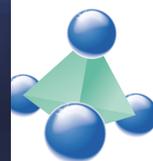


**BECOME AN
EUROPEAN
ENGINEER AND
IMAGINE THE
MATERIALS FOR
THE FUTURE**



EEIGM ÉCOLE EUROPÉENNE D'INGÉNIEURS
EN GÉNIE DES MATÉRIAUX

**PARTICIPA EN LAS AVENTURAS
TECNOLÓGICAS MAYORES DEL
SIGLO XXI**

Cti
Commission
des Titres d'Ingénieur



IMAGINEZ LES MATÉRIAUX DE DEMAIN



EEIGM ÉCOLE EUROPÉENNE D'INGÉNIEURS
EN GÉNIE DES MATÉRIAUX



École



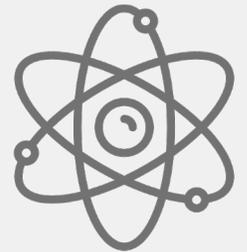
Européenne



d'Ingénieurs



en Génie



des Matériaux

Escuela Europea de Ingenieros de Materiales



EEIGM

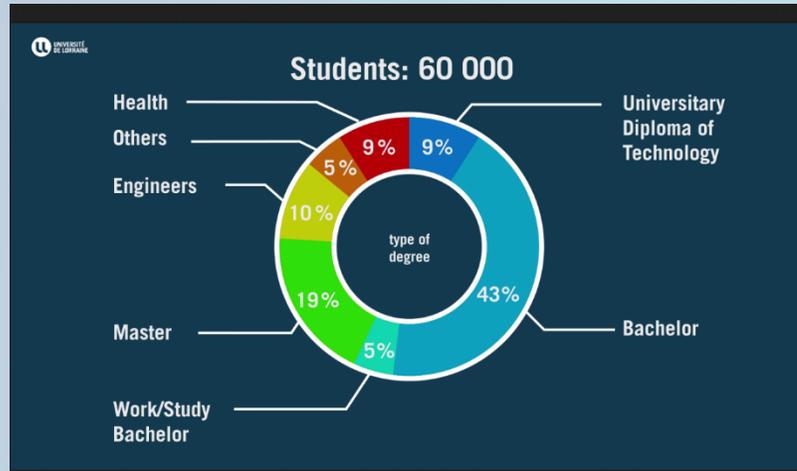
ÉCOLE EUROPÉENNE D'INGÉNIEURS
EN GÉNIE DES MATÉRIAUX

School

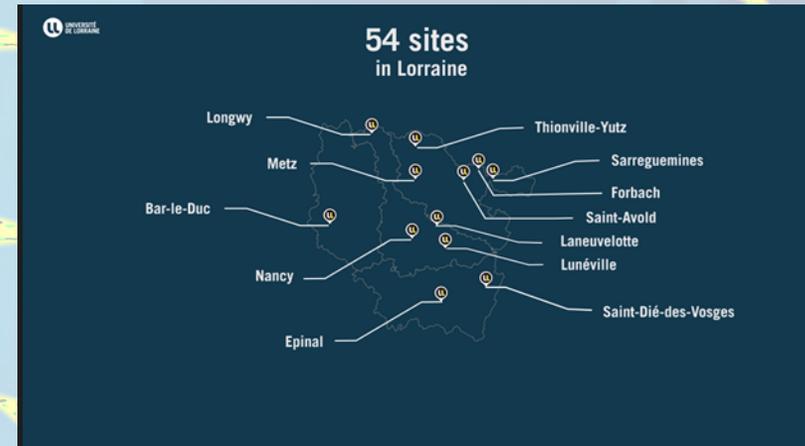
- ✓ Escuela pública de ingenieros (5 años)
- ✓ **1^a escuela francesa de ingenieros en materiales ***
- ✓ 30% de estudiantes internacionales y 40% de los estudiantes sont mujeres
- ✓ 4 idiomas : francés, inglés, alemán y español
- ✓ Dobles y triples titulaciones
- ✓ 50% de los estudiantes consiguen su primer empleo a nivel internacional

