

ESILV
ENGINEERING SCHOOL
DE VINCI PARIS

Courses List
Incoming Students

2023-2024

Table des matières

Semester 1 – Fall Semester 2023-24 (Sept-Dec)..... 3

ESILV 4th YEAR – FALL SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC).....3
ESILV 4th YEAR – FALL SEMESTER - DATA & ARTIFICIAL INTELLIGENCE (DIA).....5
ESILV 4th YEAR – FALL SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD).....7
ESILV 4th YEAR – FALL SEMESTER – FINTECH (FIN).....9
ESILV 4th YEAR – FALL SEMESTER – FINANCIAL ENGINEERING (IF).....11
ESILV 4th YEAR – FALL SEMESTER – INDUSTRY & ROBOTICS (IND).....13
ESILV 4th YEAR – FALL SEMESTER – IoT & CYBERSECURITY (OCC).....15
ESILV 4th YEAR – FALL SEMESTER – DIGITAL MODELLING & MECHANICS (MNM).....17
ESILV 4th YEAR – FALL SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB).....19

ESILV 5th YEAR – FALL SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC).....21
ESILV 5th YEAR – FALL SEMESTER - DATA & ARTIFICIAL INTELLIGENCE (DIA).....22
ESILV 5th YEAR – FALL SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD).....23
ESILV 5th YEAR – FALL SEMESTER – FINTECH (FIN).....24
ESILV 5th YEAR – FALL SEMESTER – FINANCIAL ENGINEERING (IF).....25
ESILV 5th YEAR – FALL SEMESTER – INDUSTRY & ROBOTICS (IND).....26
ESILV 5th YEAR – FALL SEMESTER – IoT & CYBERSECURITY (OCC).....27
ESILV 5th YEAR – FALL SEMESTER – DIGITAL MODELLING & MECHANICS (MNM).....28
ESILV 5th YEAR – FALL SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB).....29

Semester 2 – SPRING Semester 2023-24 (JAN-MAY)..... 30

ESILV 4th YEAR – SPRING SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC).....30
ESILV 4th YEAR – SPRING SEMESTER – DATA & ARTIFICIAL INTELLIGENCE (DIA).....32
ESILV 4th YEAR – SPRING SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD).....34
ESILV 4th YEAR – SPRING SEMESTER – FINTECH (FIN).....36
ESILV 4th YEAR – SPRING SEMESTER – FINANCIAL ENGINEERING (IF).....38
ESILV 4th YEAR – SPRING SEMESTER – INDUSTRY & ROBOTICS (IND).....40
ESILV 4th YEAR – SPRING SEMESTER – IoT & CYBERSECURITY (OCC).....42
ESILV 4th YEAR – SPRING SEMESTER – DIGITAL MODELLING & MECHANICS (MNM).....44
ESILV 4th YEAR – SPRING SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB).....46

Semester 1 – Fall Semester 2023-24 (Sept-Dec)

ESILV 4th YEAR – FALL SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSES NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN470223	Machine Learning	6	27
	MESIIN473723	Operating Systems		15
	MESIIN475123	Network		27
	MESIIN475623	Scrum methodology		15
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a Foreign Language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION CCC	MESIIN472923	Object Oriented Development	8	30
	MESIIN475223	Infrastructure Technology		30
	MESIIN476223	Cybersecurity Landscape		30
	MESIIN476323	Mobile Devices		30
Total			**24**	**329**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK COMPUTER SCIENCE	MESIIN470323	Advanced Database Management	6	27
	MESIIN472823	Software Engineering		27
	MESIIN475723	Node & react Development		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27

	MESIIN475523	Immersive experiences		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER - DATA & ARTIFICIAL INTELLIGENCE (DIA)

MANDATORY BLOCK:

TEACHING UNITS	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN470223	Machine Learning	6	27
	MESIIN473723	Operating Systems		15
	MESIIN475123	Network		27
	MESIIN475623	Scrum methodology		15
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION DIA	MESIIN471623	Python for data analysis	8	30
	MESIIN475823	Mathematics for Deep Learning		30
	MESIIN475923	Green AI (responsable, frugal)		30
	MESIIN476023	AI Algorithms		30
Total			**24**	**329**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN :

