

## Two-Year Master Program (120 ECTS)

### First Year

#### Compulsory courses

MECA0037-1	<i>Thermic and co-generation power stations</i> - Philippe MATHIEU	30	30	-	<b>5</b>
MECA0046-1	<i>Heat exchangers</i>				<b>5</b>
	- <i>Heat exchangers networks and rational use of energy</i> - Georges HEYEN	15	15	-	
	- <i>Fundamental and constructive aspects</i> - Philippe NGENDAKUMANA	15	15	-	
MECA0450-2	<i>Renewable energies</i> - Philippe MATHIEU	15	15	-	<b>3</b>
CHIM0663-1	<i>Energy supply</i> - Angélique LÉONARD	15	15	-	<b>3</b>
CHIM0071-1	<i>Reduction of pollutants from combustion</i> - Angélique LÉONARD	15	15	-	<b>3</b>
MECA0006-1	<i>Production of cold and low-level heat</i> - N... - Suppl : Eric WINANDY	30	30	-	<b>5</b>
MECA0045-1	<i>Thermofluid Quantity Measurement</i> - Philippe NGENDAKUMANA	30	30	-	<b>3</b>
MECA0041-1	<i>Internal Combustion Engines</i> - Philippe NGENDAKUMANA - [1,5d FW]	30	30	[+]	<b>5</b>
APRI0003-1	<i>Integrated project on energetics</i> - COLLÉGIALITÉ - [5d FW]	-	60	[+]	<b>5</b>
MECA0462-1	<i>MECA0462: materials selection</i> - Jacqueline LECOMTE#BECKERS	30	30	-	<b>5</b>
ELEC0014-3	<i>Electric Energy Transmission and Distribution</i> - Jean-Louis LILIE	30	15	-	<b>4</b>
ELEC0029-1	<i>Analysis and operation of electric energy systems</i> - Thierry VAN CUTSEM	25	20	-	<b>4</b>
MECA0467-1	<i>Turbomachines</i> - Olivier LÉONARD	30	30	-	<b>5</b>
SYST0003-1	<i>Linear control systems</i> - Damien ERNST, Rodolphe SEPULCHRE	30	30	-	<b>5</b>

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 Faculty's programme; this choice must be approved by the President of the cycle's Jury.

### Second year (2008-2009 transitory program)

#### Compulsory courses

ATFE0001-1	<i>Final work</i> - COLLÉGIALITÉ	-	-	-	<b>20</b>
ELEC0018-1	<i>Energy market</i> - Yvan HELLA	45	15	-	<b>5</b>

#### Optional courses

[...] 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	<i>Industrial placement</i> - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	<b>8</b>
MECA0481-1	<i>Introduction to research methodology</i> - Hassan BOUGRINE, Grigorios DIMITRIADIS, Pierre DUYSINX	10	10	-	<b>2</b>

##### Optional courses

Choose courses totalling 20 credits out of the following :

CHIM0039-1	<i>Chemical Upgrading of Coal</i> - Jean-Paul PIRARD	15	-	-	<b>2</b>
CHIM0664-1	<i>Combustible batteries and micro-batteries</i> - N... - Suppl : André RAHIER (TELNAT)	15	15	-	<b>3</b>
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	<b>5</b>
MECA0468-1	<i>Energy system diagnosis</i> - Georges HEYEN, Olivier LÉONARD, Jean-Louis LILIE	30	30	-	<b>5</b>
MECA0032-1	<i>Flow in Turbomachines</i> - Olivier LÉONARD	30	30	-	<b>5</b>
MECA0033-1	<i>Heat and Material Transfer Modelling</i> - Michel HOGGE	30	30	-	<b>5</b>

