

# International Master of Research

An International Master of Research built around two major themes of materials sciences: mechanics of materials and microstructures, is offered at the University of Lorraine, at Nancy-Metz, France. The lectures are given in English and the program is open to students of all nationalities with a Master M1 level or equivalent, that is, for students that have already carried out one year at graduate level and are wishing to complete their 2<sup>nd</sup> year of Master in an international atmosphere.

The objective of this new Master of Research is to train high-level executives in metallurgy and in the mechanics of materials. At the end of this course, the students will possess all the knowledge necessary to pursue their careers in academics or towards industrial research.



## Laboratory of Excellence "DAMAS"

The LEM3 and the metallurgical component of the IJL laboratory are carrying out their research also in a joint Laboratory of Excellence, called 'DAMAS'; Design of Alloy Metals for low-mAss Structures, which was established in 2012 with a special founding from the French Government within the Investment in Future Action. The LabEx DAMAS is offering six stipends for selected eminent master student candidates ([www.labex-damas.com](http://www.labex-damas.com)).

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**Registration :** <http://fst-en.univ-lorraine.fr/how-to-apply/master-in-engineering-sciences-and-materials-science>

**Dateline for registration :** June 15<sup>th</sup>, 2016

**Tuition :** 500€/year (social security included)

**Scholarship :** scholarships are available for students having the highest academic records (5000€)

# Design and Application of Metallic Alloys for Structures

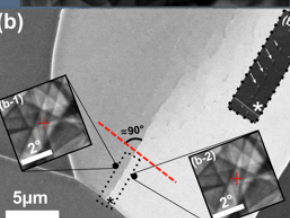
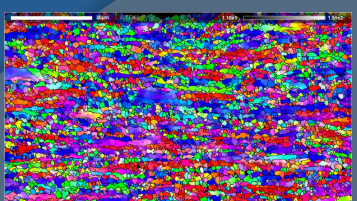
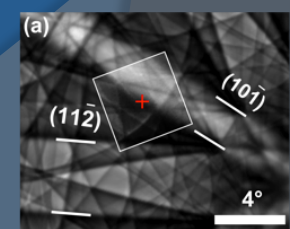
## Organization

Semester	Course content	ECTS
S9	Compulsory courses	
	Formation of microstructures	3
	Deformation mechanisms and microstructure	4
	Stress-phase transformation interactions	3
	Mechanical behavior of materials	4
	Bibliography study	3
S9	Optional courses	
	LabEx DAMAS seminars	2
	Experimental characterization methods of microstructures	3
	Experimental methods in solid mechanics	3
	Numerical metallurgy	3
	Texture and physical properties of materials	3
	Elements of extractive metallurgy	3
	Powder metallurgy	3
	Forming processes	3
	Choice of materials and processes	3
Ferrous alloys	3	
S10	Non ferrous alloys and metal matrix composites	3
	Synchrotron and neutrons in metallurgy	3
S10	Research internship	30

All courses and research activities are in English. The program is organized over two semesters with a first half allocated to specific courses and the second half dedicated to research training. The teaching is organized in 216 hour face-to-face lectures, tutorials, practicals, seminars and a literature survey. The courses are structured in four compulsory teaching units allowing students from very different backgrounds to complement and strengthen their knowledge that will constitute the theoretical basis for their research studies. Among the compulsory courses, students will attend seminars given by internationally renowned researchers.

In addition to the 21 ECTS units (European Credits Transfer System) attributed to the compulsory courses, students can choose from optional courses after consultation with their internship supervisor. For graduation, students must successfully complete the courses and the defense of their Master theses with a minimum of 60 ECTS credits.

The courses will be given by faculty members of the University of Lorraine belonging to the IJL and LEM3 laboratories located in Nancy and Metz, respectively.



[ijl.univ-lorraine.fr](http://ijl.univ-lorraine.fr)  
[lem3.fr](http://lem3.fr)  
[univ-lorraine.fr](http://univ-lorraine.fr)  
[labex-damas.com](http://labex-damas.com)