* 2020 « Le Figaro Etudiant » ranking

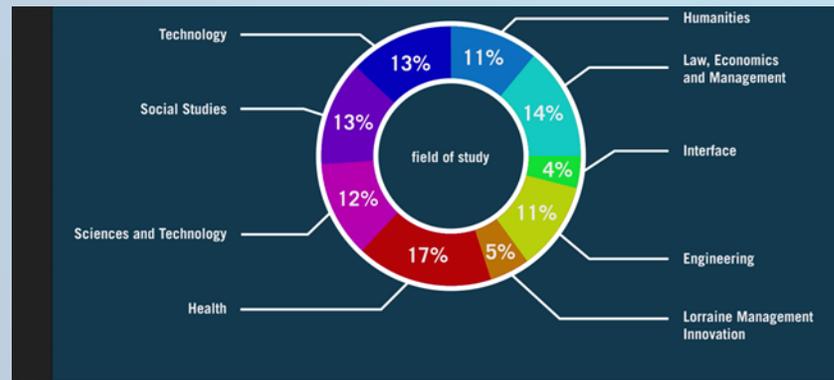
La EEIGM: una de las 11 escuelas de ingenieros de la universidad de la Lorena



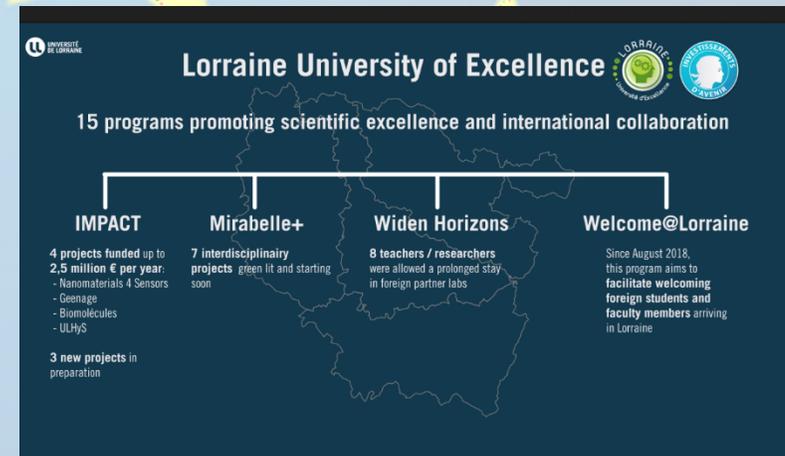
10 455 estudiantes internacionales



54 campus en la Lorena



Todos los sectores



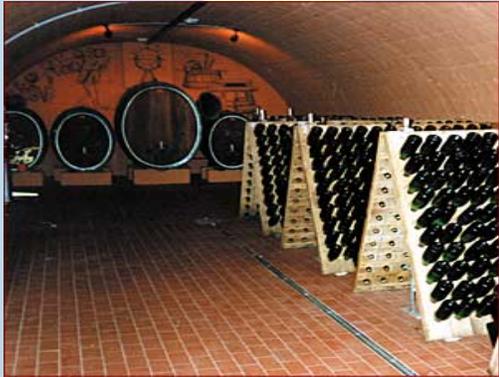
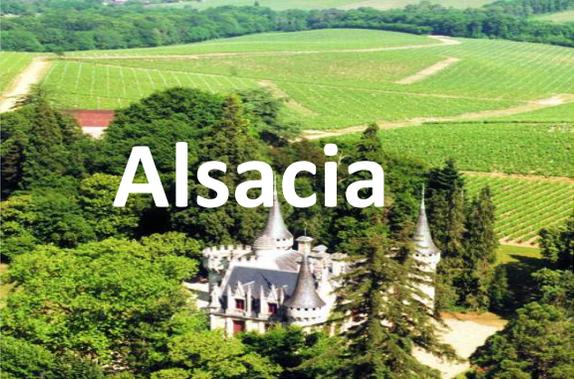
Programas de investigación y colaboraciones internacionales de excelencia

SITUACIÓN





Estrasbourg



NANCY – Capital del “Art Nouveau”



