

Vue bloc du programme des cours

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Bloc 1

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

To complete their curriculum, students must earn or validate the 50 credits of the compulsory courses (including the master thesis), choose one of the three professional foci (30 credits), choose three courses in the list of transversal methodology courses (for 15 credits), and choose optional courses for 25 credits.

Ideally, students enrolling in the master program should have acquired the skills and knowledge corresponding to the 40 credits in "Electrical engineering" offered as part of the bachelor program in engineering.

Compulsory courses

SYST0003-2	<i>Linear control systems</i> (anglais) - <i>Theory</i> - Guillaume DRION - <i>Control system design</i> - Guillaume DRION	Q1	26	6	-	3
INFO0064-2	<i>Embedded systems</i> (anglais) - Bernard BOIGELOT Corequis : APRI0007-1 - Major project in electrical engineering	Q1	25	20	-	3
ELEC0055-2	<i>Element of power Electronics , Partim A</i> (anglais) - Fabrice FREBEL Corequis : ELEC0431-2 - Electromagnetic energy conversion	Q1	30	6	-	3
APRI0007-1	<i>Major project in electrical engineering</i> (anglais) - Marc BIRON, Bernard BOIGELOT, Guillaume DRION, JeanMichel REDOUTÉ - [300h Proj.] Corequis : SYST0003-2 - Linear control systems ELEC0055-2 - Element of power Electronics ELEC0053-2 - Circuits électriques ELEC0052-2 - Mesures électriques : fondements et applications ELEC0431-2 - Electromagnetic energy conversion	TA	20	-	[+]	11

Elective courses

Choose one of the three following foci :

Professional focus : Electronic systems and devices

[...] Remark : students who would have taken some of these courses previously in their program must replace them by other courses from the faculty of engineering; this choice must be approved by the President of the cycle's Jury.

ELEN0004-1	<i>Semiconductor devices</i> (anglais) - Benoît VANDERHEYDEN	Q1	26	26	-	5
ELEN0037-1	<i>Microelectronics and IC design</i> (anglais) - JeanMichel REDOUTÉ - [40h Proj.]	Q2	30	20	[+]	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> (anglais) - Philippe VANDERBEMDEN - [20h Labo.]	Q2	30	-	[+]	5
SYST0020-1	<i>Introduction to microsystems and microtechnology</i> (anglais) - Tristan GILET, JeanMichel REDOUTÉ - [4h Labo., 20h Proj.]	Q2	24	18	[+]	5
ELEN0017-1	<i>Analysis and Design of Telecommunications Systems</i> (anglais) - Marc VAN DROOGENBROECK	Q1	26	26	-	5

Professional focus : Smart Grids

[...] Remark : students who would have taken some of these courses previously in their program must replace them by other courses from the faculty of engineering; this choice must be approved by the President of the cycle's Jury.

ELEC0018-1	<i>Energy market</i> (anglais) - Damien ERNST	Q1	39	13	-	5
ELEC0041-1	<i>Modelling and design of electromagnetic systems</i> (anglais) - - Suppl :	Q2	26	26	-	5

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MECA0450-3	<i>Renewable energies</i> (anglais) - Pierre DEWALLEF - [24h Proj., 1j T. t.]	Q2	24	12	[+]	5
ELEC0447-1	<i>Analysis of electric power and energy systems</i> (anglais) - Bertrand CORNÉLUSSE, Louis WEHENKEL	Q1	26	26	-	5
Corequis :						
ELEC0053-2 - Circuits électriques						
ELEC0448-1	<i>Planning and operation of electric power and energy systems</i> (anglais) - Bertrand CORNÉLUSSE, Damien ERNST, Louis WEHENKEL	Q2	26	26	-	5
Corequis :						
ELEC0447-1 - Analysis of electric power and energy systems						
MATH0461-2 - Introduction to numerical optimization						

Professional focus : Signal processing and intelligent robotics

Remarque : only accessible to students already registered for this focus.

[...] Remark : students who would have taken some of these courses previously in their program must replace them by other courses from the faculty of engineering; this choice must be approved by the President of the cycle's Jury.

