



ESILV 4th YEAR - COURSES TAUGHT IN ENGLISH 2020-21

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ESILV YEAR 4 ENERGIES AND SUSTAINABLE CITIES

Select :

- Core track + (standard track OR innovation track OR research track)
- between 20 and 30 ECTS
- Additionnal French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
DIGITAL 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Machine Learning	33h00	40h00	73h00
PHYSICS 6.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Heat Transfer	30h00	40h00	70h00
3.00	Fluid Mechanics	30h00	40h00	70h00

SUSTAINABILITY 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Building Information Management	27h00	43h00	70h00

Standard Track
FALL SEMESTER 07 - 18 ECTS

DIGITAL 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Embedded Systems & Data Acquisition	27h00	43h00	70h00

LANGUAGES 0.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

PROJECT 9.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
	Formation au MBTI	6h00	0h00	6h00
1.5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
1.5	Internship preparation (in french)	19h30	8h30	28h00

SUSTAINABILITY 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Energetic Efficiency & Smart Metering	33h00	37h00	70h00

Innovation Track				
FALL SEMESTER 07 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
9.00	Technical review I	0h00	0h00	0h00
9.00	Technical & innovation project I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 07 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
RESEARCH TRACK 18.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
9.00	Scientific Deepening I	0h00	0h00	0h00
9.00	Research Project I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 08 - 9 ECTS				
DIGITAL 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Building Modeling	27h00	43h00	70h00
PHYSICS 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Computational Fluid Dynamics	27h00	43h00	70h00
SUSTAINABILITY 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Renewable Energies	36h00	34h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
DIGITAL 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	IoT for Smart City	27h00	43h00	70h00
PHYSICS 3.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
3.00	Electricity	27h00	43h00	70h00
PROJECT 9.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 6.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00

Innovation Track				
SEMESTER 08 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
10.00	Technical & innovation project II	0h00	0h00	0h00
5.00	Technical review II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SEMESTER 08 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	number of hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

ESILV YEAR 4 DATA & ARTIFICIAL INTELLIGENCE

Select :

- Core track + (standard track OR innovation track OR research track)
- between 20 and 30 ECTS
- Additional French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
DATA PROCESSING 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Advanced Data Structures & Algorithms	30h00	40h00	70h00
3.00	Machine Learning	33h00	40h00	73h00
DATA TOOLKITS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Python for data analysis	0h00	40h00	40h00
3.00	Advanced Database Management	27h00	43h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
ADVANCED PROGRAMMING METHODS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Cloud & virtualization techniques	27h00	43h00	70h00
3.00	Design Pattern & Software Development Process	27h00	43h00	70h00

LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Formation au MBTI	6h00	0h00	6h00
1.5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
1.5	Internship preparation (in french)	19h30	8h30	28h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Technical review I	0h00	0h00	0h00
9.00	Technical & innovation project I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Scientific Deepening I	0h00	0h00	0h00
9.00	Research Project I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
ADVANCED AI 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Neural Networks and Deep Learning	27h00	43h00	70h00
DATA ON THE WEB 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Web datamining & semantics	27h00	43h00	70h00
3.00	Advanced topics in NoSql databases	27h00	43h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
EXTENDED WEB APPLICATIONS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Web Application Architectures	27h00	43h00	70h00
3.00	Chatbot and recommendation systems	27h00	43h00	70h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
10.00	Technical & innovation project II	0h00	0h00	0h00
5.00	Technical review II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

ESILV YEAR 4 - FIN'TECH

Select : - Core track + (standard track OR innovation track OR research track) - between 20 and 30 ECTS - Additional French course is mandatory for exchange students (3 ECTS)
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Core Track				
FALL SEMESTER 7 - 12 ECTS				
MARKET AND NETWORKS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Cryptocurrencies Market	27h00	43h00	70h00
3.00	Systèmes d'exploitation	30h00	40h00	70h00
MATHÉMATIQUES 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Advanced Probability	36h00	34h00	70h00
3.00	Cryptographie Symétrique	30h00	40h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
PROGRAMMATION 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Développement Web	27h00	43h00	70h00
3.00	Programmation python	27h00	43h00	70h00

UIESIFI4ST710320 - PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
1,5	Internship preparation (in french)	19h30	8h30	28h00
	Formation au MBTI	6h00	0h00	6h00
1,5	Elective Week	18h00	12h00	30h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Technical & innovation project I	0h00	0h00	0h00
9.00	Technical review I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Research Project I	0h00	0h00	0h00
9.00	Scientific Deepening I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
BLOCKCHAIN 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Programmation Blockchain	27h00	43h00	70h00
MATHEMATICS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Cryptography	30h00	40h00	70h00
3.00	Unsupervised learning	27h00	43h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
WEB 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	NoSQL databases	27h00	43h00	70h00
3.00	Web Development	27h00	43h00	70h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
10.00	Research project II	0h00	0h00	0h00
5.00	Scientific deepening II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

