

# Join Junia

as a visiting professor in



**HEALTH AND  
ENVIRONMENT**



**SMART SYSTEMS  
AND ENERGIES**



**BUSINESS AND  
MANAGEMENT**



**AGRICULTURE  
AND LANDSCAPE**



**ELECTRONICS,  
PHYSICS AND  
ACOUSTICS**



**BUILDING  
AND URBAN  
ENVIRONMENT**



**COMPUTER  
SCIENCE AND  
MATHEMATICS**



**FOOD  
SCIENCES**



**ENGINEER  
TOOLS**



**BACHELOR  
INFORMATICS  
AND MECHANICAL  
ENGINEERING**



Blended learning  
and online teaching  
encouraged



Language of Instruction:  
English or French



Mobility periods are eligible  
for Erasmus Plus funding



Meals and lodging  
provided








Interested people should get in contact  
with [international.cooperation@junia.com](mailto:international.cooperation@junia.com)

*If you have questions concerning a course in your topic  
or field, the international office can put you in contact  
with the relevant academic staff.*

# incoming opportunities

year 2023.2024

Detailed description of the courses (content, objectives...) available upon request

 Number of teaching hours	 Ideal Period	 Level	 Language	 Blended/Virtual mobility
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## SMART SYSTEMS AND ENERGIES

						
	Power systems analysis using PowerFactory software	12 to 16h	Between Oct - Nov	Master	English	No
	Advanced Fluid Dynamics	15h to 20h	to be discussed	Master	English	Open to discussion
	Advanced Heat Transfer	15h to 20h	to be discussed	Master	English	Open to discussion
	Energy Management System	12 to 15h	Between Sept Dec	Master	English	Open to discussion
	Electric Power Distribution	12h	Between April - May	Master	English	Open to discussion
	Mechanical Design	12 to 15h	Between Feb - March	BSc	English	Open to discussion
	Design and Mechanic	12 to 15h	Between Feb - March	BSc	English	Open to discussion

## HEALTH AND ENVIRONMENT

						
	Industrial water management, waste water treatment, water re-use...	10 to 30h	Between Feb - May	Master	English	Open to discussion
	Alternative use of polluted sites / sustainable management of polluted areas / lanscape management	20 to 30h	Between Sept - Dec	Master	English	Open to discussion
	Solid waste management and circular economy	20 to 30h	Between Feb - May	Master	English	Open to discussion
	Polluted sediment management / treatment / valorization	5 to 10h	Between Feb - May	Master	English	Open to discussion
	The role of biomass in the bioeconomy: from bioenergy to green chemistry	20 to 30h	January	Master	English	Open to discussion
	Ecological restoration	20 to 30h	Between Sept - Dec	Master	English	Open to discussion
	Applied techniques of pollution remediation	10 to 15h	Between Sept - Dec	Master	English	Open to discussion






## BUSINESS AND MANAGEMENT

						
	Project Management	32h	Sept - Dec	Master	French/English	Open to discussion
	Communication and crisis management	12 to 16h	Sept - Dec	Master	French/English	Open to discussion
	Digital communication	12 to 16h	Sept - Dec	Master	French/English	Open to discussion
	BtoB marketing	4 to 12h	Sept - Dec or Feb - March	Master	French/English	Open to discussion
	Consumer behaviour	12 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Brand strategy	8h to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Communication policy	8h to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Business intelligence	8 to 12h	Sept - Dec	Master	French/English	Open to discussion
	Cross-cultural management	16 to 20h	Sept - Dec	Master	French/English	Open to discussion
	Market Research	4 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Marketing strategy -Strategic analysis	8 to 12h	Oct - Dec	Master	French/English	Open to discussion


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## BUSINESS AND MANAGEMENT

	Business model and value proposition canvas	8 to 12h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Business development	8 to 12h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	French/English	Open to discussion
	Purchase	12 to 16h	Jan - Feb	Master	English	Open to discussion
	Sales enablement	8 to 12h	Sept - Dec	Master	French/English	Open to discussion
	Sales negociation	12 to 24h	Sept - Jan	Master	French/English	Open to discussion
	Digital business	8 to 16h	Feb - March	Master	French/English	Open to discussion
	Supply chain management	20h	Sept - Jan	Master	French/English	Open to discussion
	Financial Analysis (analysis of consolidated financial statements and IFRS / Cost of capital and Governance)	15 to 30h	April - May	Master	English	Possible 100%
	Human resources management	8 to 16h	Sept - Jan	Master	English	Open to discussion
	New product development and innovation	8 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	English	Open to discussion
	Entrepreneurship / Social Entrepreneurship	8 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	English	Open to discussion
	Customer relationship management	8 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	English	Open to discussion
	Business analytics / Marketing analytics	8 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	English	Open to discussion
	Agricultural economics	8 to 16h	1 <sup>st</sup> or 2 <sup>nd</sup> semester	Master	English	Open to discussion

