Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

MECA0023-1	*Inelastic behavior of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0475-1	*Integrated design* - Jean-Luc BOZET	20	40	-	**5**
APRI0005-1	*Integrated mechanical project* - COLLÉGIALITÉ, Pierre DUYSINX - [5d FW]	-	60	[+]	**5**
MECA0444-1	*Mechanical design* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0038-1	*Measurement uncertainties and dimensional metrology* - Liviu MASALAR	30	30	-	**5**
MECA0474-1	*CAD in mechanical engineering* - Eric BÉCHET	30	30	-	**5**
MECA0069-1	*Series Production Methods* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0004-1	*Vehicle performance and behaviour* - Pierre DUYSINX	30	30	-	**5**
PHYS0904-1	*Physics of materials* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
MECA0462-1	*MECA0462: materials selection* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
MECA0029-1	*Mechanical Vibrations* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0467-1	*Turbomachines* - Olivier LÉONARD	30	30	-	**5**

Notice : Students who have, in their BAC studies, have already taken one or more compulsory courses in this Master's programme are obliged to replace them by other courses on the following list of option courses; this choice must be approved by the President of the cycle's Jury.

List of option courses

MATH0461-1	*Introduction to numerical optimization* (english) - Quentin LOUVEAUX	30	30	-	**5**
CNAV0020-1	*Introduction to naval construction* - André HAGE, Jean MARCHAL, Philippe RIGO	40	30	-	**5**
MECA0041-1	*Internal Combustion Engines* - Philippe NGENDAKUMANA - [1,5d FW]	30	30	[+]	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**

Second year

Compulsory courses

ATFE0013-1	*Final work* - COLLÉGIALITÉ	-	-	-	**20**
MECA0464-1	*Large deformation of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
[...]	A course to be chosen from the university's programme of courses (with the agreement of the cycle's President of the Jury)				

Choose one of the following focus :

Research Focus

Compulsory courses

ASTG0018-1	*Industrial placement* - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	**8**
MECA0481-1	*Introduction to research methodology* - Hassan BOUGRINE, Grigorios DIMITRIADIS, Pierre DUYSINX	10	10	-	**2**

Optional courses

Choose one module from :

Productive and mechanical engineering

Optional courses totalling 20 credits among courses of the module mechanical and productive engineering. With the agreement of the department's president students can also choose courses in the module land vehicules.

AERO0015-1	*Mechanical Design of Turbomachinery* - Jean-Claude GOLINVAL	30	30	-	**5**
CNAV0020-1	*Introduction to naval construction* - André HAGE, Jean MARCHAL,	40	30	-	**5**

	IGO				
SYST0015-1	*Automation and sustainability of industrial processes* - Pierre DUYSINX	30	30	-	**5**
MECA0138-1	*Welding and non-destructive tests* - N... - Suppl : Adnen ben Mahmoud KECHAOU	30	30	-	**5**
MECA0460-1	*Introduction to safety and health at work on machines-tools. Risk analysis* - Liviu MASALAR	15	15	-	**3**
MECA0035-1	*Lubrification and tribology* - Jean-Luc BOZET	30	30	-	**5**
MECA0068-3	*Numerical controlled machine-tools and flexible manufacturing* - Liviu MASALAR	30	30	-	**5**
MECA0051-2	*Total Quality Management* - Liviu MASALAR	30	30	-	**5**
MECA0446-1	*Continuum Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**5**
MECA0139-2	*Rapid Prototyping* - Thierry DORMAL	10	10	-	**2**
MECA0120-1	*Hydraulic and pneumatic systems* - Liviu MASALAR	30	30	-	**5**
MECA0067-1	*Special Technology Issues* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
ECON0207-1	*Industrial Economics* - Axel GAUTIER	30	15	-	**5**
[...]	Courses from "Véhicules terrestres"				

Land Vehicles

Optional courses totalling 20 credits among courses of the module land vehicules. With the agreement of the department's president students can also choose courses in the module mechanical and productive engineering :

AERO0021-1	*Experimental Aerodynamics* - Grigorios DIMITRIADIS	30	30	-	**5**
SYST0003-1	*Linear control systems* - Eric BULLINGER, Rodolphe SEPULCHRE	30	30	-	**5**
MECA0063-1	*Vehicle Architecture* - Pierre DUYSINX	30	30	-	**5**
MECA0478-1	*Electric, hybrid and non-conventional propulsion systems* - Pierre DUYSINX	30	30	-	**5**
MECA0062-1	*Vibration Testing and Experimental Modal Analysis* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0027-1	*Structure Optimization* - Claude FLEURY	30	30	-	**5**
CHIM0664-1	*Combustible batteries and micro-batteries* - N... - Suppl : André RAHIER	15	15	-	**3**
MECA0017-1	*Control system for land vehicles* - Pierre DUYSINX	30	30	-	**5**
MECA0034-4	*Rational Use of Energy, Air-conditioning in vehicles* - Vincent LEMORT	10	10	-	**2**
MATH0462-1	*Discrete optimization* - Quentin LOUVEAUX	30	30	-	**5**
ECON0207-1	*Industrial Economics* - Axel GAUTIER	30	15	-	**5**
[...]	Courses from "Génie mécanique et productique"				

Professional focus in management

Compulsory courses

GEST3000-2	*First steps in an enterprise* - COLLÉGIALITÉ	24	-	-	**2**
GEST3001-1	*People management and organisation* - Jocelyne ROBERT	24	24	-	**4**
GEST3002-1	*Human Resources* - Jocelyne ROBERT	24	-	-	**2**
GEST3003-1	*Competitive strategy in the marketplace* - Michael GHILISSEN	16	16	-	**3**
GEST3004-1	*Marketing (operations and management)* - Michael GHILISSEN	16	16	-	**3**
GEST3005-2	*Accountancy and Finance* - Jacques BERWART	24	24	-	**4**
GEST3006-1	*Operations and supply chain management I* - Yasemin ARDA	16	16	-	**3**
GSTG3001-1	*Business plan* - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	**3**
GSTG3002-1	*Company diagnostic* - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	**3**

Optional courses

Choose one of the following courses :

GEST3010-1	*Operations and supply chain management II* - Sabine LIMBOURG	16	16	-	**3**
GEST3011-2	*ICT in the service of the company* - Maud BAY	16	16	-	**3**
GEST3012-1	*Financial and actuarial modelling* - Louis ESCH	16	16	-	**3**

Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Mechanics" option

Students studying for the Bachelors in Civil Engineering who have not chosen the appropriate option :

* must take all the so-called "prerequisite" courses hereafter, if they were not taken during the 1st cycle. These courses must be taken during the 1st year of the masters and some 1st-year compulsory courses must be rolled over to the 2nd year.
* must subsequently reduce the number of courses they choose to take in the 2nd year of the masters. If all the "prerequisite" courses must be taken, it will be impossible for them to choose which courses they take.
* cannot choose the professional "management" focus.

The program adapted by these students has to receive the preliminary agreement of the Jury.

Compulsory prerequisites

MECA0036-1	*Finite Element Method* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0012-5	*Mechanics of materials* (english) - Serge CESCOTTO	30	30	-	**5**
MECA0018-1	*Industrial Forming Processes* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**