SYST0017-1	<i>Advanced topics in systems and control</i> (anglais) - Guillaume DRION	Q1	26	26	-	5
ELEN0060-2	<i>Information and coding theory</i> (anglais) - Louis WEHENKEL - [30h Proj.]	Q2	30	15	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (anglais) - Pierre SACRÉ - [80h Proj.]	Q2	30	4	[+]	5
INFO8003-1	<i>Optimal decision making for complex problems</i> (anglais) - Damien ERNST - [45h Proj.]	Q2	25	10	[+]	5
INFO8010-1	<i>Deep learning</i> (anglais) - Gilles LOUPPE - [55h Proj.]	Q2	25	10	[+]	5
Corequis :						
ELEN0062-1 - Introduction to machine learning						

Professional focus : Neuromorphic engineering

[...] Remark : students who would have taken some of these courses previously in their program must replace them by other courses from the faculty of engineering; this choice must be approved by the President of the cycle's Jury.

SYST0017-1	<i>Advanced topics in systems and control</i> (anglais) - Guillaume DRION	Q1	26	26	-	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (anglais) - Pierre SACRÉ - [80h Proj.]	Q2	30	4	[+]	5
GNEU0001-1	<i>Principles of Neuroengineering</i> (anglais) - Guillaume DRION, Christophe PHILLIPS, Pierre SACRÉ - [26h Labo., 15h Proj.]	Q1	26	-	[+]	5
GNEU0002-1	<i>Brain Inspired Computing</i> (anglais) - Alessio FRANCI - [20h Proj.]	Q2	25	20	[+]	5
GNEU0003-1	<i>Neuromorphic Signal Processing</i> (anglais) - Alessio FRANCI - [20h Proj.]	Q2	25	20	[+]	5

Professional focus : Electric power and energy systems

Remarque : only accessible to students already registered for this focus.

Choose three among the following transversal courses that can be spread over the 2 blocks

Transversal courses

ELEN0060-2	<i>Information and coding theory</i> (anglais) - Louis WEHENKEL - [30h Proj.]	Q2	30	15	[+]	5
INFO8003-1	<i>Optimal decision making for complex problems</i> (anglais) - Damien ERNST - [45h Proj.]	Q2	25	10	[+]	5
ELEN0062-1	<i>Introduction to machine learning</i> (anglais) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	5

INFO0062-1	<i>Object-oriented programming</i> (anglais) - Bernard BOIGELOT - [20h Proj.]	Q2	25	20	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (anglais) - Christophe GEUZAINÉ - Suppl : David COLIGNON - [20h Proj.]	Q1	30	15	[+]	5
MATH0461-2	<i>Introduction to numerical optimization</i> (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	5
MATH0462-1	<i>Discrete optimization</i> (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q2	30	20	[+]	5

Bloc 2

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

Compulsory courses

GEST3162-1	<i>Principles of management</i> (anglais) - François PICHULT, Willem STANDAERT - [25h Proj.]	Q1	30	-	[+]	5
ATFE0014-1	<i>Master thesis</i> (anglais) - COLLÉGIALITÉ, Bertrand CORNÉLUSSE - [750h Proj.]	TA	-	-	[+]	25

Elective courses

Carry on the focus begun :

Professional focus : Electronic systems and devices

GBIO0029-1	<i>Bioelectronics</i> (anglais) - JeanMichel REDOUTÉ - [20h Labo., 20h Proj.]	Q1	30	15	[+]	5
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Professional focus : Smart Grids

ELEN0445-1	<i>Microgrids</i> (anglais) - Bertrand CORNÉLUSSE - [24h Proj., 1j T. t.]	Q1	18	18	[+]	5
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Professional focus : Signal processing and intelligent robotics

ELEN0016-2	<i>Computer vision</i> (anglais) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5
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Professional focus : Neuromorphic engineering

ELEN0016-2	<i>Computer vision</i> (anglais) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5
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Professional focus : Electric power and energy systems

Complete your programme with 25 credits chosen among any of the courses listed above (that are not already part of your programme) or in the list below (this choice must be approved by the President of the cycle's Jury).

Remark : the course units ASTG0019-1 et ASTG0026-1 are mutually exclusive.

