

Grenoble INP – Esisar, UGA

COURSES SYLLABUS

Level Master 1 :

COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY - Specialization: Mathematics for engineering and safety

COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY - Specialization: Hardware and software system

ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS – Specialization: Software Architecture for Embedded Systems

ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS – Specialization: Electronics Systems Design

ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS – Specialization: Advanced Control Command

Level Master 2 :

COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY

ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS


















INTERNATIONAL MASTER IN COMPUTER ENGINEERING: International Master in Embedded Systems Security (IMESS)

COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY

Specialization: Mathematics for engineering and safety

Level: Master 1

Language of instruction: French

CODE	COURSES *	ECTS	Number of hours	Semester	Language
4AMCS440	Software Engineering	2.5	27.0h	Autumn	
4AMCS443	Information Systems and Design of Databases	2.5	27.0h	Autumn	
4AMCS444	Languages and Compilation	5.0	55.50h	Autumn	
4AMNE424	Long distance networks	2.0	27.0h	Autumn	
4AMOS430	Hardware and Software Security Analysis for Operating Systems	2.0	27.0h	Autumn	
4AMNE430	Transport and Network Layers	2.5	27.0h	Autumn	
4AMNE441	Use of Network Transport Layer	2.5	28.50h	Autumn	
4AMMA421	An introduction to Operations Research	2.5	27.0h	Autumn	
4AMMA431	Mathematics and Data mining with Applications in Security	2.5	27.0h	Autumn	
4AMTR401	TRAC Project	2.5	36.00h	Autumn	
4AMLA401	English	2.0	19.50h	Autumn	
4AMMB411	Entrepreneurship	1.0	09.50h	Autumn	
4AMSP401	Sport	1.0	22.75h	Autumn	
4AMPX452	Industrial Project	25.0	690.0h	Spring	
4AMLA402	English	1.0	03.75h	Spring	
4AMMB443	Project management	3.0	34.50h	Spring	
4MASP402	Sport	1.0	18.00h	Spring	


















*The opening of the different courses is subject to a minimum and maximum number of registered students

COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY

Specialization: Hardware and software system

Level: Master 1

Language of instruction: French

CODE	COURSES *	ECTS	Number of hours	Semester	Language
4AMCS440	Software Engineering	2.5	27.00h	Autumn	
4AMCS443	Information Systems and Design of Databases	2.5	27.00h	Autumn	
4AMCS444	Languages and Compilation	5.0	55.50h	Autumn	
4AMOS420	Operating System Administration	2.0	27.00h	Autumn	
4AMOS430	Analysis of the Software and Hardware Security of Operating Systems	2.0	27.00h	Autumn	
4AMNE430	Transport and Network Layers	2.5	27.00h	Autumn	
4AMNE441	Use of Network Transport Layer	2.5	28.50h	Autumn	
4AMCE410	Hardware Architecture Design with FPGA	2.5	27.00h	Autumn	
4AMOS410	Real-Time Operating System Introduction	2.5	27.00h	Autumn	
4AMTR401	TRAC Project	2.5	36.00h	Autumn	
4AMLA401	English	2.0	19.50h	Autumn	
4AMMB411	Entrepreneurship	1.0	09.50h	Autumn	
4AMSP401	Sport	1.0	22.75h	Autumn	
4AMPX452	Industrial Project	25.0	690.00h	Spring	
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ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS

Specialization: Software Architecture for Embedded Systems

Level: Master 1

Language of instruction: French

CODE	COURSES *	ECTS	Number of hours	Semester	Language
4AMEE450	Circuit Board Design	2.0	25.50h	Autumn	
4AMSC410	Waveguides and Antennas	2.5	27.00h	Autumn	
4AMSC411	Basics of Radiofrequency electronics	2.5	27.00h	Autumn	
4AMCE410	Hardware Architecture Design with FPGA	2.5	27.00h	Autumn	
4AMCS441	Software Engineering	2.5	27.00h	Autumn	
4AMNE442	Distributed Programming	2.0	28.50h	Autumn	
4AMAC441	System Identification Theory	2.5	27.00h	Autumn	
4AMMA441	Scientific Computing	2.5	27.00h	Autumn	
4AMCS442	Synchronous Programming of Real Time Systems	2.5	30.00h	Autumn	
4AMOS410	Real-Time Operating System Introduction	2.5	27.00h	Autumn	
4AMTR401	TRAC Project	2.5	36.00h	Autumn	
4AMLA401	English	2.0	19.50h	Autumn	
4AMMB411	Entrepreneurship	1.0	09.50h	Autumn	
4AMSP401	Sport	1.0	22.50h	Autumn	
4AMPX452	Industrial Project	25.0	690.0h	Spring	
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ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS

Specialization: Electronics Systems Design

Level: Master 1

Language of instruction: French

CODE	COURSES *	ECTS	Number of hours	Semester	Language
4AMEE450	Circuit Board Design	2.0	25.50h	Autumn	
4AMSC410	Waveguides and Antennas	2.5	27.00h	Autumn	
4AMSC411	Basics of Radiofrequency electronics	2.5	27.00h	Autumn	
4AMCE410	Hardware Architecture Design with FPGA	2.5	27.00h	Autumn	
4AMCS441	Software Engineering	2.5	27.00h	Autumn	
4AMNE442	Distributed Programming	2.0	28.50h	Autumn	
4AMAC441	System Identification Theory	2.5	27.00h	Autumn	
4AMMA441	Scientific Computing	2.5	27.00h	Autumn	
4AMEE410	Integrated Systems Design	2.5	48.00h	Autumn	
4AMEE470	Sensors and Intrumentation	2.5	18.00h	Autumn	
4AMTR401	TRAC Project	2.5	36.00h	Autumn	
4AMLA401	English	2.0	19.50h	Autumn	
4AMMB411	Entrepreneurship	1.0	09.50h	Autumn	
4AMSP401	Sport	1.0	22.50h	Autumn	
4AMPX452	Industrial Project	25.0	690.0h	Spring	
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ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS

Specialization: Advanced Control Command

Level: Master 1

Language of instruction: French

















CODE	COURSES *	ECTS	Number of hours	Semester	Language
4AMEE450	Circuit Board Design	2.0	25.50h	Autumn	
4AMSC410	Waveguides and Antennas	2.5	27.00h	Autumn	
4AMSC411	Basics of Radiofrequency electronics	2.5	27.00h	Autumn	
4AMCE410	Hardware Architecture Design with FPGA	2.5	27.00h	Autumn	
4AMCS441	Software Engineering	2.5	27.00h	Autumn	
4AMNE442	Distributed Programming	2.0	28.50h	Autumn	
4AMAC441	System Identification Theory	2.5	27.00h	Autumn	
4AMMA441	Scientific Computing	2.5	27.00h	Autumn	
4AMAC431	Feedforward and Feedback Optimal Control for Linear Systems	2.5	27.00h	Autumn	
4AMAC433	Motion Planning and Control of Robotic Systems	2.5	27.00h	Autumn	
4AMTR401	TRAC Project	2.5	36.00h	Autumn	
4AMLA401	English	2.0	19.50h	Autumn	
4AMMB411	Entrepreneurship	1.0	09.50h	Autumn	
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COMPUTER SCIENCES, NETWORKS AND CYBERSECURITY

Level: Master 2

Language of instruction: English/French




















CODE	COURSES *	ECTS	Number of hours	Semester	Language
5AMCS515	Advanced Programming Concept	2.5	30h	Autumn	
5AMAC515	Conferences and technology watch in cybersecurity	2.0	40.5h	Autumn	
5AMSE500	Introduction to Cryptography	2.5	27h	Autumn	
5AMSE501	Systems Security	6.0	57h	Autumn	
5AMNE571	Advanced Networks	2.5	30h	Autumn	
5AMSE502	Network Security	3.5	25.5h	Autumn	
5AMCS512	Cloud Computing	2.5	24h	Autumn	
5AMSE503	Dependable and Secure Systems	2.5	30h	Autumn	
5AMAC562	Complex Network Systems	4.0	45h	Autumn	
5AMCS529	Machine Learning	3.5	24h	Autumn	
5AMCS534	Distributed Artificial Intelligence and Multi-agent Systems	3.5	24h	Autumn	
5AMLA504	English	2.0	12h	Autumn	
5AMMB501	Job Search and Professional Integration	1.0	6h	Autumn	
5AMMB524	Contract Law	1.0	18h	Autumn	
5AMMB554	Financial Management	2.0	9h	Autumn	
5AMFLE	French as foreign language	1.0	45h	Autumn	
5AMPX551	Final Internship	30	770h	Spring	

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ELECTRONICS, COMPUTER SCIENCES AND SYSTEMS

Level: Master 2

Language of instruction: English/French










CODE	COURSES *	ECTS	Number of hours	Semester	Language
5AMPX505	Innovation Project	4	48h	Autumn	
5AMAC515	Fault Diagnosis and Robust Control: Vehicle Application	4	45h	Autumn	
5AMAC552	Models And Control For Nonlinear Systems	4	45h	Autumn	
5AMAC555	Decentralized control of complex systems	4	45h	Autumn	
5AMCE515	Advanced Processor Architecture and SoC Design	4	45h	Autumn	
5AMAC562	Complex network systems	4	45h	Autumn	
5AMCS550	Applications for IoT	4	45h	Autumn	
5AMSC512	Antennas	4	45h	Autumn	
5AMSC515	Modeling and Simulation Techniques for RF System Design	4	45h	Autumn	
5AMSC536	UHF RFID Technology	4	45h	Autumn	
5AMSE508	Dependability and security of computing systems	4	42h	Autumn	
5AMSE517	Verification and test of safe and secure embedded systems	4	45h	Autumn	
5AMSE518	Embedded Systems Security	4	45h	Autumn	
5AMSE520	Cryptography and Secure Protocols for Embedded Systems	4	45h	Autumn	
5AMLA504	English	2	12h	Autumn	
5AMMB501	Job Search and Professional Integration	1	6h	Autumn	
5AMMB524	Contract Law	1	18h	Autumn	
5AMMB554	Financial Management	2	9h	Autumn	
5AMFLE	French as foreign language	1	45h	Autumn	
5AMPX551	Final Internship	30	770h	Spring	

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INTERNATIONAL MASTER IN COMPUTER ENGINEERING
Master in Integration, Security and TRust in Embedded systems (MISTRE)

Level: Master 2

Language of instruction: English

CODE	COURSES	ECTS	Number of hours	Semester	Language
5AMPX505	Innovation Project	4.0	45h	Autumn	
5AMAC555	Decentralized Control Of Complex Systems	5.0	45h	Autumn	
5AMCE515	Advances Processor Architecture and SoC Design	5.0	45h	Autumn	
5AMSC536	UHF RFID Technology	5.0	45h	Autumn	
5AMSE508	Dependability and Security of Computing Systems	5.0	42h	Autumn	
5AMSE517	Verification and Test of Safe and Secure Embedded Systems	5.0	45h	Autumn	
5AMSE518	Embedded Systems Security	5.0	45h	Autumn	
5AMSE520	Cryptography and Secure Protocols for Embedded Systems	5.0	45h	Autumn	
WAMFLE	French as a Foreign Language	1.0	22.5h	Autumn	
5AMPX551	Final Internship	30.0	770h	Spring	