NANCY : una ciudad dinámica





*6 rue Bastien-Lepage 54000 NANCY
<https://eeigm.univ-lorraine.fr/>*

EEIGM : un consorcio de 7 universidades

Europea



LE CONSORTIUM EEIGM



+ otras colaboraciones internacionales :

• Kyushu Institute of Technology, Japón

• Universidade de São Paulo, Universidade de Caxias do Sul, Brasil

• Université Internationale de Rabat (ECINE), Ecole Nationale Supérieure de Mines de Rabat, Ecole Faculté des Sciences et Techniques de Marrakech, Marruecos

• Faculté des Sciences de Sfax, Túnez

Programa de estudios en la EEIGM

Europea

Semestre 10
Prácticas industriales



Semestre 9
Prácticas en laboratorio



Semestre 8



Semestres 5 a 7



Semestres 1 a 4 o a 6



Asignaturas en Nancy

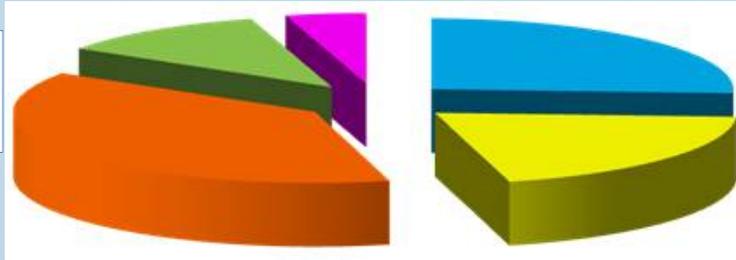
Materiales

Semestre 8

Propiedades mecánicas
Caracterización de materiales
Metalurgia

Biomateriales
Materiales funcionales
Nano materiales
Modelización y simulación

Semestres 5 a 7



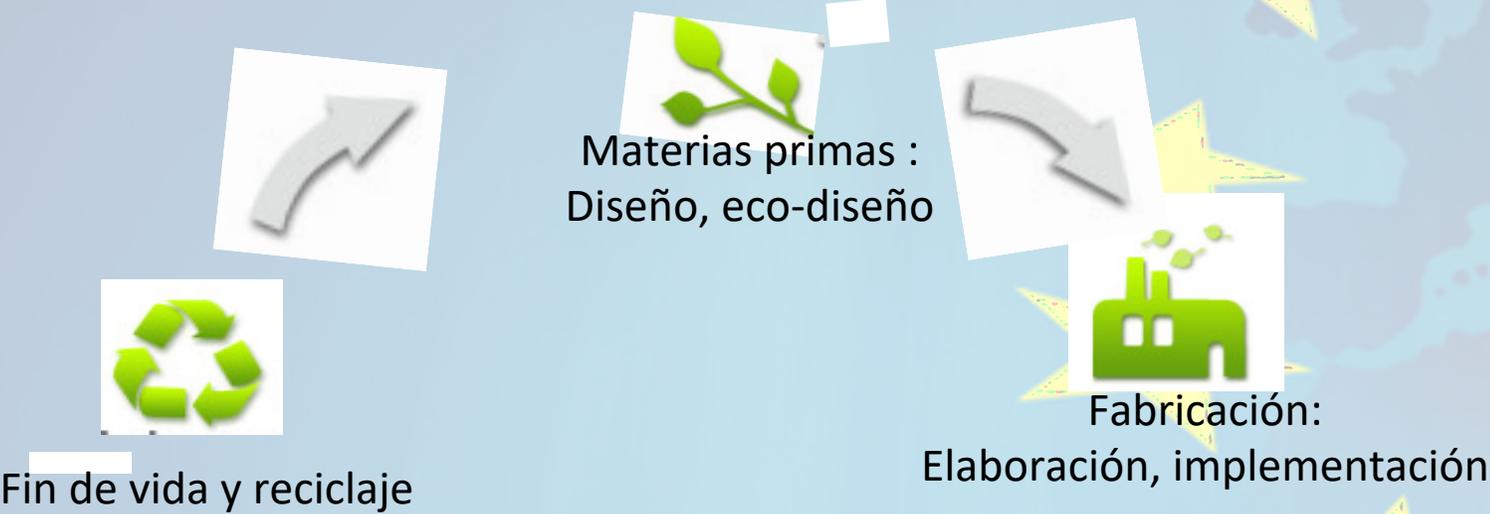
Ciencias del ingeniero
Procesos
Ciencias de los materiales
Idiomas
Comunicación

