

Block view of the study programme

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Block 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 70 credits of the compulsory courses (including the master thesis), choose one option for 20 credits and 30 credits from one of the three professional foci.

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

Compulsory Courses

INFO0085-1	<i>Compilers</i> (english language) - Pierre GEURTS - [75h Proj.] Corequisite : INFO0016-1 - Introduction to the theory of computation INFO0012-3 - Computation structures INFO0940-1 - Operating systems	Q2	25	-	[+]	5
INFO0063-1	<i>Object-oriented software engineering</i> (english language) - Bernard BOIGELOT - [30h Proj.] Corequisite : INFO0062-1 - Object-oriented programming	Q1	30	24	[+]	5
INFO0016-1	<i>Introduction to the theory of computation</i> (english language) - Pierre WOLPER	Q1	30	30	-	5
MATH0462-1	<i>Discrete optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	5
INFO0051-1	<i>Logic</i> (english language) - Pascal GRIBOMONT - [10h Proj.]	Q1	30	25	[+]	5
ELEN0060-2	<i>Information and coding theory</i> (english language) - Louis WEHENKEL - [30h Proj.]	Q2	30	15	[+]	5
GEST3162-1	<i>Principles of management</i> (english language) - Michael GHILISSEN, François PICHULT, Thierry PIRONET, Didier VAN CAILLIE - Suppl : Fanny FOX	Q1	25	25	-	5
PROJ0010-1	<i>Integrated software project, including fundamentals in project management</i> (english language) - JeanLouis BINOT, Bernard BOIGELOT, Benoît DONNET, Guy LEDUC, Laurent MATHY - [290h Proj.] Corequisite : INFO0063-1 - Object-oriented software engineering INFO0010-4 - Introduction to computer networking	TA	10	-	[+]	10

Optional courses

Choose one focus among the three below :

Professional focus on "Computer systems and networks"

Compulsory Courses

INFO0031-1	<i>Computer network architectures and multimedia</i> (english language) - Guy LEDUC - [10h Labo., 25h Proj.] Corequisite : INFO0010-4 - Introduction to computer networking	Q1	35	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [8h Labo., 30h Proj.]	Q2	30	10	[+]	5

Students choosing this focus shall select, in addition to 10 credits of compulsory courses, 5 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus

INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT -	Q2	-	-	[+]	2

	[60h Proj.]							
	Corequisite : INFO0064-2 - Embedded systems							
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET - [60h Proj.]	Q2	20	-	[+]			5
	Corequisite : INFO0031-1 - Computer network architectures and multimedia							
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	Q2	15	10	[+]			5
INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC - [12h Labo., 55h Proj.]	Q2	30	-	[+]			5
	Corequisite : INFO0045-3 - Introduction to computer security							
ELEN0002-2	<i>Introduction to audio and video techniques</i> (english language) - JeanJacques EMBRECHTS - [8h Labo.]	Q1	30	22	[+]			5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAIN - [20h Proj.]	Q1	30	15	[+]			5

Professional focus on "Intelligent Systems"

Compulsory Courses

ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]			5
	Corequisite : MATH0462-1 - Discrete optimization							

Students choosing this focus shall select, in addition to 5 credits of compulsory courses, 10 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus

ELEN0016-2	<i>Computer vision</i> (english language) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]			5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Renaud DETRY, Louis WEHENKEL - [80h Proj.]	Q2	30	4	[+]			5
	Corequisite : ELEN0062-1 - Introduction to machine learning ELEN0016-2 - Computer vision							
INFO0049-1	<i>Knowledge representation</i> (english language) - Pascal GRIBOMONT - [50h Proj.]	Q2	30	25	[+]			5
	Corequisite : INFO0051-1 - Logic							
INFO2049-1	<i>Web and Text Analytics</i> (english language) - Ashwin ITTOO	Q1	30	-	-			5
	Corequisite : ELEN0062-1 - Introduction to machine learning							
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]			5
MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (english language) - Olivier BRULS - [40h Proj.]	Q2	30	20	[+]			5
GBIO0002-1	<i>Genetics and bioinformatics</i> (english language) - Franck DEQUIEDT, Kristol VAN STEEN - [15h Proj.]	Q1	30	15	[+]			5

Professional focus on "Management"

Compulsory Courses

FINA0001-1	<i>Financial statement analysis and financing an enterprise</i> - Jacques BERWART	Q2	45	-	-			5
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ECON2259-1	<i>Microeconomics and industrial economy</i> - Axel GAUTIER, Bernard THIRY	Q2	40	15	-	5
LOGI0010-1	<i>Supply Chain Management</i> (english language) - Yasemin ARDA	Q2	45	-	-	5

Research focus

Aimed at students who have taken this focus in 2015-2016.

