 ✓ Obtain academic and administrative resources ✓
March-April 2008	Distribute publicity, prepare applications information ✓
May 2008	Finalize teaching teams, courseware for 2008-2009 ✓
31 May 08	Applications from External and Exchange students
31 June 2008	Applications from ENSIMAG and UFRImag students,
July 2008	Regular admissions for M1 and M2
Sept 2008	Open pilot year (M1 and M2), dominance exchange and local students Open negotiations for Dual Masters Diplomas with partners institutions
Sept. 2009	Open full program

Preparation for Sept 2008

Site web Publicité : <http://mosig.imag.fr>

Site web Admin: Intranet ENSIMAG

Academic Resources: 1/3 UJF, 1/3 INPG, 1/3 CNRS-INRIA

Other Resources: Dossiers BQI submitted to INPG and to UJF

Scolarité

ENSIMAG - full time poste attributed - half for MoSIG

UJF: half post ITA requested.

M1 MoSIG - Inscriptions, Service de Scolarité UFRIMAG

M2 MoSIG - Inscriptions, Service de Scolarité ENSIMAG

Estimations pour Sept 2008

	Exterieurs	UJF	ENSIMAG	INPG Cluster	Total
M1 Semester 1	5	5	5	5	20
M1 Semester 2	5	5	5	15	30
M2 PEDS	4	5	5	5	19
M2 MIS	2	4	4	4	14
M2 GVR	8	4	4	5	21
M2 SCIS	15	4	5	5	29

Acronymes:

- PEDS: Parallel, Distributed and Embedded Systems
MIS: Mobile and Interactive Systems
GVR: Graphics, Vision, Robotics
SCIS: Security and Cryptology of Informatics Systems

Projet de Calender - Semestre 1

No	Du	au	L	M	M	J	V	
37	8-Sep-08	12-Sep-08			1	1	1	
38	15-Sep-08	19-Sep-08	1	1	1	1	1	
39	22-Sep-08	26-Sep-08	1	1	1	1	1	
40	29-Sep-08	3-Oct-08	1	1	1	1	1	
41	6-Oct-08	10-Oct-08	1	1	1	1	1	
42	13-Oct-08	17-Oct-08	1	1	1	1	1	
43	20-Oct-08	24-Oct-08	1	1	1	1	1	
44	27-Oct-08	31-Oct-08	V	V	V	V	V	Vacation Toussaint
45	3-Nov-08	7-Nov-08	1	1	1	1	1	
46	10-Nov-08	14-Nov-08	1	V	1	1	1	
47	17-Nov-08	21-Nov-08	1	1	1	1	1	
48	24-Nov-08	28-Nov-08	1	1	1	1	1	
49	1-Dec-08	5-Dec-08	1	1	1	1	1	
50	8-Dec-08	12-Dec-08	1	1	1	1	1	
51	15-Dec-08	19-Dec-08	E	E	E	E	E	Exams
52	22-Dec-08	26-Dec-08	V	V	V	V	V	Vacances Noel
1	29-Dec-08	2-Jan-09	V	V	V	V	V	Vacances Noel
2	5-Jan-09	9-Jan-09	P	P	P	P	P	Projet
3	12-Jan-09	16-Jan-09	P	P	P	P	P	Projet
4	19-Jan-09	23-Jan-09	P	P	P	P	P	Projet
5	26-Jan-09	30-Jan-09	P	P	P	P	1	Projet
Total 1er Semestre			12	11	12	12	12	

Projet de Calender - Semestre 2

6	2-Feb-09	6-Feb-09	1	1	1	1	1	
7	9-Feb-09	13-Feb-09	1	1	X	1	1	J Ent. ENSI
8	16-Feb-09	20-Feb-09	V	V	V	V	V	Vacances Hiver
9	23-Feb-09	27-Feb-09	1	1	1	1	1	
10	2-Mar-09	6-Mar-09	1	JSKI	1	1	1	ENSIMAG
11	9-Mar-09	13-Mar-09	1	1	1	1	1	
12	16-Mar-09	20-Mar-09	1	1	1	1	1	
13	23-Mar-09	27-Mar-09	1	1	1	1	1	
14	30-Mar-09	3-Apr-09	V	1	1	1	1	
15	6-Apr-09	10-Apr-09	1	1	1	1	1	
16	13-Apr-09	17-Apr-09	V	V	V	V	V	Vacances Printemps
17	20-Apr-09	24-Apr-09	1	1	1	1	1	
18	27-Apr-09	1-May-09	1	1	1	?	V	Fete du travail
19	4-May-09	8-May-09	1	1	1	1	V	anniversaire 1945
20	11-May-09	15-May-09	1	1	1	1	1	
21	18-May-09	22-May-09	E	E	E	X	E	
22	25-May-09	29-May-09	P	P	P	P	P	
23	1-Jun-09	5-Jun-09	P	P	P	P	P	
24	8-Jun-09	12-Jun-09	P	P	P	P	P	
25	15-Jun-09	19-Jun-09	P	P	P	P	P	
Total 1er Semestre			12	12	12	12	12	