Semestres 1 a 4



Matemáticas
Física
Química
Mecánica
Ciencia materiales
Idiomas

Ciclo de vida de materiales



- Polímeros**
(plásticos, cauchos)
- Cerámicas**
(hormigón... vidrio)
- Metales y aleaciones**
- Compuestos**

¿Qué es un material?

Un material es un sólido que el ser humano utiliza para crear los objetos que le rodean.

un cepillo de dientes....



.... o un cohete



Los Materiales son “inteligentes”



Pueden ser opacos

Glass/polymer/liquid crystal
micro-structured active glass



Pueden cambiar de color

Electrochromic Glass



Pueden cambiar de forma

Titanium-nickel osteosynthesis
pins help in healing
fractures



26 laboratorios

High performance composites and metals
Nano and natural fibre composites
Synthesis of new ceramic and metallic materials
High-temperature advanced materials
Additive manufacturing of steels and intermetallics
Nanomaterials for energy
Hierarchical materials
Luleå – LTU

Surface treatments – functional films and surfaces
Properties of nanoparticles
Metallurgy
Materials for energy
Corrosion science
Composite materials
Polymers engineering and recycling
Nancy – EEIGM – UL

Multifunctional coating, nanofilms
Advanced metallic and composite materials
Energy efficient technologies
Moscow – MISIS

Surface treatments
Metallurgy
Treatment/recycling of industrial wastes
Precipitation of carbonates
Thermal solar
Bruxelles – ULB

Contact damage
Polymers and Polymer matrix composites
Advanced ceramics and coatings
Micro and Nanomechanics
Barcelona - EEBE/UPC

Temas de investigación comunes:

(Thermo)-Mechanical properties
Materials characterisation
Physical metallurgy
Biomaterials
Functional materials
Nanomaterials
Modelling and simulation

Non-destructive testing
Polymers
Manufacturing technology
Massive metallic glasses
Saarbrücken – UdS

Welding
Corrosion
Powder metallurgy
Electrodeposition of functional thin layers
Laser Cladding and Thermal spray Coating
Valencia – UPV

Laboratorios de Nancy

Experimental Physics @ LTU
Advanced Nanomaterials and Spectroscopy

EEIGM

Nanomaterials for energy High-pressure and advanced spectroscopies

Scanning probe microscopy
AFM EFM

The Experimental Physics Subject at the Luleå University of Technology is specialized on the synthesis and characterization of advanced nanomaterials for applications in energy, environmental remediation and high pressure. Strong expertise is present on both nanomaterials synthesis through chemical and physical deposition routes and characterization through optical spectroscopical and scanning probe microscopy.

EEIGM Teachers/Researchers involved

Isabella Concina
 > Expertise: Chemical synthesis of nanomaterials for environmental applications
 > Teaching: Methods for nanomaterials synthesis and functional characterization

Alexander Soldatov
 > Expertise: High-pressure physics and spectroscopies
 > Teaching: Advanced spectroscopies

Nils Almqvist
 > Expertise: Advanced characterization in nanobiophysics and nanomaterials with focus on scanning probe methods (SPM)
 > Teaching: SPM and extendings

Alberto Vomiero
 > Expertise: Synthesis and characterization of nanomaterials for energy harvesting
 > Teaching: Methods for nanomaterials synthesis and functional characterization

UNIVERSITÄT DES SAARLANDES
Institute of Production Engineering

EEIGM

Pulse Electrochemical Machining
Precise Machining by Honing and Grinding
Additive Manufacturing

Abrasive Tool Characterization
Sustainability, Material Efficiency & Energy Efficiency in Production
Residual Stresses in Manufacturing Processes

The research activities at the Institute of Production Engineering are divided into the strategic fields of Methodology and Planning, Machinery and Equipment as well as Technologies and Processes. These can be assigned to the technological research foci of Machining Processes, Precision Machining and Tool Technology as well as the planning research foci of Efficient Production, Design of Process Chains and Residual Stresses in the Manufacturing.