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK COMPUTER SCIENCE	MESIIN470323	Advanced Database Management	6	27
	MESIIN472823	Software Engineering		27
	MESIIN475723	Node & react Development		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN470223	Machine Learning	6	27
	MESISI470123	Heat Transfer		27
	MESISI470223	Fluid Mechanics		27
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION EVD	MESISI471923	Energetic efficiency & Smart Metering	8	30
	MESISI472123	Decarbonisation and Energy Mix		15
	MESISI472223	Nuclear Energy		15
	MESISI472323	Solar Energy		15
	MESISI472423	Wind Energy		15
	MESISI473723	Energy Storage Systems		30
Total			**24**	**326**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN :

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK ENGINEERING SCIENCES	MESIIN473523	Augmented and and Virtual Reality	6	27
	MESIIN472623	Control Theory		27
	MESIIN473323	Innovation design		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27

	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27
Total			**6**	**81**

TEACHING UNIT	**23-24 CODES**	**COURSE NAMES**	**ECTS**	**TEACHING HOURS**
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	**23-24 CODES**	**COURSE NAMES**	**ECTS**	**TEACHING HOURS**
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – FINTECH (FIN)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES		ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN470223	Machine Learning	6	27
	MESIIN473723	Operating Systems		15
	MESIIN475123	Network		27
	MESIIN475623	Scrum methodology		15
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION FIN	MESIIN470423	Cryptocurrencies Market	8	15
	MESIIN470623	Blockchain Programming		45
	MESIIN473323	Rust Programming		30
	MESIIN476423	Symmetric-key algorithm		30
Total			**24**	**329**

MANDATORY 6 CREDITS SPECIALIZATION MODULES TO CHOOSE BETWEEN:

TEACHING UNIT	23-24Code	Module	ECTS	TEACHING HOURS
TRACK COMPUTER SCIENCE	MESIIN470323	Advanced Database Management	6	27
	MESIIN472823	Software Engineering		27
	MESIIN475723	Node & react Development		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27

Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – FINANCIAL ENGINEERING (IF)

MANDATORY BLOCK:

TEACHING UNIT	23-23 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE FINANCE & ASSURANCE	MESIFI470123	Advanced probability	6	40,5
	MESIFI472123	Financial markets and instruments		13,5
	MESIIN470223	Machine Learning		27
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION IF	MESIFI471123	C++ for finance	8	30
	MESIFI471323	Market risk		31,5
	MESIFI472023	Advanced statistics		42
	MESIFI472323	Python, Git, Linux		15
Total			**24**	**324,5**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK FINANCE & ASSURANCE	MESIFI470723	Advanced financial concepts and models	6	27
	MESIFI471023	Time series econometrics		27
	MESIFI472223	VBA		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – INDUSTRY & ROBOTICS (IND)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN470223	Machine Learning	6	27
	MESIIN473723	Operating Systems		15
	MESIIN475123	Network		27
	MESIIN475623	Scrum methodology		15
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION IND	MESIIN473623	Computer Architecture	8	30
	MESIIN474623	Hardware Software Interface		30
	MESIIN476523	Robot Operating System		30
	MESISI473423	Cobots and HMI		30
Total			**24**	**329**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK ENGINEERING SCIENCES	MESIIN473523	Augmented and and Virtual Reality	6	27
	MESIIN472623	Control Theory		27
	MESIIN473323	Innovation design		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27

Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – IoT & CYBERSECURITY (OCC)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN470223	Machine Learning	6	27
	MESIIN473723	Operating Systems		15
	MESIIN475123	Network		27
	MESIIN475623	Scrum methodology		15
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION OCC	MESIIN471923	MCU architecture & Trust	8	30
	MESIIN474023	Securing Embedded Software		30
	MESIIN476123	Digital Communication		30
	MESIIN476223	Cybersecurity Landscape		30
Total			**24**	**329**

MANDATORY 6 CREDITS SPECIALIZATION MODULES TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK COMPUTER SCIENCE	MESIIN470323	Advanced Database Management	6	27
	MESIIN472823	Software Engineering		27
	MESIIN475723	Node & react Development		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27

Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – DIGITAL MODELLING & MECHANICS (MNM)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	Module	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN470223	Machine Learning	6	27
	MESISI470123	Heat Transfer		27
	MESISI470223	Fluid Mechanics		27
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION MMN	MESISI470623	Structural Analysis	8	30
	MESISI471223	Dynamics of vehicles and powertrains systems		30
	MESISI473523	Probabilistic and reliability methods in engineering design		30
	MESISI473623	Finite Element Analysis		30
Total			**24**	**326**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK ENGINEERING SCIENCES	MESIIN473523	Augmented and and Virtual Reality	6	27
	MESIIN472623	Control Theory		27
	MESIIN473323	Innovation design		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27

	MESIIN475523	Immersive experiences		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 4th YEAR – FALL SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN470223	Machine Learning	6	27
	MESISI470123	Heat Transfer		27
	MESISI470223	Fluid Mechanics		27
PROJECT	MESIGP470123	Project	6	11
	MESIGP470323	Project Methodology		15
	MESIGP470423	Research Methodology		15
SOFT SKILLS	MATXSK470123	Hackathon A4	4	30
	MESIDV470123	Ethique de l'ingénieur		15
	MESILVS70123	French as a foreign language (FLE)		18
	MESISK470123	Formation au MBTI		6
	MESISK470223	Internship preparation (in french)		15
	MESISK470323	Enterprise conferences		0
SPECIALIZATION SB	MESISI470723	Biology fundamentals	8	30
	MESISI471523	Health, autonomy and biotechnology: economy and organisation		30
	MESISI473823	Sensors and optoelectronics		30
	MESISI473923	Modeling biological systems		30
Total			**24**	**326**

MANDATORY 6 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
TRACK ENGINEERING SCIENCES	MESIIN473523	Augmented and and Virtual Reality	6	27
	MESIIN472623	Control Theory		27
	MESIIN473323	Innovation design		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI470623	Advanced Research Methodology	6	27
	MESIEI470723	Seminars		27
	MESIEI470823	Electif		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN475323	Introduction to ux design	6	27
	MESIIN475423	TUI/GUI prototyping		27
	MESIIN475523	Immersive experiences		27

Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI473023	Numerical simulation in engineering	6	27
	MESISI473123	Introduction to data analysis and AI		27
	MESISI473223	Introduction to HPC		27
Total			**6**	**81**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BASIS FOR QUANTUM	MESIMA470123	Fourier Theory	6	27
	MESIMA470223	Hilbert spaces		27
	MESISI472923	Introduction to quantum mechanics		27
Total			**6**	**81**