ESILV YEAR 4 - FINANCIAL ENGINEERING & QUANTITATIVE FINANCE

Select :

- Core track + (standard track OR innovation track OR research track)
- between 20 and 30 ECTS
- Additional French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
MATHEMATICS FOR FINANCE 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Advanced Probability	36h00	34h00	70h00
3.00	Machine Learning	33h00	40h00	73h00
PROGRAMMING LANGUAGES FOR FINANCE 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
2.00	C++ for Finance	24h00	26h00	50h00
2.00	Econometrics	27h00	26h00	53h00
2.00	VBA and .Net for Finance	24h00	26h00	50h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
FINANCIAL MARKET 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Financial Concepts	30h00	40h00	70h00
3.00	Market risk	30h00	40h00	70h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
50	Internship preparation (in french)	19h30	8h30	28h00
	Formation au MBTI	6h00	0h00	6h00
50	Elective Week	18h00	12h00	30h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Technical & innovation project I	0h00	0h00	0h00
9.00	Technical review I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
UIESIEI4RT710120 - LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
UIESIEI4RT710220 - RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Scientific Deepening I	0h00	0h00	0h00
9.00	Research Project I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
ADVANCED MATHEMATICS FOR FINANCE 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Stochastic Calculus	30h00	40h00	70h00
FINANCE QUANTITATIVE 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Pricing and hedging of derivatives	30h00	40h00	70h00
1.5	Investment management	15h00	20h00	35h00
1.5	Equity Derivatives	15h00	20h00	35h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
IT POUR LA FINANCE 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
2.00	Méthodes de simulation	24h00	26h00	50h00
2.00	Machine Learning and Asset Management	24h00	26h00	50h00
2.00	Ingénierie financière avec Python	24h00	26h00	50h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
UIESIEI4RT810120 - RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00
UIESIEI4RT810220 - SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

ESILV YEAR 4 - INDUSTRY 4.0

<p>Select :</p> <ul style="list-style-type: none"> - Core track + (standard track OR innovation track OR research track) - between 20 and 30 ECTS - Additional French course is mandatory for exchange students (3 ECTS)
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Core Track				
FALL SEMESTER 7 - 12 ECTS				
INDUSTRIAL ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Robotics, cobotic and IHM	27h00	43h00	70h00
3.00	Additive manufacturing	27h00	43h00	70h00
NUMERICAL ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1.5	Structural Analysis	21h00	14h00	35h00
1.5	Mechanical vibrations	18h00	17h00	35h00
3.00	Finite Element Method	27h00	43h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
1.5	Internship preparation (in french)	19h30	8h30	28h00
	Formation au MBTI	6h00	0h00	6h00
1.5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
SYSTEM ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Supply chain	27h00	43h00	70h00
3.00	Machine Learning in industry	27h00	43h00	70h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Technical & innovation project I	0h00	0h00	0h00
9.00	Technical review I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Research Project I	0h00	0h00	0h00
9.00	Scientific Deepening I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
INDUSTRIAL ENGINEERING 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Product Lifecycle Management	27h00	43h00	70h00
MODELING AND SIMULATION 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Modeling and simulation of manufacturing processes	27h00	43h00	70h00
1.5	Structural optimization	15h00	20h00	35h00
1.5	Kinematics and dynamics of mechanisms	15h00	20h00	35h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
INTELLIGENCE ARTIFICIELLE 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Artificial Intelligence	27h00	43h00	70h00
MECHATRONIC ENGINEERING 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Mechatronic and Industrial Automation	27h00	43h00	70h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
10.00	Research project II	0h00	0h00	0h00
5.00	Scientific deepening II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

ESILV YEAR 4 - IoT & Security

Select :