For more information: <http://www.ipr.uni-saarland.de>

EEIGM Teacher/Researcher involved

Dirk Bähre

Expertise:

- Cutting and abrasive manufacturing processes
- Additive manufacturing technologies of metallic materials
- Analysis of rim zone characteristics of technical components
- Resource efficiency and sustainability of manufacturing processes

Teaching:

- Mechanical engineering technologies
- Precision machining technologies
- Cutting and erosive manufacturing processes
- Technical production planning
- Forming and shaping processes
- Empirical and statistical modelling

CIEFMA Structural Integrity, Reliability and Micromechanics

Departament de Ciència dels Materials i Enginyeria Metal·lúrgica
UNIVERSITAT POLITÈCNICA DE CATALUNYA

EEIGM

CIEFMA focuses on the assessment and understanding of mechanical integrity and reliability of engineering materials at different length scales

Performance Optimization of High Strength Metallic Alloys by Microstructural Design

ANSI, and in particular TRIP steels, are investigated by its correlated microstructural characteristics with macro- and micro-mechanical response

Structural integrity under service conditions of engineering materials, including joint structures and additive manufacturing

Functional Performance of Coated Tools for Metalforming Applications

Blayer structure of WC-Co chip of TiN
Subsurface damage observation by FIB
Contact damage testing
Corrosion-induced damage in hardmetals

LW (Linear Friction Welding)
Ti6AlV samples produced by laser cladding

EEIGM Teachers/Researchers involved:

Antonio Mateo
 > Expertise: Failure analysis
 Fracture and fatigue of advanced metallic alloys

Emilio Jiménez
 > Expertise: Micromechanical characterization of advanced ceramics, coatings, surfaces and composites.

Gemma Fargas
 > Expertise: Structural integrity of advanced stainless steels, corrosion-induced damage in hardmetals and 3D-printing of zirconia-based ceramic materials.

Equipe POEME
Propriétés Optiques et Electriques des couches Minces pour l'Énergie

EEIGM

Gestion et contrôle de la microstructure

Échelle micrométrique
Échelle atomique

Fonctionnalités

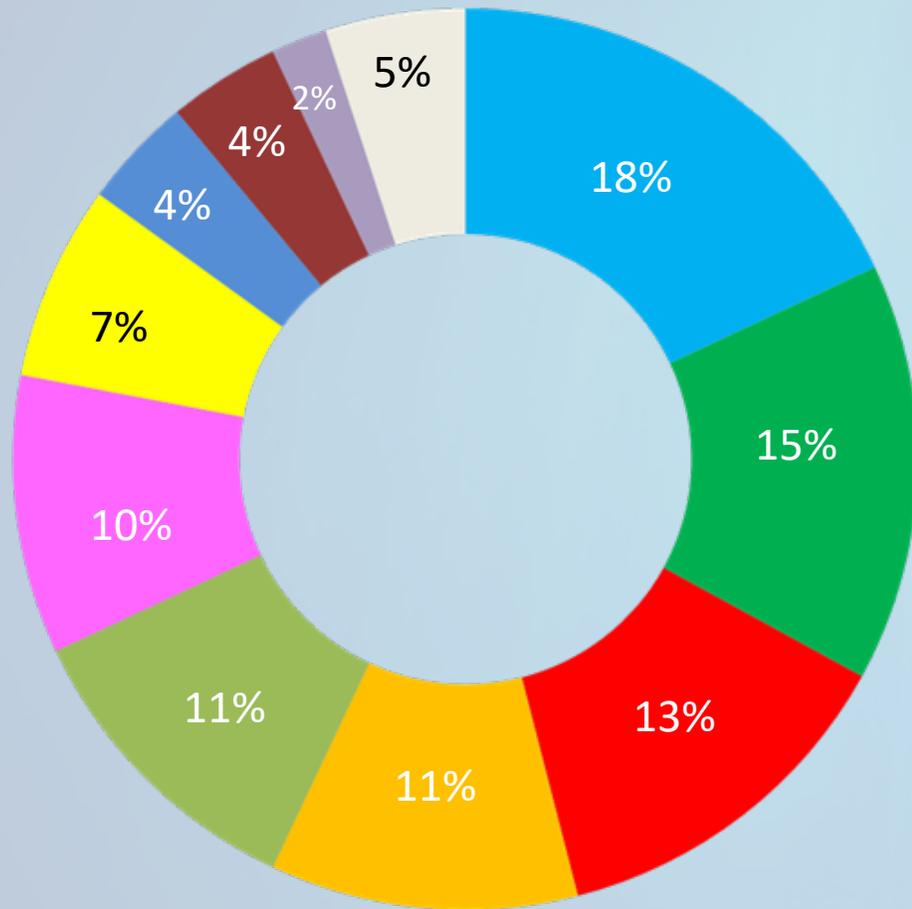
La gestion de la structure et de la microstructure depuis l'échelle atomique permet une optimisation des propriétés. Ces propriétés sont sondées par l'intermédiaire de méthodes spectroscopiques fines.