ESILV 5th YEAR – FALL SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
DATA MANAGEMENT	MESIIN593223	Cloud Data Structure	9	30
	MESIIN593323	Mobile Device		30
	MESIIN593423	Cloud Management		30
SECURITY ANALYSIS	MESIIN593523	Pentesting & usecases	6	30
	MESIIN593623	Forensic		30
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**255**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
IIOT SECURITY	MESIIN591523	HW Security & Trust	6	36
	MESIIN592923	Safety & Security		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER - DATA & ARTIFICIAL INTELLIGENCE (DIA)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
ADVANCED AI	MESIIN590123	Machine Learning for NLP	9	36
	MESIIN590323	Machine Learning Use-cases		18
	MESIIN591223	Graph and mining		18
	MESIIN592123	Data & Distributed Network		36
DATA PROCESSING	MESIIN590223	Big Data Ecosystem	6	18
	MESIIN590423	Dataviz		18
	MESIIN590923	Big data processing in Spark		18
	MESIIN592223	Webscapping & Data Processing		18
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**285**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
IT & DATA	MESIIN590523	Veille et enjeux technologiques	6	18
	MESIIN590623	IT management & ITIL		18
	MESIIN592023	Structures de données pour le cloud		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
ENERGY GRIDS	MESISI591823	Smart Grids	9	36
	MESISI592623	Energy Storage Systems		36
	MESISI592723	Ecodistrict		36
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
SUSTAINABLE DEVELOPMENT OF SMART CITY	MESISI592823	Environmental Regulation RE2020	6	18
	MESISI592923	Ecoconception & LCA Method		36
	MESISI593023	Sustainable Project Management		18
Total			**18**	**285**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CHANGES OF ENERGY SECTOR	MESISI590423	Change Management	6	18
	MESISI591023	Energy Policies		18
	MESISI593623	Green IT & Low Tech		18
	MESISI593723	Sustainable Habitat and City		18,5
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85,5**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – FINTECH (FIN)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CONSENSUS	MESIFI592723	Proof of Stake	3	18
	MESIFI592823	Zero Knowledge Proofs		18
MOBILE APPLICATIONS	MESIFI591423	Architectures Cloud	6	36
	MESIFI592123	Mobile Development		36
PROGRAMMING	MESIFI591523	Artificial intelligence for Fintech	6	36
	MESIFI592623	Virtualization		36
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**285**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BLOCKCHAIN	MESIFI590223	Cryptofinance	6	18
	MESIFI590323	Lightning Network		18
	MESIFI590423	Monnaies Numériques		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – FINANCIAL ENGINEERING (IF)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
MARKET ANALYTICS	MESIFI591123	FX markets and models	6	18
	MESIFI591223	Algorithmic trading		28,5
	MESIFI591723	Commodities markets and models		18
RISK AND MATHEMATICS	MESIFI590823	Model risk	9	12
	MESIFI591023	Diffusion models		24
	MESIFI591623	Basel 3, credit risk, and machine learning		30
	MESIFI593023	Data-related innovation in finance: NLP& deep pricing		18
	MESIFI593123	Financial modeling with jump processes		21
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**274,5**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
OPTIONS AND FINANCIAL MARKETS	MESIFI590723	Advanced fixed income with Bloomberg & Derivatives trading	6	36
	MESIFI590923	Calibration de modèles		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – INDUSTRY & ROBOTICS (IND)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
INDUSTRIAL ENGINEERING	MESISI590523	Connected Factory	6	36
	MESISI591423	Industrial Data Management		36
INDUSTRIAL TECHNOLOGIES	MESIIN592723	Autonomous Embedded Systems	9	36
	MESISI591723	Multidisciplinary Design Optimization		24
	MESISI593323	Internet of Things		24
	MESISI593423	Digital Twins		18
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI472823	MasterClass SAP		12
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**291**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
DESIGN AND MANUFACTURING	MESISI590323	Advanced Additive Manufacturing	6	36
	MESISI592123	Industrial Design		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – IoT & CYBERSECURITY (OCC)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
	MESIIN593023	Adaptabilité en Cyber	0	7,5
	MESIIN593123	Cryptographie		6
GOVERNANCE	MESIIN591823	Security Management	9	36
	MESIIN591923	Cyber Risk Management		36
	MESIIN592323	Cyber Resilience		18
	MESIIN592423	Privacy Management		18
IOT SECURITY	MESIIN592523	IoT Pentesting & Forensics	6	36
	MESIIN592623	IoT Security Architecture		36
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
Total			**18**	**298,5**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
IOT SECURITY	MESIIN591523	HW Security & Trust	6	36
	MESIIN592923	Safety & Security		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – DIGITAL MODELLING & MECHANICS (MNM)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
ADVANCED MECHANICAL ENGINEERING	MESISI592523	Advanced Strengh of Materials	3	21
	MESISI593223	Fracture mechanics		36
ADVANCED MODELING AND SIMULATION	MESISI592223	Aeroelasticity	9	33
	MESISI592323	Multiscale modeling and simulation		36
ADVANCED SYSTEM ENGINEERING	MESISI591523	Flight mechanics and avionics	3	18
	MESISI592023	Sustainable Automotive Engineering		21
	MESISI593123	Internet of Things		24
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		2
MASTER CLASS	MESISI590123	MasterClass A5	0	27
Total			**18**	**294**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
DIGITAL ENGINEERING	MESISI591223	Composite materials	6	21
	MESISI591323	Digital twins		18
	MESISI592123	Industrial Design		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**88**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