## FOOD SCIENCES

	Nutrition (functional foods, impact of processes on the nutritional quality...)	4 to 8h	Feb - March	Master	English	No
	Nutrition (functional foods, impact of processes on the nutritional quality...)	4 to 8h	January	Master	French	No
	Six Sigma - Process Capability and Process Performance - Statistical Process Control	8h	Between Nov - May <i>(to be discussed)</i>	Master	French/English	No
	Packaging (roles, types of packaging materials for food, considerations for use of different packaging materials, environmental issues)	8 to 12h	Between Nov - May <i>(to be discussed)</i>	Master	French/English	No
	Industry 4.0 (the digital transformation of the food industry, how are companies doing?, benefits of Industry 4.0, implementation and technologies)	8h	Between Nov - May <i>(to be discussed)</i>	Master	French/English	No
	CSR concepts	14 to 18h	Sept - Dec	Master	English	No
	FSMS focus on IFS, BRC and/or FSSC22000	6 to 12h	Sept - Dec	Master	English	No
	(New) Analytical techniques in food sciences (or food industry)	4 to 8h	Oct-Nov or April-May	Master	English	No
	Business Intelligence : Introduction and practical cases with Power BI	8 to 12h	November	Master	French/English	No
	Business Intelligence : Data Visualization	4 to 8h	November	Master	French/English	No
	Supply Chain : Introduction of supply chain in food industry	4 to 8h	November	Master	French/English	No
	Supply Chain and Innovation	4 to 8h	November	Master	French/English	No
	Lean Management and tools : introduction and practical cases	4 to 12h	January	Master	French/English	No
	Cleaning and disinfection: applications in food processing	8 to 12h	February	Master	French/English	No

# incoming opportunities

year 2023.2024



Number of  
teaching hours



Ideal  
Period



Level




Language




Blended/Virtual  
mobility

Detailed description of the courses (content, objectives...) available upon request

	Agriculture and Climate Change : adaptation and/or mitigation strategies	4 to 8h	Feb - March	Master	English	Open to discussion
	Biocontrol for Sustainable Crop Protection (Beneficial microorganisms used in plant protection ; Plant protection using resistance inducers activating plant immunity against pathogens)	8h	January	Master	English	Open to discussion
	Animal production systems: ovine (sheep) and goat production systems	8h	April - May	Master	English	Open to discussion
	Animal production systems: bovine (meat) production systems	8h	April - May	Master	English	Open to discussion
	Feed evaluation systems, roughage production (systems)	8h	April - May	Master	English	Open to discussion
	Quality Labels and agricultural production	8h	Oct - Nov	Master	English	Open to discussion
	Robotics in agriculture: introduction to robotics, role of robotics in agriculture, pros and cons	8h	Oct - Nov	Master	English	Ideally in face-to-face
	Livestock systems in your country	4h to 8h	April - May	Master	english	Open to discussion
	Urban farming	8h	Oct - Nov	Master	English/French	Open to discussion
	Animal health (infectious diseases, locomotor disorders, parasitism, mastitis management)	4 to 12h	Oct - Nov	Master	English	Open to discussion
	Animal health (infectious diseases, locomotor disorders, parasitism, mastitis management)	4 to 12h	Feb - March	Master	French	Open to discussion
	Agroecology (history, fundamentals, scientific approach and practices)	8h or more	End of Septembre	Master	English	Ideally in face-to-face
	Water and irrigation management for agricultural purposes in the context of climate change, conflicts of use	8h or more	Oct - Nov	Master	English	Ideally in face-to-face
	Farm sustainability assessment (methodology/tool and case studies)	8h or more	Oct - Nov	Master	English	Ideally in face-to-face
	Marketing in agriculture	8h	Sept - Oct	Master	English/French	Open to discussion