Block 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

ATFE0015-1	<i>Master thesis</i> (english language) - COLLÉGIALITÉ, Laurent MATHY - [750h Proj.]	TA	-	-	[+]	25
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Optional courses

Carry on the focus during the second bloc :

Professional focus on "Computer systems and networks"

Students choosing this focus shall select 30 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus

INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.] Corequisite : INFO0064-2 - Embedded systems	Q2	-	-	[+]	2
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET - [60h Proj.] Corequisite : INFO0031-1 - Computer network architectures and multimedia	Q2	20	-	[+]	5
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	Q2	15	10	[+]	5
INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC - [12h Labo., 55h Proj.] Corequisite : INFO0045-3 - Introduction to computer security	Q2	30	-	[+]	5
ELEN0002-2	<i>Introduction to audio and video techniques</i> (english language) - JeanJacques EMBRECHTS - [8h Labo.]	Q1	30	22	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAIN - [20h Proj.]	Q1	30	15	[+]	5

Professional focus on "Intelligent Systems"

Compulsory Courses

SYST0003-1	<i>Linear control systems</i> (english language) - Guillaume DRION - [6h Labo.]	Q1	30	30	[+]	5
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Students choosing this focus shall select, in addition to 5 credits of compulsory courses, 30 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus

ELEN0016-2	<i>Computer vision</i> (english language) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) -	Q2	30	4	[+]	5

	ENTRY, Louis WEHENKEL - [80h Proj.]					
	Corequisite : ELEN0062-1 - Introduction to machine learning ELEN0016-2 - Computer vision					
INFO0049-1	<i>Knowledge representation</i> (english language) - Pascal GRIBOMONT - [50h Proj.]	Q2	30	25	[+]	5
	Corequisite : INFO0051-1 - Logic					
INFO2049-1	<i>Web and Text Analytics</i> (english language) - Ashwin ITTOO	Q1	30	-	-	5
	Corequisite : ELEN0062-1 - Introduction to machine learning					
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	5
MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (english language) - Olivier BRULS - [40h Proj.]	Q2	30	20	[+]	5
GBIO0002-1	<i>Genetics and bioinformatics</i> (english language) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.]	Q1	30	15	[+]	5

Professional focus on "Management"

Compulsory Courses

ERAS0011-1	<i>Business Simulation</i> (english language) - Anne CHANTEUX - [50h Mon. WS]	Q1	-	-	[+]	2
GRHO0001-4	<i>Strategic Human Resources Management</i> - François PICHAULT - Suppl : Frédéric NAEDENOEN	Q1	45	-	-	5
DROI0174-2	<i>Commercial law</i> - Frédéric DAERDEN, Laurent STAS DE RICHELLE	Q2	45	-	-	5

Students choosing this focus shall select, in addition to 12 credits of compulsory courses, 23 credits of elective courses inside or outside the focus. One of the 3 language courses belonging to the focus must necessarily be chosen as an option in either block 1 or block 2, for 3 credits

LANG1936-1	<i>Elementary Dutch 1</i> - Doris DE LAET	TA	30	-	-	3
LANG1933-1	<i>Elementary German 1</i> - Marie MAWHIN	Q2	30	-	-	3
LANG1934-1	<i>Elementary Spanish 1</i> - Alexis ALVAREZ BARBOSA	Q2	30	-	-	3

Research focus

Choose remaining credits in the lists below :

Optional courses outside the focus

The following courses 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 computer science, or unless the corresponding knowledge and skills have been acquired previously.

MATH0500-1	<i>Introduction to numerical algorithmic</i> - Quentin LOUVEAUX - [6h Labo., 45h Proj.]	Q1	24	14	[+]	5
INFO2050-1	<i>Advanced computer programming</i> - Pierre GEURTS - [40h Proj.]	Q1	25	20	[+]	5
INFO0010-4	<i>Introduction to computer networking</i> (english language) - Guy LEDUC - [12h Labo., 40h Proj.]	Q2	35	2	[+]	5
INFO0012-2	<i>Computation structures</i> (english language) - Pierre WOLPER - [40h Proj.]	Q1	30	25	[+]	5
INFO0940-1	<i>Operating systems</i> (english language) - Laurent MATHY - [80h Proj.]	Q2	30	6	[+]	5

[...] With the agreement of the jury, choose 5 credits in any course programme of the University

