

Vue cycle du programme des cours

B1 Or Th Pr Au Cr

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 (B1 : 20Cr, B2 : 30Cr)

SYST0003-2	<i>Linear control systems</i> (anglais) - <i>Theory</i> - Guillaume DRION - <i>Control system design</i> - Guillaume DRION	B1	Q1						3
			26	6	-				
			4	-	-				
INFO0064-2	<i>Embedded systems</i> (anglais) - Bernard BOIGELOT Corequis : APRI0007-1 - Major project in electrical engineering	B1	Q1	25	20	-			3
ELEC0055-2	<i>Element of power Electronics , Partim A</i> (anglais) - Fabrice FREBEL Corequis : ELEC0431-2 - Electromagnetic energy conversion	B1	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 - Analyse et conception des systèmes de mesures électriques ELEC0431-2 - Electromagnetic energy conversion	B1	TA	20	-		[+]		11
GEST3162-1	<i>Principles of management</i> (anglais) - François PICHAULT, Willem STANDAERT - [25h Proj.]	B2	Q1	30	-		[+]		5
ATFE0014-1	<i>Master thesis</i> (anglais) - COLLÉGIALITÉ, Bertrand CORNÉLUSSE - [750h Proj.]	B2	TA	-	-		[+]		25

Elective courses (B1 : 40Cr, B2 : 30Cr)

Choose one of the three following foci : (B1 : 25Cr, B2 : 5Cr)

Professional focus : Electric power and energy systems (B1 : 25Cr, B2 : 5Cr)

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

Professional focus : Smart Grids (B1 : 25Cr, B2 : 5Cr)

[...] 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	B1	Q1	39	13	-			5
ELEC0041-1	<i>Modelling and design of electromagnetic systems</i> (anglais) - Christophe GEUZAINÉ	B1	Q2	26	26	-			5
ELEN0445-1	<i>Microgrids</i> (anglais) - Bertrand CORNÉLUSSE - [24h Proj., 1j T. t.]	B2	Q1	18	18		[+]		5
MECA0450-3	<i>Renewable energies</i> (anglais) - Pierre DEWALLEF - [24h Proj., 1j T. t.]	B1	Q2	24	12		[+]		5
ELEC0447-1	<i>Analysis of electric power and energy systems</i> (anglais) - Bertrand CORNÉLUSSE, Louis WEHENKEL Corequis :	B1	Q1	26	26	-			5

ELEC0053-2 - Circuits électriques

ELEC0448-1	<i>Planning and operation of electric power and energy systems</i> (anglais) - Bertrand CORNÉLUSSE, Damien ERNST, Louis WEHENKEL	B1	Q2	26	26	-	5
	Corequis : ELEC0447-1 - Analysis of electric power and energy systems MATH0461-2 - Introduction to numerical optimization						

Professional focus : Electronic systems and devices (B1 : 25Cr, B2 : 5Cr)

[...] 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	B1	Q1	26	26	-	5
ELEN0037-1	<i>Microelectronics and IC design</i> (anglais) - JeanMichel REDOUTÉ - [40h Proj.]	B1	Q2	30	20	[+]	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> (anglais) - Philippe VANDERBEMDEN - [20h Labo.]	B1	Q2	30	-	[+]	5
SYST0020-1	<i>Introduction to microsystems and microtechnology</i> (anglais) - Tristan GILET, JeanMichel REDOUTÉ - [4h Labo., 20h Proj.]	B1	Q2	24	18	[+]	5
ELEN0017-1	<i>Analysis and Design of Telecommunications Systems</i> (anglais) - Marc VAN DROOGENBROECK	B1	Q1	26	26	-	5
GBIO0029-1	<i>Bioelectronics</i> (anglais) - JeanMichel REDOUTÉ - [20h Labo., 20h Proj.]	B2	Q1	30	15	[+]	5

Professional focus : Signal processing and intelligent robotics (B1 : 25Cr, B2 : 5Cr)

[...] 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	B1	Q1	26	26	-	5
ELEN0060-2	<i>Information and coding theory</i> (anglais) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (anglais) - Pierre SACRÉ - [80h Proj.]	B1	Q2	30	4	[+]	5
INFO8010-1	<i>Deep learning</i> (anglais) - Gilles LOUPPE - [55h Proj.]	B1	Q2	25	10	[+]	5
	Corequis : ELEN0062-1 - Introduction to machine learning						
INFO8003-1	<i>Optimal decision making for complex problems</i> (anglais) - Damien ERNST - [45h Proj.]	B1	Q2	25	10	[+]	5
ELEN0016-2	<i>Computer vision</i> (anglais) - Marc VAN DROOGENBROECK - [50h Proj.]	B2	Q1	30	10	[+]	5

Choose three among the following transversal courses (B1 : 15Cr)

Transversal courses

ELEN0062-1	<i>Introduction to machine learning</i> (anglais) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	B1	Q1	30	5	[+]	5
INFO0062-1	<i>Object-oriented programming</i> (anglais) - Bernard BOIGELOT - [20h Proj.]	B1	Q2	25	20	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (anglais) - Christophe GEUZAINÉ - [20h Proj.]	B1	Q1	30	15	[+]	5
MATH0461-2	<i>Introduction to numerical optimization</i> (anglais) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	5

MATH0462-1 *Discrete optimization* (anglais) - Quentin LOUVEAUX - [25h Proj.] B1 Q2 30 20 [+] 5

Fundamentals of Electrical Engineering

[...] The subjects ELEC0431-2, ELEC0052-2 and ELEC0053-2 are corequisite to some compulsory courses of the master program. They must be taken as a priority, unless they were already taken as part of the bachelor in engineering, or unless the corresponding knowledge and skills have been acquired previously.

