MASTER IXEO

High Frequency Electronics & Photonics training path

Level	Program duration	Credits
Master	**2 years**	**120 credits**

Program outline

This Master's program is based on the IXEO Master's degree in Applied Physics and Engineering Physics, electronics-optics. Students will be trained in the fields of electronics and high-frequency photonics through a research-oriented approach with projects and laboratory internships, at XLIM or abroad.

Admissions requirements

Must hold a Bachelor's degree in "Electronics, electrical energy, automation" or a degree in "Physics" or "Sciences for engineers" or "Sciences and technologies" with a specialization in high frequency electronics and/or optics.

Organization

- Internship in M1 (international mobility)
- End-of-study internship in M2
- Scientific project in M2

How to apply

Students residing in France or the EU: www.monmaster.gouv.fr

International students from outside the EU: www.campusfrance.org/fr

Key info

- Selective course (limited places)
- No repetition possible in TACTIC course
- Scholarships 6000€ (4000€ in M1, 2000€ in M2*)
- Financial assistance for incoming and outgoing mobility

**under conditions*

Study place

Campus La Borie, Limoges

Program contact

M1 : sebastien.fevrier@unilim.fr

M2 : guillaume.andrieu@unilim.fr , cyril.decroze@unilim.fr

Graduate school contact

tactic-gradschool@unilim.fr

University contact

msciences@unilim.fr

What's next ?

- ## Continuation of study

Continuation in thesis possible.

- ## Job opportunities

Jobs: R&D engineer, project engineer, researcher, assistant professor

Sectors: Industrial groups, start-ups and SMEs: space, civil, defense applications, high-frequency components and technologies for communication sciences, photonic technologies (laser, imaging, etc.)

Program

Semester 1

		Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Common	Mandatory	Electromagnetic theory for high frequency circuits and antennas	UE	42	24	24	9
		Optical propagation	UE	27	19	34	8
		Active circuits and nonlinear devices	UE	42	24	24	9
		Modulations and demodulations for RF front-end and devices	UE	17	6	32	4

Semester 2

		Course name	Course unit	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Common	Mandatory	Language (English or French)	UE	0	30	0	3
		Soft skills	UE	20	10	0	3
		Abroad internship	Internship				3
		Laboratory research at XLIM	Project				6
Elective training path : Electronics OR Photonics OR IOT							
Electronics	Mandatory	Passive microwave components, antennas and transmission systems	UE	18	8	24	6
		Modeling and CAD of RF and microwave devices	UE	17	6	32	6
		Material properties & characterisation	UE	9	0	21	3
Photonics	Mandatory	Laser	UE	20	10	0	3
		Nonlinear optics	UE	26	14	0	4
		Novel light sources	UE	9	0	21	3
	Elective courses (1 out of 2)	Passive microwave components, antennas and transmission systems	UE	18	8	24	6
		Physics and technologies for devices	UE	31	0	39	6
IOT	Mandatory	Modeling and CAD of RF and microwave devices	UE	17	6	32	6
		Smart Energy	UE	18	22	0	3
		Physics and technologies for devices	UE	31	0	39	6

Semester 3

		Course name	Course unit	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Elective training path : RF Front End OR Photonics Speciality							
RF Front End	Mandatory	Antennas and EM compatibility for RF systems	UE	30	0	0	3
		Passive components and devices for RF systems	UE	30	0	0	3
		Printed electronics for telecommunication and energy	UE	15	0	0	1.5
		Nonlinear components and devices for RF systems	UE	30	0	0	3
	Elective courses (1 out of 3)	Energy Harvesting	UE	15	0	15	3
		Additive technologies & integration for RF & mm components	UE	9	0	21	3
		Advanced CAD	UE	0	30	0	3
Photonics Speciality	Mandatory	Advanced photonics sources and systems	UE	33	0	12	4.5
		Specialty Optical Fibers	UE	15	0	15	3
		Optical nonlinearity & materials	UE	10	0	20	3
	Elective courses (1 out of 5)	Antennas and EM compatibility for RF systems	UE	30	0	0	3
		Passive components and devices for RF systems	UE	30	0	0	3
		Nonlinear components and devices for RF systems	UE	30	0	0	3
		Integrated Photonics	UE	30	0	0	3
		Bio-Engineering	UE	18.5	1.5	10	3

Common courses	Mandatory	Seminar	UE	30 (courses)	0	0	3
		CAD for engineering	UE	0	45	0	4.5
		English	UE	0	30	0	3
		Advanced Practical work training in the scientific approach	UE	0	180	0	6
	Elective courses (2 out of 7)	In Depth RF Front-End	UE	15	0	15	3
		In Depth Micro and Nano Technologies	UE	15	0	15	3
		In Depth MMIC Design	UE	15	0	15	3
		In Depth Radar Systems	UE	15	0	15	3
		In Depth Microwave Photonics	UE	15	0	15	3
		In Depth Advanced Concepts in Photonics	UE	15	0	15	3
		In Depth Photonics-Based Imaging and Spectroscopy	UE	30	0	0	3

Semester 4

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
End of study internship (master's thesis)	Internship				24

The information on this page is for information purposes and is not contractual

Update : September 2025