# Study programmes 2008-2009

## Faculty of Applied Sciences

### Master in Electro-mechanical Engineering

MECA0124-1	<i>Combustion Modelling</i> - Philippe NGENDAKUMANA	30	30	-	5
SYST0003-1	<i>Linear control systems</i> - Damien ERNST, Rodolphe SEPULCHRE	30	30	-	5
MECA0034-1	<i>Rational Use of Energy, Air-conditioning in buildings and vehicles</i> - N... - Suppl : Philippe ANDRE	30	30	-	5
GENU0018-2	<i>Nuclear Engineering and Nuclear Power Plant Technology</i> - Philippe MATHIEU	30	30	-	5
MECA0468-1	<i>Energy system diagnosis</i> - Georges HEYEN, Olivier LÉONARD, Jean-Louis LILIE	30	30	-	5
MECA0478-1	<i>Electric, hybrid and non-conventional propulsion systems</i> - Pierre DUYSINX	30	30	-	5
ELEC0029-1	<i>Analysis and operation of electric energy systems</i> - Thierry VAN CUTSEM	25	20	-	5
MECA0120-1	<i>Hydraulic and pneumatic systems</i> - Liviu MASALAR	30	30	-	5
ECON0207-1	(pas organisé en 2008-2009) <i>Industrial Economics</i> - Axel GAUTIER	30	15	-	5

Notice : Students who have, in their BAC studies, already taken one or more option courses found in this list must not take them again.

#### Professional Focus

##### Compulsory courses

GEST3000-1	<i>First steps in an enterprise</i> - Robert NONDONFAZ, Bernard SURLEMONT	0,5	-	-	2
GEST3001-1	<i>Organization analysis</i> - Annie CORNET	-	-	-	3
GEST3002-1	<i>Human Resources Management</i> - Jocelyne ROBERT	16	-	-	3
GEST3003-1	<i>Competitive Strategy in the Marketplace</i> (english) - Michael GHILISSEN	16	-	-	3
GEST3004-1	<i>Marketing (operations and management)</i> (english) - Michael GHILISSEN	16	-	-	3
GEST3005-1	<i>Accountancy and Finance</i> - Jacques BERWART	24	-	-	4
GEST3006-1	<i>Production (Supply chain management)</i> (english) - Yasemin ARDA	45	-	-	3
GSTG3001-1	<i>Internship</i> - COLLÉGIALITÉ	-	-	-	6

##### Optional courses

Choose one of the following courses :

GEST3010-1	<i>Production 2 (Supply Chain Management 2nd part)</i> (english) - Robert NONDONFAZ	-	-	-	3
GEST3011-1	<i>ICT in the service of the company</i> - Alain DUBOIS	30	-	-	3
GEST3012-1	<i>Financial and actuarial modelling tools</i> - Louis ESCH	16	-	-	3

#### Second year (2009-2010 perspectives)

##### Compulsory courses

ATFE0001-1	<i>Final work</i> - COLLÉGIALITÉ	-	-	-	20
ELEC0018-1	<i>Energy market</i> - Yvan HELLA	45	15	-	5

##### Optional courses

[...] 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 focus from the following :

##### Research Focus

##### Compulsory courses

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

##### Optional courses

Choose courses totalling 20 credits out of the following :

##### Equipment and energetic components

CHIM0039-1	<i>Chemical Upgrading of Coal</i> - Jean-Paul PIRARD	15	-	-	2
CHIM0664-1	<i>Combustible batteries and micro-batteries</i> - N... - Suppl : André RAHIER (TELNAT)	15	15	-	3