ESILV 5th YEAR – FALL SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
BIOTECH ENGINEERING	MESIIN591623	Neuroengineering	6	36
	MESISI593523	Materials and implants		36
SOFT SKILLS	MATXSK590123	Séminaire A5 Soft Skills et Leadership	3	30
	MESILVS90123	French as a foreign language (FLE)		36
	MESISI590123	MasterClass A5		27
	MESISK590123	Marketing Yourself et négociation salariale		12
	MESISK590323	Enterprise conferences		0
TECHNOLOGY FOR HEALTH AND WELL-BEING	MESIIN590823	Artificial intelligence and medical big data	9	36
	MESIIN592823	Connected objects and IoT for human health		36
	MESISI591623	Mechatronics and control systems		36
Total			**18**	**285**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

Outreach

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
APPLIED BIOTECH	MESIIN591023	Computer vision and image processing	6	36
	MESIIN591323	HMI and sensory engineering		36
PROJET	MESIGP590223	Projet PI2-A5	6	10,5
	MESIGP590323	Project		2
	MESISK590223	Accompagnement SoftSkills Projet A5		0,5
Total			**12**	**85**

Research

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH TRACK	MESIEI590723	MOOC	12	0
	MESIEI590823	Research Project		0
	MESIEI591123	Workshop		9
	MESIEI591223	Research methodology		33
	MESIEI591323	Experimental methods		9
Total			**12**	**51**

Semester 2 – SPRING Semester 2023-24 (JAN-MAY)

ESILV 4th YEAR – SPRING SEMESTER – CYBERSECURITY & CLOUD COMPUTING (CCC)

MANDATORY BLOCK:

Unité d'Enseignement	Code	Module	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN480323	NoSQL	6	27
	MESIIN483523	Applied cryptography		27
	MESISI482523	Computational modeling		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION CCC	MESIIN481923	Web Applications	6	30
	MESIIN482423	Code Deployment		30
	MESIIN484423	Advanced Infrastructure		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK COMPUTER SCIENCE	MESIIN483623	Containerization Technologies	6	27
	MESIIN483723	Decentralization Technologies		27
	MESIIN483823	Explainability AI		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – DATA & ARTIFICIAL INTELLIGENCE (DIA)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN480323	NoSQL	6	27
	MESIIN483523	Applied cryptography		27
	MESISI482523	Computational modeling		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION DIA	MESIIN480123	Neural Networks and Deep Learning	6	30
	MESIIN480223	Web datamining & semantics		30
	MESIIN484223	ML OPS		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK COMPUTER SCIENCE	MESIIN483623	Containerization Technologies	6	27
	MESIIN483723	Decentralization Technologies		27
	MESIIN483823	Explainability AI		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – ENERGY & SUSTAINABLE CITIES (EVD)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN483923	Internet of Things	6	27
	MESISI482523	Computational modeling		27
	MESISI482623	Supply chain		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION EVD	MESISI480823	Electric Power Systems	6	27
	MESISI481823	Building Thermal Simulation		27
	MESISI482923	BIM		27
Total			**18**	**201**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK ENGINEERING SCIENCES	MESIIN484023	Image processing	6	27
	MESIIN484123	Applications of AI		27
	MESISI482723	Chemical Reaction and Combustion		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – FINTECH (FIN)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN480323	NoSQL	6	27
	MESIIN483523	Applied cryptography		27
	MESISI482523	Computational modeling		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION FIN	MESIIN484523	Decentralized Finance	6	45
	MESIIN484623	Public-key cryptography		15
	MESIIN484723	Web Development		24
Total			**18**	**204**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK COMPUTER SCIENCE	MESIIN483623	Containerization Technologies	6	27
	MESIIN483723	Decentralization Technologies		27
	MESIIN483823	Explainability AI		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – FINANCIAL ENGINEERING (IF)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE FINANCE & ASSURANCE	MESIFI480723	Stochastic calculus	6	30
	MESIFI480923	Derivatives pricing and hedging		27
	MESISI482523	Computational modeling		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION IF	MESIFI481123	Equity derivatives	6	18
	MESIFI481323	Machine learning and asset management		27
	MESIFI482223	Advanced times series econometrics		15
	MESIFI482323	Commodities markets and models		15
	MESIFI482423	Advanced Python, Git, Linux for Bloomberg		15
Total			**18**	**213**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK FINANCE & ASSURANCE	MESIFI481023	Investment techniques	6	33
	MESIFI481223	Simulation methods		27
	MESIFI482123	Extreme value theory for risk statistics		27
Total			**12**	**88,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – INDUSTRY & ROBOTICS (IND)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN483923	Internet of Things	6	27
	MESISI482523	Computational modeling		27
	MESISI482623	Supply chain		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION IND	MESIIN482723	Embedded Artificial Intelligence	6	30
	MESISI481023	Mechatronic Systems		30
	MESISI481623	Industrial Operations Management		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK ENGINEERING SCIENCES	MESIIN484023	Image processing	6	27
	MESIIN484123	Applications of AI		27
	MESISI482723	Chemical Reaction and Combustion		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – IoT & CYBERSECURITY (OCC)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE COMPUTER SCIENCE	MESIIN480323	NoSQL	6	27
	MESIIN483523	Applied cryptography		27
	MESISI482523	Computational modeling		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION OCC	MESIIN482123	OS Hardenning	6	30
	MESIIN482223	Network Security		30
	MESIIN484323	Connectivity Security		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK COMPUTER SCIENCE	MESIIN483623	Containerization Technologies	6	27
	MESIIN483723	Decentralization Technologies		27
	MESIIN483823	Explainability AI		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – DIGITAL MODELLING & MECHANICS (MNM)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN483923	Internet of Things	6	27
	MESISI482523	Computational modeling		27
	MESISI482623	Supply chain		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION MMN	MESISI480423	Modeling and simulation of manufacturing processes	6	30
	MESISI480723	Numerical computation for fluid mechanics		30
	MESISI482823	Materials and behavior		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK ENGINEERING SCIENCES	MESIIN484023	Image processing	6	27
	MESIIN484123	Applications of AI		27
	MESISI482723	Chemical Reaction and Combustion		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