Master 1 Semester 1 - Core Semester - 30 ECTS

3 ECTS = 3 h per week for 12 weeks, composed of courses and labs

21 ECTS commun	ECTS	Proposed Instructor
Principles of Operating Systems	6	JF Mehaut, V. Marangozova-Martin
Mathematics for Computer Science	3	Denis Trystram
Software Engineering	3	Philippe Lalanda
Object Oriented Modelling	3	Philippe Morat
Programming Languages and Compiler Design	6	Yassine Lakhnech
Algorithms and Program Design	3	Frederic Devernay
Languages (one or both)		
English for non-native Speakers	3	Pool de langues
French for non-native speakers	3	Alliance Francaises
Programming Project (Choose 1)		
Programming Project (Operating System-UJF Only)	3	Sara Bouchenak, J-F Mehaut
Programming Project (Compiler Design - UFRIMAG)	3	Pablo Arrighi
Programming Project (Compiler Design - ENSIMAG)	3	As with all ENSIMAG 2

Master 1 Semester 1 - Core Semester - 30 ECTS

3 ECTS = 3 h per week for 12 weeks, composed of courses and labs

21 ECTS commun	ECTS	Volume
Principles of Operating Systems	6	30 h C + 30 h TD
Mathematics for Computer Science	3	36 h CTD
Software Engineering	3	18 h C + 18h TD
Object Oriented Modelling	3	18 h C + 18h TD
Programming Languages et Compiler Design	6	30 h C + 30 h TD
Algorithms and Program Design	3	36 h CTD
Languages (one or both)		
English for non-native Speakers	3	36 h CTD
French for non-native speakers	3	36 h CTD
Programming Project (Choose 1)		
Programming Project (Operating System-UJF Only)	3	3 semaines en janvier
Programming Project (Compiler Design - UFRIMAG)	3	3 semaines en janvier
Programming Project (Compiler Design - ENSIMAG)	3	4 semaines en janvier

Master 1 Semester 2 Elective Semester

Choose 24 ECTS from Technical Classes plus Project and Technical writing and speaking

Master 1 Semester 2	ECTS	Teaching Teams
Data Base Foundations	3	Claudia Roncancio
Introduction to Human Computer Interaction	3	F. Bérard, G. Calvary, J. Coutaz, L. Nigay
Software Engineering and Adaptable Systems	6	D. Donsez, S Bouchenak, P. Lalande, ?
Computer Networks Principles	3	Andrzej Duda
Introduction to Intelligent Systems E	3	James Crowley
Introduction to Computer Graphics	3	MP Cani, S. Hahmann
Introduction to Robotics and Computer Vision	3	C. Laugier, O. Aycard, E. Boyer, E. Arnaud
Image and Signal Processing	3	Céline Fouard
Introduction to Cryptology and Coding	3	JL Roch, JG Dumas, L. Fousse, P.Elbaz
Introduction to Distributed Systems	3	V. Quéma, Ph. Bidinger, S. Bouchenak
Group Programming Project: Distributed Game	3	Laurence Nigay, Joelle Coutaz, Clement Pernet?
Technical writing and speaking (English or French)	3	Pool de Langues

Master 1 Semester 2 Elective Semester

Choose 24 ECTS from Technical Classes plus Project and Technical writing and speaking

Master 1 Semester 2	ECTS	Volume
Data Base Foundations	3	36 h CTD (Cours ENSIMAG)
Image and Signal Processing	3	36 h CTD
Introduction to Human Computer Interaction	3	36 h CTD (Cours ENSIMAG)
Software Engineering and Adaptable Systems	6	60 h CTD (Cours ENSIMAG)
Computer Networks Principles	3	36 h CTD (Cours ENSIMAG)
Introduction to Intelligent Systems	3	36 h CTD (Cours ENSIMAG)
Introduction to Computer Graphics	3	36 h CTD (Cours ENSIMAG)
Introduction to Robotics and Computer Vision	3	36 h CTD (Cours ENSIMAG)
Introduction to Cryptology and Coding	3	36 h CTD (Cours ENSIMAG)
Introduction to Distributed Systems	3	36 h CTD ?
Integration Project: Distributed Game	6	4 week project in June
Technical writing and speaking (English or French)	3	36 h CTD ?