# Study programmes 2008-2009

## Faculty of Applied Sciences

### Master in Electro-mechanical Engineering

ELEC0039-1	<i>Network Electromechanical Performance</i> - Jean-Louis LILIE	30	30	-	3
ELEC0041-1	<i>Modeling and design of electromagnetic systems</i> - Patrick DULAR, Christophe GEUZAINÉ	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	5
GENU0018-2	<i>Nuclear Engineering and Nuclear Power Plant Technology</i> - Philippe MATHIEU	30	30	-	5
MECA0032-1	<i>Flow in Turbomachines</i> - Olivier LÉONARD	30	30	-	5
MECA0033-1	<i>Heat and Material Transfer Modelling</i> - Michel HOGGE	30	30	-	5
MECA0124-1	<i>Combustion Modelling</i> - Philippe NGENDAKUMANA	30	30	-	5
<b>Energy Systems</b>					
ARCH0117-1	<i>Introduction to building thermals</i> - Jean-Marie HAUGLUSTAINÉ	15	15	-	3
ELEC0055-1	<i>Electronic control systems</i> - Christophe GEUZAINÉ - Suppl : Paul BLEUS	30	30	-	5
ELEC0047-1	<i>Dynamics of electric energy systems</i> - Thierry VAN CUTSEM	30	30	-	5
ELEC0436-1	<i>Energy Management Systems and optimal functions for electric power systems</i> - Patricia ROUSSEAU	30	30	-	5
GCIV2057-2	<i>Hydropower exploitation</i>	15	15	-	5
MATH0461-1	<i>Intorduction to optimization</i> - Quentin LOUVEAUX	30	30	-	5
MECA0034-1	<i>Rational Use of Energy, Air-conditioning in buildings and vehicles</i> - N... - Suppl : Philippe ANDRE	30	30	-	5
MECA0468-1	<i>Energy system disgnosis</i> - Georges HEYEN, Olivier LÉONARD, Jean-Louis LILIE	30	30	-	5
MECA0478-1	<i>Electric, hybrid and non-conventional propulsion systems</i> - Pierre DUYSINX	30	30	-	5
ECON0207-1	<i>Industrial Economics</i> - Axel GAUTIER	30	15	-	5

*Notice* : Students who have, in their BAC studies, already taken one or more option courses found in this list must not take them again.

#### Professional Focus

##### Compulsory courses

GEST3000-1	<i>First steps in an enterprise</i> - Robert NONDONFAZ, Bernard SURLEMONT	0,5	-	-	2
GEST3001-1	<i>Organization analysis</i> - Annie CORNET	-	-	-	3
GEST3002-1	<i>Human Resources Management</i> - Jocelyne ROBERT	16	-	-	3
GEST3003-1	<i>Competitive Strategy in the Marketplace</i> (english) - Michael GHILISSEN	16	-	-	3
GEST3004-1	<i>Marketing (operations and management)</i> (english) - Michael GHILISSEN	16	-	-	3
GEST3005-1	<i>Accountancy and Finance</i> - Jacques BERWART	24	-	-	4
GEST3006-1	<i>Production (Supply chain management)</i> (english) - Yasemin ARDA	45	-	-	3
GSTG3001-1	<i>Internship</i> - COLLÉGIALITÉ	-	-	-	6

##### Optional courses

Choose one of the following courses :

GEST3010-1	<i>Production 2 (Supply Chain Management 2nd part)</i> (english) - Robert NONDONFAZ	-	-	-	3
GEST3011-1	<i>ICT in the service of the company</i> - Alain DUBOIS	30	-	-	3
GEST3012-1	<i>Financial and actuarial modelling tools</i> - Louis ESCH	16	-	-	3

### Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Mechanics" or "Electricity and Electronics" 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

ELEC0431-1	<i>Electromagnetic energy transformation</i> - Christophe GEUZAINÉ	30	30	-	<b>5</b>
ELEC0053-2	<i>Electric circuits</i> - Patricia ROUSSEAUX	30	30	-	<b>5</b>
MECA0445-1	<i>Transfers of heat and matter</i> - Michel HOGGE	30	30	-	<b>5</b>
MECA0012-5	<i>Mechanics of materials (english)</i> - Serge CESCOTTO	30	30	-	<b>5</b>
MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - N... - Suppl : Olivier LÉONARD	30	30	-	<b>5</b>
ELEC0052-1	<i>Analysis and Design of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN	30	30	-	<b>5</b>