ASTG0019-1	<i>Internship (distinct from master's thesis)</i> (anglais) - Bertrand CORNÉLUSSE - [40j T. t.]	TA	-	-	[+]	10
ASTG0026-1	<i>Internship (linked to master's thesis)</i> (anglais) - COLLÉGIALITÉ, Bertrand CORNÉLUSSE - [80j T. t.]	TA	-	-	[+]	2

Smart grids

ELEC0449-1	<i>Practices and evolution of the electric power and energy industry</i> (anglais) - Bertrand CORNÉLUSSE, Damien ERNST, Louis WEHENKEL - [12h Proj., 6j T. t.]	TA	-	-	[+]	5
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Prérequis :

ELEC0447-1 - Analysis of electric power and energy systems

ELEC0018-1 - Energy market

CHIM0664-1	<i>Electrochemical energy conversion and storage</i> (anglais) - <i>partim théorique</i> - Nathalie JOB - <i>partim laboratoire</i> - Nathalie JOB - [15h Labo.]	Q1	15	-	-	3
ENVT3065-1	(pas organisé en 2022-2023) <i>Sustainability challenges</i> (anglais) - <i>Partim 1 - Les enjeux climat et énergie</i> - Bertrand CORNÉLUSSE,	Q1	16	16	-	5

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- *Partim 2* - Bertrand CORNÉLUSSE, Xavier FETTWEIS 10 10 -

Electronic systems and devices

ELEN0447-1	<i>High-frequency electronics</i> (anglais) - JeanMichel REDOUTÉ, Benoît VANDERHEYDEN - [10h Labo.]	Q1	26	12	[+]	5
ELEC0017-1	<i>Electromagnetic Compatibility</i> (anglais) - Véronique BEAUVOIS, Christophe GEUZAINÉ - [30h Proj.]	TA	20	10	[+]	5
ELEC0054-1	<i>Advanced electrical measurement systems</i> (anglais) - Philippe VANDERBEMDEN - [20h Labo.]	Q1	30	10	[+]	5
ELEN0069-1	<i>Nanoelectronics / Optoelectronics</i> (anglais) - Benoît VANDERHEYDEN - [40h Proj.] Corequis : ELEN0004-1 - Semiconductor devices	Q2	30	-	[+]	5

Neuromorphic engineering

GBIO0008-2	<i>Medical imaging</i> (anglais) - Christophe PHILLIPS - [8h Labo., 1j T. t.]	Q2	33	12	[+]	5
INFO8004-1	<i>Advanced Machine learning</i> (anglais) - Pierre GEURTS, Gilles LOUPPE, Louis WEHENKEL - [45h Proj.] Corequis : ELEN0062-1 - Introduction to machine learning INFO8010-1 - Deep learning	Q2	25	-	[+]	5
INFO8006-1	<i>Introduction to artificial intelligence</i> (anglais) - Gilles LOUPPE - [45h Proj.]	Q1	25	20	[+]	5
INFO8010-1	<i>Deep learning</i> (anglais) - Gilles LOUPPE - [55h Proj.]	Q2	25	10	[+]	5

Other elective courses

INGE0012-1	(pas organisé en 2022-2023) <i>Scientific research in engineering and its impact on innovation</i> (anglais)	Q2	26	26	-	5
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[...] Possibility to choose 10 credits of courses in the ULiège programmes : this choice must have the approval of the cycle's juryPresident

Bloc d'aménagement du programme de l'année

Crédits supplémentaires Master en Ingénieur Civil Electricien

Optional courses

The individual program of each transfer student will be established by the jury on the basis of his/her background. If some of the prerequisite are not met, this program will contain up to 60 additional credits mainly taken from the list below. Students who do not speak French will never be committed to take subjects/courses that are only taught in French.

ELEC0431-2	<i>Electromagnetic energy conversion</i> (anglais) - - Suppl : François HENROTTE - [15h Labo.]	Q2	30	15	[+]	5
ELEC0052-2	<i>Mesures électriques : fondements et applications</i> - Philippe VANDERBEMDEN - [24h Labo.]	Q1	30	6	[+]	5
ELEC0053-2	<i>Circuits électriques</i> - Bertrand CORNÉLUSSE	Q2	26	26	-	5
ELEN0040-1	<i>Digital electronics</i> (anglais) - JeanMichel REDOUTÉ	Q2	26	26	-	5
ELEN0076-1	<i>Electromagnétisme</i> - Benoît VANDERHEYDEN	Q1	26	26	-	5
ELEN0008-1	<i>Principes des télécommunications analogiques et numériques</i> - Marc VAN DROOGENBROECK	Q2	26	26	-	5
ELEN0075-3	<i>Electronique analogique</i> - Benoît VANDERHEYDEN - [16h Labo.]	Q2	29	23	[+]	5

Programme des cours 2022-2023
Faculté des Sciences Appliquées
Master : ingénieur civil électricien, à finalité

[...] Choisir maximum 25 crédits pour compléter le cursus