Enseignants-chercheurs EEIGM

Stéphanie Bruyère
 > Expertise: Microscopie électronique en transmission
 > Enseignement: structure et défauts de structures, physique, diffusion atomique

David Horwat
 > Expertise: Synthèse et caractérisation de films minces
 > Enseignement: Transformations de phases, traitements de surfaces, atomistique et liaisons chimiques

Los principales sectores de actividad de un ingeniero EEIGM



1) Metalurgia

2) Automóvil

3) Aeronáutica y aeronaval

4) Sector energético

5) Industria química

6) Investigación y desarrollo

7) Docencia

8) Construcción civil

9) Deporte

10) Otros sectores

El Ingeniero EEIGM encuentra su primer empleo, en 1,2 meses
Con un salario bruto de 36 000 €/año

Principales empresas colaboradoras





Alexandra Keane
 Promo 2008
 Filtration application engineering



Matthias MAURER
 Class 1996
 Astronauta



Elaine BOURY
 Class 2014
 Project manager



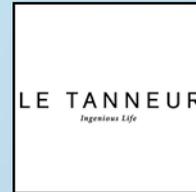
Pierre FORÊT
 Class 2016
 Expert Additive Manufacturing



Lyon, France
 Chemicals



Cologne, Germany
 Aerospace industry



Belley, France
 Luxury leather sector



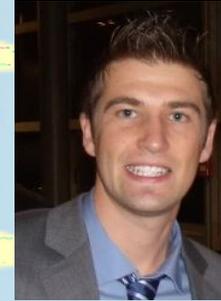
Munich, Germany
 Additive manufacturing



Amaury GILBERT
Class 2010
Project engineer



Angelica LEGRAS
Class 2010
R&D in Polymers



Carsten STEINHILB
Class 2012
Production Manager



Olfa LOPEZ
Class 2016
PhD at DLR Deutsches Zentrum für
Luft- und Raumfahrt



Milton Keynes, Angleterre
Automotive industry



Linz, Austria
Polymers for
automotive industry



Rambervillers, France
Metal framework



Cologne, Germany
Aerospace industry

EEIGM: al salir de clase

Escuela



Pom-pom boys & girls



Aquacités



Fiestas



Música



Carnaval



Torneo de 4 raquetas



Deportes



24h de Stan 22



EEIGM

ÉCOLE EUROPÉENNE D'INGÉNIEURS
EN GÉNIE DES MATÉRIAUX

¡Gracias por vuestra atención!

Maria LOPEZ

Responsable de relaciones internacionales

maria.lopez@univ-lorraine.fr

David Horwat

Director de colaboraciones de investigación

david.horwat@univ-lorraine.fr



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<https://eeigm.univ-lorraine.fr/>