ELEC0431-2 *Electromagnetic energy conversion* (anglais) - Christophe GEUZAINÉ - [15h Labo.] B1 Q2 30 15 [+] 5

ELEC0052-2 *Analyse et conception des systèmes de mesures électriques* - Philippe VANDERBEMDEN - [24h Labo.] B1 Q1 30 6 [+] 5

ELEC0053-2 *Circuits électriques* - Bertrand CORNÉLUSSE B1 Q2 26 26 - 5

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). (B2 : 25Cr)

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

ASTG0019-1 *Internship (distinct from master's thesis)* (anglais) - Bertrand CORNÉLUSSE - [40j T. t.] B2 TA - - [+] 10

ASTG0026-1 *Internship (linked to master's thesis)* (anglais) - COLLÉGIALITÉ, Bertrand CORNÉLUSSE - [80j T. t.] B2 TA - - [+] 2

Smart grids

ELEC0449-1 *Practices and evolution of the electric power and energy industry* (anglais) - Bertrand CORNÉLUSSE, Damien ERNST, Louis WEHENKEL - [12h Proj., 6j T. t.] B2 TA - - [+] 5

Prérequis :

ELEC0447-1 - Analysis of electric power and energy systems

ELEC0018-1 - Energy market

CHIM0664-1 *Electrochemical energy conversion and storage* (anglais) - Nathalie JOB - [15h Labo.] B2 Q1 15 - [+] 3

ENVT3065-1 *Sustainability challenges* (anglais)
- *Partim 1 - Les enjeux climat et énergie* - Bertrand CORNÉLUSSE, Xavier FETTWEIS B2 Q1 16 16 - 5
- *Partim 2* - Bertrand CORNÉLUSSE, Xavier FETTWEIS 10 10 -

Electronic systems and devices

ELEC0017-1 *Electromagnetic Compatibility* (anglais) - Véronique BEAUVOIS, Christophe GEUZAINÉ - [30h Proj.] B2 TA 20 10 [+] 5

ELEC0054-1 *Application of electrical measurement systems* (anglais) - Philippe VANDERBEMDEN - [20h Labo.] B2 Q1 30 10 [+] 5

ELEN0069-1 *Nanoelectronics / Optoelectronics* (anglais) - Benoît VANDERHEYDEN - [40h Proj.] B2 Q2 30 - [+] 5

Prérequis :

ELEN0004-1 - Semiconductor devices

Signal processing and intelligent robotics

GBIO0008-2 *Medical imaging* (anglais) - Christophe PHILLIPS - [8h Labo., 1j T. t.] B2 Q2 33 12 [+] 5

INFO8004-1 *Advanced Machine learning* (anglais) - Pierre GEURTS, Gilles LOUPPE, Louis WEHENKEL - [45h Proj.] B2 Q2 25 - [+] 5

INFO8006-1 *Introduction to artificial intelligence* (anglais) - Gilles LOUPPE - [45h Proj.] B2 Q1 25 20 [+] 5

Computer systems and networks

INFO0012-2 *Computation structures* (anglais) - Pascal FONTAINE, B2 Q1 26 26 [+] 5

ATHY - [40h Proj.]

INFO0010-4 *Introduction to computer networking* (anglais) - Guy LEDUC - [12h Labo., 40h Proj.] B2 Q1 35 2 [+] 5

Prérequis :

INFO0062-1 - Object-oriented programming

Other elective courses

INGE0012-1 *Scientific research in engineering and its impact on innovation* (anglais) - Rodolphe SEPULCHRE B2 Q2 26 26 - 5

[...] One course to choose from the ULiège courses programme ; this choice must have the approval of the cycle's jury President

Crédits supplémentaires Master en Ingénieur Civil Electricien

Optional courses (B0 : 60Cr)

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. (B0 : 60Cr)

ELEC0431-2 *Electromagnetic energy conversion* (anglais) - Christophe GEUZAINÉ - [15h Labo.] B0 Q2 30 15 [+] 5

ELEC0052-2 *Analyse et conception des systèmes de mesures électriques* - Philippe VANDERBEMDEN - [24h Labo.] B0 Q1 30 6 [+] 5

ELEC0053-2 *Circuits électriques* - Bertrand CORNÉLUSSE B0 Q2 26 26 - 5

ELEN0040-1 *Digital electronics* (anglais) - JeanMichel REDOUTÉ B0 Q2 26 26 - 5

ELEN0076-1 *Electromagnétisme* - Benoît VANDERHEYDEN B0 Q1 26 26 - 5

ELEN0008-1 *Principes des télécommunications analogiques et numériques* - Marc VAN DROOGENBROECK B0 Q2 26 26 - 5

ELEN0075-3 *Electronique analogique* - Benoît VANDERHEYDEN - [16h Labo.] B0 Q2 29 23 [+] 5

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