Master 2 Semester 1
Parallel, Distributed and Embedded Systems

Embedded and Distributed Systems	ECTS	Teach teams
Advanced Aspects of Operating Systems	6	Olivier Gruber, Renaud Lachaize
Wireless Networking and Sensor Networks	6	Claude Castelluccia
Distributed Systems	6	Olivier Gruber, Sara Bouchenak
Embedded Systems	6	Florence Maraninchi, Yassine Lakhnech
Parallel Systems	6	Jean-Louis Roch, Arnaud Legrand
Component Programming	6	J-B Stefani et P. Quema

Master 2 Semester 1

Mobile and Interactive Computing

Mobile and Pervasive Computing	ECTS	Teaching Teams
Pervasive and ad-hoc Services	6	D. Donsez, V. Lestideau, J. Estublie, Ph. Lalanda
Wireless Networking and Sensor Networks	6	C. Casteluccia
Distributed Systems	6	Olivier Gruber, Sara Bouchenak
Mobile and Context-aware Interactive Systems	6	G. Calvary, J. Coutaz, L. Nigay, J. Crowley
Advanced Interaction	6	F. Bérard, R. Blanch, L. Nigay

Master 2 Semester 1

Graphics, Vision and Robotics

Graphics, Vision, Robotics,	ECTS	Teaching Teams
Computer Vision	6	J.L. Crowley, E. Boyer, C. Schmid
Computer Graphics II	6	M. P. Cani, F. Hetroy, J. Thollot
Autonomous Robotics	6	C. Laugier, J. Crowley, P. Bessiere
Machine Learning	3	C. Schmid, B. Triggs
Virtual and Augmented Reality	3	S. Coquillart

Master 2 Semester 1

Security and Cryptology of Information Systems

Course title	ECTS Credits
<i>Non-elective Core Courses</i>	
Security models: proofs, protocols and politics	6
Symmetric and asymmetric cryptology – PKI	6
System administration and network security	3
English / French / Scientific presentation	3
<i>Choose one of the two following elective 12 ECTS</i>	
Elective A. Security of systems and infrastructures	12
Elective B. Cryptology, coding and multimedia applications	12
<i>Choose one of the two following elective 3 ECTS</i>	
Elective 1. Smart card security, certification and norms	3
Elective 2. Quantum cryptography, biometrics, pairings	3

Master 2 Semester 1

Security and Cryptology of Information Systems

Non-elective Core Courses	ECTS	Teaching teams
Security models: proofs, protocols and politics	6	Roch,, Lafourcade, Autreau
Symmetric and asymmetric cryptology – PKI	6	Dumas, Elbaz-Vincent, Fousse
System administration and network security	3	Denneulin, Wagner, Marchand
English or French	3	Pool Langues
Elective A. Security of systems and infrastructures		
Advanced security of system and networks	3	Wagner, Castellucia
Hardware and embedded secure architectures	3	Leveugle
Distributed algorithms and fault-tolerance	3	Quéma, Anghel
Deployment of a secure grid infrastructure	3	Denneulin, Wagner
Elective B. Cryptology, coding and multimedia appl.		
Advanced cryptology: elliptic curves and cryptanalysis	6	Elbaz-Vincent, Leprévost, Gillard
Multimedia applications and watermarking	3	Cayre, Ebrahimi, Bas
Error correcting codes and fault-tolerance	3	Roch, Patchichkine, Brossier
Elective 1. Smart card security, certification and norms	3	Autreau, Canovas, Potet
Elective 2. Quantum cryptography, biometrics, pairings	3	Arrighi, Elbaz-Vincent

Outline

- 1. About Grenoble and federation “Grenoble Universities”
- 2. Grenoble-INP organization and departments
- 3. ENSIMAG
- 4. Student exchange agreements with UFRGS
- 5. International Master in Informatics: MoSIG



Contacts

- <http://www.ensimag.fr>
- Mailing address: 681 rue de la Passerelle
Domaine universitaire BP 72
38 402 Saint Martin d'Hères cedex

- International Office
 - ◆ **Marianne.Genton@imag.fr** + 33 (0)4 76 82 72 24
 - ◆ Francois Berard & Florence Maraninchi

- MOSIG Master
 - ◆ Jim Crowley & Marie-Christine Rousset

- **BRAFITEC** bilateral agreement
 - ◆ UFRGS : Philippe Navaux
 - ◆ Grenoble Universities: Jean-Louis Roch

Questions ?