- Core track + (standard track OR innovation track OR research track)
- between 20 and 30 ECTS
- Additional French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
CLIENT/SERVER COMPUTING 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Java EE & frameworks	30h00	40h00	70h00
3.00	Networks Architectures	27h00	43h00	70h00
DATA PROCESSING 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Machine Learning	33h00	40h00	73h00
3.00	Advanced Data Structures & Algorithms	30h00	40h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
ADVANCED PROGRAMMING METHODS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Design Pattern & Software Development Process	27h00	43h00	70h00
3.00	Cloud & virtualization techniques	27h00	43h00	70h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Formation au MBTI	6h00	0h00	6h00
1.5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
1.5	Internship preparation (in french)	19h30	8h30	28h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Technical & innovation project I	0h00	0h00	0h00
9.00	Technical review I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Research Project I	0h00	0h00	0h00
9.00	Scientific Deepening I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
ADVANCED AI 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Neural Networks and Deep Learning	27h00	43h00	70h00
SECURITY METHODS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	IoT Securityt & Blockchain	27h00	43h00	70h00
3.00	Secure Software Design	27h00	43h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
MOBILE APPLICATION 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Lorawan Academy	27h00	43h00	70h00
3.00	Mobile Apps Developement	27h00	43h00	70h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
10.00	Research project II	0h00	0h00	0h00
5.00	Scientific deepening II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

ESILV YEAR 4 - MODELING & COMPUTATIONAL MECHANICS

Select :
 - Core track + (standard track OR innovation track OR research track)
 - between 20 and 30 ECTS
 - Additional French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
MECHANICAL ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1,5	Materials and behavior	18h00	17h00	35h00
3.00	Dynamics of vehicles and powertrains systems	27h00	43h00	70h00
1,5	Fluid flow analysis	21h00	14h00	35h00
NUMERICAL ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1,5	Structural Analysis	21h00	14h00	35h00
1,5	Mechanical vibrations	18h00	17h00	35h00
3.00	Finite Element Method	27h00	43h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	Formation au MBTI	6h00	0h00	6h00
1,5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
1,5	Internship preparation (in french)	19h30	8h30	28h00
SYSTEM ENGINEERING 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Supply chain	27h00	43h00	70h00
3.00	Predictive modeling et Machine learning	27h00	43h00	70h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Technical review I	0h00	0h00	0h00
9.00	Technical & innovation project I	0h00	0h00	0h00

LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Scientific Deepening I	0h00	0h00	0h00
9.00	Research Project I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
MODELING AND SIMULATION 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1,5	Kinematics and dynamics of mechanisms	15h00	20h00	35h00
3.00	Modeling and simulation of manufacturing processes	27h00	43h00	70h00
1,5	Structural optimization	15h00	20h00	35h00

NUMERICAL ENGINEERING 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Numerical computation for fluid mechanics	27h00	43h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
INTELLIGENCE ARTIFICIELLE 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Artificial Intelligence	27h00	43h00	70h00
MECHANICAL ENGINEERING 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1,5	Probabilistic fracture mechanics and reliability	15h00	20h00	35h00
1,5	Flight mechanics	15h00	20h00	35h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
10.00	Technical & innovation project II	0h00	0h00	0h00
5.00	Technical review II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	Enterprise conferences	0h00	0h00	0h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

ESILV YEAR 4 - HEALTH ENGINEERING & BIOTECHNOLOGY

Select :
 - Core track + (standard track OR innovation track OR research track)
 - between 20 and 30 ECTS
 - Additional French course is mandatory for exchange students (3 ECTS)

Core Track				
FALL SEMESTER 7 - 12 ECTS				
DATA & BIOTECHNOLOGY 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Sensors & Optoelectronics	30h00	40h00	70h00
DATA SCIENCE 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Machine Learning	33h00	40h00	73h00
LIFE & HUMAN SCIENCES 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Biology fundamentals	39h00	31h00	70h00
3.00	Modelling biological systems	39h00	31h00	70h00

Standard Track				
FALL SEMESTER 7 - 18 ECTS				
DATA & BIOTECHNOLOGY 2 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Data Acquisition & Metrology	30h00	40h00	70h00

HEALTH ECONOMY 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Health, Autnomy & biotechnology : economy and organization	27h00	43h00	70h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
1,5	Elective Week	18h00	12h00	30h00
	Enterprise conferences	0h00	0h00	0h00
1,5	Internship preparation (in french)	19h30	8h30	28h00
	Formation au MBTI	6h00	0h00	6h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Technical review I	0h00	0h00	0h00
9.00	Technical & innovation project I	0h00	0h00	0h00

LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	Research Project I	0h00	0h00	0h00
9.00	Scientific Deepening I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
CLINICAL & HEALTH MANAGEMENT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Telehealth & Health information systems	36h00	34h00	70h00
1,5	Ethics, quality and regulation	21h00	14h00	35h00
1,5	Health data & security	12h00	24h00	36h00
3.00	Experimental methodology and biostatistics	27h00	43h00	70h00

Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
DATA SCIENCE 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
3.00	Advanced Machine Learning	27h00	43h00	70h00
3.00	Applied data analysis	27h00	43h00	70h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Innovation Track				
SPRING SEMESTER 8 - 21 ECTS				
INNOVATION TRACK 15.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Research Track				
SPRING SEMESTER 8 - 21 ECTS				
RESEARCH TRACK 15.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00

ESILV YEAR 4 - ACTUARIAL SCIENCE (FR)

Select :
 - Core track + (standard track OR innovation track OR research track)
 - between 20 and 30 ECTS
 - Additional French course is mandatory for exchange students (3 ECTS)

Core Track
FALL SEMESTER 7 - 12 ECTS
FONDAMENTAUX DE L'ACTUARIAT 6.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
2.00	Mathématiques actuarielles	30h00	15h00	45h00
0	Droit des assurances et conformité	24h00	11h00	35h00
2.00	Introduction à l'actuariat	30h00	15h00	45h00
0	Comptabilité des assurances	24h00	11h00	35h00

FONDAMENTAUX MATHÉMATIQUES POUR L'ACTUAIRE 6 ECTS

ECTS	course name	course hours	personal study hours	total student hours
3.00	Advanced Probability	36h00	34h00	70h00
1.5	Analyse de données (ACP, ACM, AFD, AFC, CAH)	30h00	15h00	45h00
1.5	Modèles linéaires généralisés et séries temporelles	30h00	15h00	45h00

Standard Track
FALL SEMESTER 7 - 18 ECTS
LANGUAGES 0.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

PROJECT 9.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00

SOFT SKILLS 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
1.5	Elective Week	18h00	12h00	30h00
	Formation au MBTI	6h00	0h00	6h00
	Enterprise conferences	0h00	0h00	0h00
1.5	Internship preparation (in french)	19h30	8h30	28h00
MODELES FINANCIERS 6 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
1.5	R	18h00	17h00	35h00
3.00	Financial Concepts	30h00	40h00	70h00
1.5	Excel et VBA	18h00	17h00	35h00

Innovation Track				
FALL SEMESTER 7 - 18 ECTS				
INNOVATION TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Technical & innovation project I	0h00	0h00	0h00
9.00	Technical review I	0h00	0h00	0h00
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00

Research Track				
FALL SEMESTER 7 - 18 ECTS				
LANGUAGES 0.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
	TOEFL Preparation	33h00	17h00	50h00
RESEARCH TRACK 18.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	Scientific Deepening I	0h00	0h00	0h00
9.00	Research Project I	0h00	0h00	0h00

Core Track				
SPRING SEMESTER 8 - 9 ECTS				
ASSURANCE ET PROVISIONNEMENT 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	Assurance non Vie	21h00	29h00	50h00
2.00	Assurance Vie	36h00	14h00	50h00
2.00	Provisionnement et inventaire	33h00	17h00	50h00
PROBABILITES AVANCEES 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
3.00	Stochastic Calculus	30h00	40h00	70h00
Standard Track				
SPRING SEMESTER 8 - 21 ECTS				
GESTION DU RISQUE EN ASSURANCE 3 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
1.5	Statistiques des valeurs extrêmes	24h00	11h00	35h00
1.5	ALM	24h00	11h00	35h00
PROJECT 9.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
9.00	PI ² -A4 Project	4h00	196h00	200h00
SOFT SKILLS 6.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
REGLEMENTATION PRUDENTIELLE ET COMPTABLE 3.00 ECTS				
ECTS	course name	course hours	personnal study hours	total student hours
2.00	La réglementation Solvabilité 2	30h00	20h00	50h00
0	IFRS 9/ IFRS 17	18h00	12h00	30h00

Innovation Track

SPRING SEMESTER 8 - 21 ECTS

INNOVATION TRACK 15.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
5.00	Technical review II	0h00	0h00	0h00
10.00	Technical & innovation project II	0h00	0h00	0h00

SOFT SKILLS 6.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00

Research Track

SPRING SEMESTER 8 - 21 ECTS

RESEARCH TRACK 15.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
5.00	Scientific deepening II	0h00	0h00	0h00
10.00	Research project II	0h00	0h00	0h00

SOFT SKILLS 6.00 ECTS

ECTS	course name	course hours	personal study hours	total student hours
	Enterprise conferences	0h00	0h00	0h00
2.00	Hackathon A4	33h00	0h00	33h00
	TOEFL Preparation	33h00	0h00	33h00
4.00	Internship A4	1h00	0h00	1h00