## BUILDING AND URBAN ENVIRONMENT

	Urban Management Project	8h to 15h	Jan - March	Master	English	Open to discussion
	Intelligent Transportation System and Traffic Management	20h	Jan - April	Master	English	Open to discussion
	Road Safety	15h	Jan - April	Master	English	Open to discussion
	Smart Water	8h	Jan - Master	Master	English	Open to discussion
	Planning and Design of Urban Space	8 to 12h	Sept - Nov	Master	English	No
	GIS and Urban Planning	8 to 12h	Sept - Oct	Master	English	Open to discussion
	Sustainable architecture / construction	8h	Jan - April	Master	English/French	Open to discussion

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## BUILDING AND URBAN ENVIRONMENT

					
Architecture History Culture	4 to 8h	Sept - Nov	Master	English/French	Open to discussion
Construction 4.0	4h	December	Master	English/French	Open to discussion
Fibrous Material	8 to 20h	Sept - Nov	Master	English	Possible 100%
Advanced technical textiles	8 to 20h	Sept - Oct	Master	English/French	Open to discussion
Functional textiles	8h	Sept - Nov	Master	English/French	Open to discussion
Surface treatments (textile finishing) and coating	8h	Jan - April	Master	English/French	Open to discussion

## COMPUTER SCIENCE AND MATHEMATICS

					
Modelling with PDEs	8h	Spring	BSc2, BSc3	English	No
Quality control and uncertainty in engineering	8h	Spring	BSc2, BSc3	English	No
Laplace transforms and transfer functions	8h	Spring	BSc2, BSc3	English	No
Least squares methods	8h	Spring	BSc2, BSc3	English	No
Optimization for engineering (Linear programming and Lagrange multipliers)	8h	Spring	BSc2, BSc3	English	No
Computer Architecture & Networks	20h to 30h	Fall	BSc2	English	Open to discussion
Advanced Programming (C language)	20h to 30h	Spring	BSc2	English	Open to discussion
Software Design (Java language)	20h to 30h	Spring	BSc2	English	Open to discussion
Information Systems	20h to 30h	Spring	BSc2	English	Open to discussion
Databases (SQL)	20h to 30h	Spring	BSc1	English	Open to discussion
Artificial intelligence : Machine Learning and Deep Learning	8h	December or Spring	Master	English	no
Artificial intelligence : Reinforcement Learning	8h	December or Spring	Master	English	no
Computer Vision	8h	December or Spring	Master	English	no
Hardware Artificial intelligence : Cuda programming	8h	December or Spring	Master	English	no






## ENGINEER TOOLS

					
Automation	8 to 10h	Feb - March	Master	English/French	Open to discussion

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## ELECTRONICS, PHYSICS AND ACOUSTICS

	Number of teaching hours	Ideal Period	Level	Language	Blended/Virtual mobility	
	Hardware for Artificial Intelligence	8h	Sept - March	Master	English	Open to discussion
	Workshop on Auditory display of Natural Data : data conditioning, state-of-the-art methods, development of new methods	10 to 20h	Sept - March	BSc3 / MSc 1	English <i>(French possible)</i>	Partly possible
	Workshop on Bio-inspired materials in connection to the module M2 "Bio-Nano-Tech"	10 to 20h	May - Dec <i>(other dates are also possible depending on the Junia didactic needs)</i>	BSc3 / MSc 1	English <i>(French possible)</i>	Open to discussion
	Microcontrollers architecture (internal structure, ALU, addressing modes, peripherals): class + practical labs	10 to 30h	Jan - May	Bsc 2	English	no

## BACHELOR INFORMATICS AND MECHANICAL ENGINEERING

	Number of teaching hours	Ideal Period	Level	Language	Blended/Virtual mobility	
	Project Management	10	Sept - Dec	Bsc 1	English	Open to discussion
	Electronics	48	Jan - May	Bsc 1	English	Open to discussion
	Mechatronic : Introduction	26	Sept - Dec	Bsc 2	English	Open to discussion
	Artificial intelligence & Machine Learning : Introduction	40	Sept - Dec	Bsc 2	English	Open to discussion
	Microcontrôleur : Introduction	30	Jan - May	Bsc 2	English	Open to discussion
	Information Systems - Cybersecurity	20	Jan - May	Bsc 2	English	Open to discussion
	Artificial Intelligence	30	Jan - May	Bsc 2	English	Open to discussion
	Robotics (Automatique, Pilotage système)	30	Jan - May	Bsc 2	English	Open to discussion



