



MASTER DEGREE

# Microsystems, Embedded Instrumentation & Robotic MIR

## MIR Master Degree Presentation *Embedded Systems track*

MIR is an EIPHI graduate School Master focusing on Research & Innovation in the field of Mechatronic, Micro and Embedded systems.

Designed for R&D engineer positions in big international companies or smaller High-Tech industries, this degree can also be the springboard for a career as Researcher or Professor.

For this track, MIR Master Students can pursue their studies with a Ph.D. in the Time Frequency Department (TF) presented thereafter. The Micro Nano Sciences & Systems and the Automatic Control Departments of the FEMTO-ST laboratory can also welcome student from this track.

## PROGRAM (Besançon Campus)

Y E A R  1	Core Courses with Research Project 24 ECTS		Crossdisciplinary Courses 6 ECTS
	Core Courses with Research Project 18 ECTS	Soft Skills Courses 6 ECTS	Crossdisciplinary Courses 6 ECTS
Y E A R  2	Specialized Courses with Research Project 24 ECTS		Soft Skills Courses 6 ECTS
	Research Internship 30 ECTS		

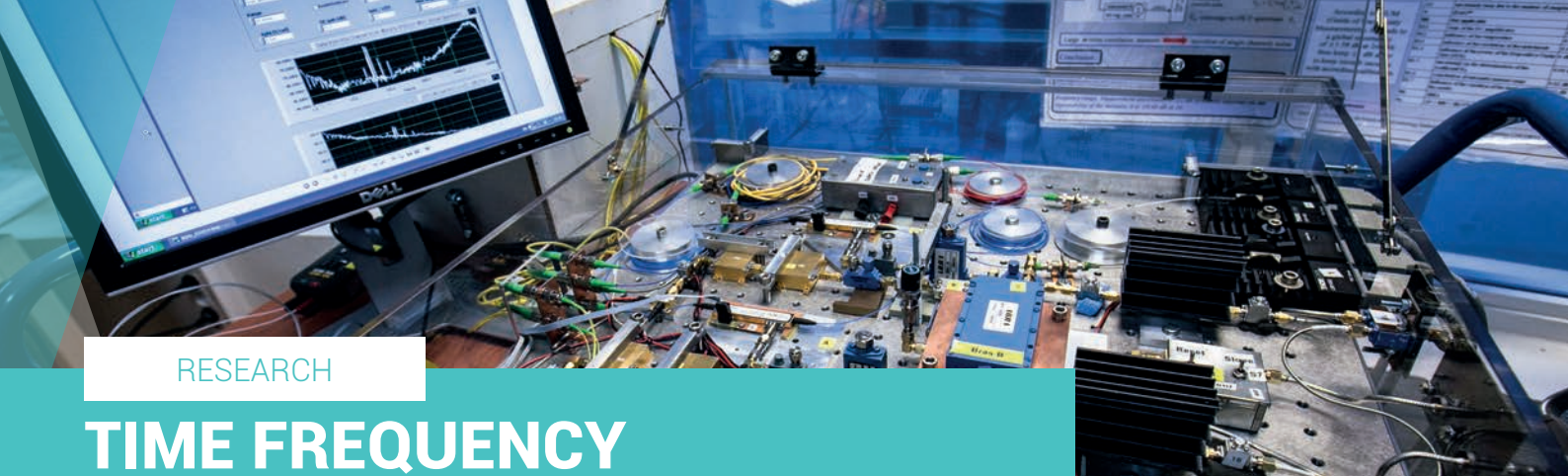


Core Course List: 42 ECTS	
DIGITAL ELECTRONICS INFOTRONICS INSTRUMENTATION INDUSTRIAL NETWORK	DIGITAL CONTROL LINEAR MULTIVARIABLE & CONTROL RESEARCH PROJECTS

Cross-disciplinary Course List: 12 ECTS
MICROTECHNOLOGY MICROMECHATRONICS MICROTRANSDUCERS ROBOTICS...

Specialized Course List: 24 ECTS	
EMBEDDED ELECTRONICS EMBEDDED SYSTEMS DIGITAL COMMUNICATION INSTRUMENTATION AND APPLI- CATION	INSTRUMENTATION SYSTEMS ADVANCED INSTRUMENTATION ADVANCED RESEARCH PRO- JECTS

Soft Skills Course List: 12 ECTS
FOREIGN LANGUAGE METHODOLOGICAL TOOLS INNOVATION...



RESEARCH

# TIME FREQUENCY DEPARTMENT

7 Research Laboratory

**ACEPI**  
ACOUSTICAL ELECTRONICS & PIEZOELECTRICITY

3 Research Teams



**OHMS**  
WAVES CLOCKS METROLOGY & SYSTEMS

**CoSyMA**  
COMPONENTS & MICRO-ACOUSTIC SYSTEMS

**Research Domains :**

Quartz oscillators  
Piezoelectric resonators  
Study of the origins of acoustic resonator noise  
Resonant sensors  
Characterization of materials for time-frequency devices

SAW, FBAR and HBAR resonators  
MEMSpiezoelectric resonators  
Resonating sensors

Microwave sources  
Atomic oscillators (masers and atomic micro-clocks)  
Microwaves and photonics