Computer systems and networks

INFO0031-1	<i>Computer network architectures and multimedia</i> (english language) -	Q1	35	-	[+]	5
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	LEDUC - [10h Labo., 25h Proj.]							
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [8h Labo., 30h Proj.]	Q2	30	10	[+]	5		
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET - [60h Proj.] Corequisite : INFO0031-1 - Computer network architectures and multimedia	Q2	20	-	[+]	5		
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	Q2	15	10	[+]	5		
INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC - [12h Labo., 55h Proj.] Corequisite : INFO0045-3 - Introduction to computer security	Q2	30	-	[+]	5		
ELEN0002-2	<i>Introduction to audio and video techniques</i> (english language) - JeanJacques EMBRECHTS - [8h Labo.]	Q1	30	22	[+]	5		
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	Q1	30	15	[+]	5		
Intelligent Systems								
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.] Corequisite : MATH0462-1 - Discrete optimization	Q1	30	5	[+]	5		
ELEN0016-2	<i>Computer vision</i> (english language) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5		
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Renaud DETRY, Louis WEHENKEL - [80h Proj.] Corequisite : ELEN0062-1 - Introduction to machine learning ELEN0016-2 - Computer vision	Q2	30	4	[+]	5		
INFO0049-1	<i>Knowledge representation</i> (english language) - Pascal GRIBOMONT - [50h Proj.] Corequisite : INFO0051-1 - Logic	Q2	30	25	[+]	5		
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	5		
INFO2049-1	<i>Web and Text Analytics</i> (english language) - Ashwin ITTOO Corequisite : ELEN0062-1 - Introduction to machine learning	Q1	30	-	-	5		
GBIO0002-1	<i>Genetics and bioinformatics</i> (english language) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.]	Q1	30	15	[+]	5		
Other optional courses								
INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3		
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.] Corequisite : INFO0064-2 - Embedded systems	Q2	-	-	[+]	2		
INFO0050-1	<i>Constraint programming projects</i> (english language) - Pascal GRIBOMONT - [80h Proj.] Corequisite : INFO0049-1 - Knowledge representation	TA	15	10	[+]	5		
INFO0060-1	<i>Concurrent system verification and temporal logic</i> (english language) - Bernard BOIGELOT, Pascal GRIBOMONT, Pierre WOLPER - [20h Proj.]	Q2	30	10	[+]	5		

Prerequisite :

INFO0016-1 - Introduction to the theory of computation

INFO0051-1 - Logic

INFO0026-3 *Computer graphics* (english language) - Eric BÉCHET - [45h Proj.] Q2 24 24 [+] 5

GBIO0009-1 *Topics in bioinformatics* (english language) - Kristel VAN STEEN - [35h Proj.] Q1 25 15 [+] 5

Prerequisite :

GBIO0002-1 - Genetics and bioinformatics

ELEN0019-2 *Audio signal processing : principles and experiments* (english language) - JeanJacques EMBRECHTS - [24h Labo., 30h Proj.] Q1 5 - [+] 5

MATH0461-2 *Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.] Q1 30 20 [+] 5

GBIO0030-1 *Computational approaches to statistical generics* (english language) - Kristel VAN STEEN - [35h Proj.] Q2 25 15 [+] 5

Prerequisite :

GBIO0002-1 - Genetics and bioinformatics

INGE0012-1 *Scientific research in engineering and its impact on innovation* (english language) - Rodolphe SEPULCHRE Q2 30 30 - 5

Internships and projects (maximum 15 credits)

ASTG9005-1 *Research Internship* (english language) - Benoît DONNET - [300h Proj.] TA - - [+] 10

ASTG0021-1 *Technical company internship* (english language) - Laurent MATHY - [300h Proj.] TA - - [+] 10

Notice : the two company internships are mutually exclusive

PROJ0011-1 *Personal student project* (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.] TA - - [+] 5

Bloc d'aménagement du programme de l'année

Additional ECTS Master in computer science and engineering

Students that are admitted to the master of science in Computer Science and Engineering without having obtained a degree of bachelor in engineering must add to their programme the following list of courses, to be taken in the first year of the master.

INFO2050-1 *Advanced computer programming* - Pierre GEURTS - [40h Proj.] Q1 25 20 [+] 5

MATH0495-1 *Elements of probability calculus* - Pascal GRIBOMONT - [5h Proj.] Q1 15 15 [+] 3

MATH0500-1 *Introduction to numerical algorithmic* - Quentin LOUVEAUX - [6h Labo., 45h Proj.] Q1 24 14 [+] 5

INFO0027-2 *Programming techniques* (english language) - Laurent MATHY - [70h Proj.] Q2 30 24 [+] 5

INFO0030-3 *Programming Projects* - Benoît DONNET - [100h Proj.] Q2 20 - [+] 5

MATH1222-3 *Introduction to stochastic processes, Markov chains* - Pierre GEURTS, Yvik SWAN - [10h Mon. WS] Q2 20 10 [+] 5