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year 2023.2024



Number of teaching hours



Ideal Period



Level



Language



Blended/Virtual mobility

## SMART SYSTEMS AND ENERGIES

	Photovoltaic system sizing, implementation, control and production forecast	8-12h	To be discussed	BSc3, Master	French/English	Open to discussion
	Advanced Fluid Dynamics	15h to 20h	To be discussed	Master	English	Open to discussion
	Advanced Heat Transfer	15h to 20h	To be discussed	Master	English	Open to discussion
	Renewable Energy Systems	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Smart grids, Energy management , P2P energy exchange	8 to 12h	To be discussed	Bsc3, Master	French/English	Open to discussion
	Thermodynamic 1	8 to 12h	To be discussed	BSc3	English	Open to discussion
	Thermodynamic 2	8 to 12h	To be discussed	BSc3	English	Open to discussion
	Structural mechanics (Strength of Material)	8 to 12h	To be discussed	BSc3	English	Open to discussion
	Dynamics	8 to 12h	To be discussed	BSc3	English	Open to discussion
	Internal combustion Engine (ICEs)	8 to 12h	To be discussed	BSc3, MSc	English	Open to discussion
	Mechanical Design	8 to 12h	To be discussed	BSc3	English	Open to discussion
	Blockchain and energy	8 to 12h	To be discussed	Master	French/English	Open to discussion

## HEALTH AND ENVIRONMENT

	Monitoring of environmental pollutants / soil & GW quality investigation	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Contaminated land issues / polluted sites management / remediation techniques	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Soil ecology and ecosystem services	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Phytoremediation/ Phytomanagement	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Pollutants: origins, behaviour, pollutants chemistry	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Introduction to biostatistics with the R software	20 to 30h	To be discussed	Master	French/English	Open to discussion

## BUSINESS AND MANAGEMENT

	Enterprise systems (introduction to ERP, criteria for ERP selection) - blended learning (with hands-on learning)	8 to 16h	To be discussed	BSc3, Msc	French/English	no
	Marketing applied to food product development : a French case study	8 to 20h	To be discussed	BSc3, Master	French/English	Open to discussion
	Market data analysis through consumer panel and retail scanner panel : a French case study	4 to 8h	To be discussed	Master	French/English	Open to discussion
	Market research : surveys	4 to 8h	To be discussed	BSc3, Master	French/English	Open to discussion
	Introduction to marketing (extracts)	4 to 12h	To be discussed	BSc3, Master	French/English	Open to discussion



# outgoing teaching offer

year 2023.2024



Number of teaching hours



Ideal Period



Level



Language



Blended/Virtual mobility

## BUSINESS AND MANAGEMENT

	Enterprise Risk Management	8 to 20h	To be discussed	Master	English	Open to discussion
	Financial Services and Fintech Introduction	8 to 20h	To be discussed	Master	English	Open to discussion
	International Finance	8 to 12h	To be discussed	Master	English	Open to discussion
	Enterprise Control Management	8 to 20h	To be discussed	Master	English	Open to discussion
	BtoB marketing	8 to 20h	To be discussed	BSc3, Master	English	Open to discussion

## FOOD SCIENCES

	Food Safety Management Systems	8 to 16h	To be discussed	MSc	French/English	No
	HACCP and Prerequisite programs	8 to 16h	To be discussed	BSc3, MSc	French/English	No
	Sensory Evaluation	8 to 24h	To be discussed	MSc	French/English	No
	Nutrition applied to food companies	8 to 16h	To be discussed	MSc	French/English	No
	Sensory Evaluation	8 to 24h	To be discussed	MSc	French/English	No
	Design of experiments	12 to 24h	To be discussed	MSc	French/English	No
	Dairy processings	4 to 8h	To be discussed	BSc3, Msc	French/English	No
	Food and industrial fermentation	4 to 12h	To be discussed	MSc	French/English	No
	Introduction to quality strategies	8 to 12h	to be discussed	BSc3, Msc	French/English	No
	Introduction to brewing process and ingredients	2 to 8h	To be discussed	BSc3, Msc	French/English	No
	Unit Operations	8 to 16h	To be discussed	BSc3, MSc	French/English	No
Introduction to ERP using a SAP simulation game	8 to 16h	To be discussed	BSc3, MSc	French/English	No	