ESILV 4th YEAR – SPRING SEMESTER – HEALTH ENGINEERING & BIOTECHNOLOGY (SB)

MANDATORY BLOCK:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
CORE ENGINEERING SCIENCES	MESIIN483923	Internet of Things	6	27
	MESISI482523	Computational modeling		27
	MESISI482623	Supply chain		27
PROJECT	MESIGP480223	Project	6	21
SOFT SKILLS	MESILVF80123	French as a foreign language (FLE)	0	18
	MESISK480223	Enterprise conferences		0
SPECIALIZATION SB	MESISI483023	Ethics, quality and regulation	6	15
	MESISI483123	Health Data and security		15
	MESISI483223	Applied data analysis		15
	MESISI483323	Telehealth & Health information systems		15
	MESISI483423	Experimental methodology and biostatistics		30
Total			**18**	**210**

MANDATORY 12 CREDITS SPECIALIZATION MODULE TO CHOOSE BETWEEN:

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
STAGE	MESIST480123	Internship A4	6	1,5
TRACK ENGINEERING SCIENCES	MESIIN484023	Image processing	6	27
	MESIIN484123	Applications of AI		27
	MESISI482723	Chemical Reaction and Combustion		27
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
RESEARCH	MESIEI480923	Seminars	6	50
	MESIEI481023	Electif		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**78,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
UX DESIGN	MESIIN483323	Application Design	6	27
	MESIIN483423	Game design		27
	MESIIN484823	Website design		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
HPC & IA	MESISI482223	Time to market reduction	6	27
	MESISI482323	Numerical simulation and HPC		27
	MESISI482423	Data Analysis and HPC		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**

TEACHING UNIT	23-24 CODES	COURSE NAMES	ECTS	TEACHING HOURS
QUANTUM COMPUTING	MESIIN483123	Introduction to Quantum Computing	6	27
	MESIIN483223	Quantum Algorithms		27
	MESISI482123	Qubit physics		27
STAGE	MESIST480123	Internship A4	6	1,5
Total			**12**	**82,5**