## AGRICULTURE AND LANDSCAPE

	Plant Breeding and Genetics (Breeding methods and Biotechnologies used in Plant Beeding)	8h	To be discussed	Master	French/English	Open to discussion
	Biocontrol for Sustainable Crop Protection (Biocontrol of plant pathogens using microorganisms and natural substances; Plant immunity and induced resistance in plants against plant pathogens)	8h	To be discussed	Master	French/English	Open to discussion
	French livestock systems	2 to 8h	to be discussed	Master	French/English	Open to discussion
	Milk production and dairy chain	4 to 12h	to be discussed	Master	French/English	Open to discussion
	Quality signs in agricultural products in France	4 to 8h	to be discussed	Master	French/English	Open to discussion
	Role of iron in plant pathogen interaction (fincluding a focus on ISR)	8h	to be discussed	BSc3, MSc	French/English	Open to discussion

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Blended/Virtual mobility

## AGRICULTURE AND LANDSCAPE






	Precision agriculture / Precision livestock farming	4h to 8h	To be discussed	Master	English	Open to discussion
	Agriculture and climate change (climate collage serious game 4h + impacts of CC on agriculture in France 4h)	8h	To be discussed	BSc3, Master	French/English	Open to discussion
	Veal calves production systems and welfare	3 to 4h	To be discussed	BSc3, Master	French/English	Open to discussion
	Animal welfare	4 to 12h	To be discussed	BSc3, Master	French/English	Open to discussion
	Climate fresk	3h	To be discussed	BSc, Master	French/English	No


## BUILDING AND URBAN ENVIRONMENT

	Reading the city: Space, Self and Other(s)	8 to 12h	2 <sup>nd</sup> semester (Jan - June)	BSc3, Master	English	Open to discussion
	Methods for the investigation of public spaces	8 to 12h	2 <sup>nd</sup> semester (Jan - June)	BSc3, Master	English	Open to discussion
	Future cities: Smart, Resilient and inclusive	8 to 12h	2 <sup>nd</sup> semester (Jan - June)	BSc3, Master	English	Open to discussion
	Creativity & Urban experiences	8 to 12h	2 <sup>nd</sup> semester (Jan - June)	BSc3, Master	English	Open to discussion
	Energy transition - policies for energy transition	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Construction materials	8 to 12h	To be discussed	BSc3	French/English	Open to discussion
	Soil mechanics	8 to 12h	To be discussed	BSc3	French/English	Open to discussion
	Construction 4.0	8 to 12h	To be discussed	BSc3, Master	French/English	Open to discussion
	Strength of Materials	8 to 12h	To be discussed	BSc3	French/English	Open to discussion
	Continuum mechanics	8 to 12h	To be discussed	BSc3	French/English	Open to discussion
	Sustainable architecture / construction	4h to 8h	To be discussed	BSc3, Master	French/English	Open to discussion
	Architecture History Culture	4h to 8h	To be discussed	BSc3, Master	French/English	Open to discussion
	Fibrous Material	8h	To be discussed	Master	French/English	Open to discussion
	Functional textiles	8h	To be discussed	Master	French/English	Open to discussion
	Smart building	10h	To be discussed	Master	French/English	Open to discussion
Building Information Modeling (BIM)	8h to 15h	To be discussed	BSc3, Master	French/English	Open to discussion	
Smart Management System	8h to 12h	To be discussed	BSc3, Master	French/English	Open to discussion	

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COMPUTER SCIENCE AND MATHEMATICS						
	Analysis, algebra, differential equations	8 to 30h	April/May/June 2024	BSc1	French/English	No
	Applications of Markov chains and random processes	8 to 12h	To be discussed	BSc2, BSc3, Master	French/English	Open to discussion
	Networking and IoT	8 to 12h	To be discussed	BSc2, BSc3, Master	French/English	Open to discussion
	Modern cryptography (elliptic curves, post-quantum...)	8 to 12h	To be discussed	Master	French/English	Open to discussion
	Reinforcement learning	8 to 12h	To be discussed	Master	French/English	Open to discussion
ENGINEER TOOLS						
	Supply Chain Management	10 to 12h	March - April	Master	French/English	Open to discussion
ELECTRONICS, PHYSICS AND ACOUSTICS						
	Geometric optics, mechanics, thermodynamics, electromagnetism, wave physics, quantum mechanics	8 to 30h	April/May/June 2023	BSc1, 2, 3	French/English	No
	Special relativity, general relativity, astronomy, cosmology	8 to 30h	April/May/June 2023	Master	French/English	No

**JUNIA** Graduate school  
of science  
and engineering  
HEI·ISEN·ISA

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