

#### First Year

##### Compulsory courses

###### Mechanical design and production

MECA0444-1	<i>Mechanical design</i> - JeanFrançois DEBONGNIE	30	30	-	5
APRI0005-3	<i>Integrated mechanical project</i> - Maarten ARNST, Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, JeanFrançois DEBONGNIE, Pierre DUYSINX, Tristan GILET, Jean STUTO - [5d FW]	50	130	[+]	15
MECA0474-1	<i>Mechanical Computer-Aided-Design</i> (english language) - Eric BÉCHET	30	30	-	5
MECA0462-2	<i>Materials selection</i> (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	30	30	[+]	5

###### Management

GEST3005-2	<i>Accountancy and Finance</i> - Jacques BERWART	24	24	-	5
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##### Optional courses

###### Mecatronic

Choose at least 10 ECTS from the following courses :

MECA0504-1	<i>Industrial automation</i> - Olivier BRULS, Pierre DUYSINX	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	5
MECA0009-1	<i>Introduction to microtechnology</i> (english language) - Tristan GILET	30	30	-	5
SYST0003-1	<i>Linear control systems</i> (english language) - Eric BULLINGER	30	30	-	5

###### Computational mechanics

Choose at least 10 ECTS from the following courses :

MECA0029-1	<i>Theory of vibration</i> - JeanClaude GOLINVAL	30	30	-	5
MECA0023-1	<i>Inelastic behavior of solids</i> - JeanPhilippe PONTHOT	30	30	-	5
MECA0010-1	<i>Stochastic modelling</i> (english language) - Maarten ARNST	30	30	-	5
MECA0031-2	<i>Kinematics and Dynamics of Mechanisms</i> - Olivier BRULS	30	30	-	5

##### Optional courses

[...] One course to be chosen from the optional classes in the 2nd Masters or other Masters programmes in the Faculty of Applied Sciences; this choice must be approved by the President of the Jury for that cycle.

##### 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	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT	30	30	-	5
MECA0155-1	<i>Dynamics of Mechanical Systems</i> - JeanClaude GOLINVAL	30	30	-	5
MECA0012-5	<i>Solid mechanics</i> - Laurent DUCHENE	30	30	-	5
MECA0018-1	<i>Industrial Forming Processes</i> - JeanFrançois DEBONGNIE	30	30	-	5
MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - Olivier LÉONARD	30	30	-	5
MECA0445-1	<i>Heat transfer</i> - Pierre DEWALLEF, Vincent TERRAPON	30	30	-	5

#### Second Year

##### Compulsory courses

ATFE0013-1	<i>Final work (including an internship or a placement in a research centre under the supervision of the teacher responsible for the final work and including an introduction</i>	-	-	-	25
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**Optional courses**

Choose one of the following courses :

[...] the courses of the University

[...] the courses below.

LANG1957-1	<i>Dutch for Engineering Students</i> (dutch language) - Claudine COLIN	60	-	-	5
LANG1958-1	<i>German for Engineering Students</i> (german language) - Françoise CARL	60	-	-	5

In any case, this course must have the approval of the cycle's Jury President.

**Compulsory courses**

**Module 1 : Vehicle dynamics and safety**

MECA0492-2	<i>Vehicle dynamics</i> (english language) - Pierre DUYSINX	30	20	-	4
MECA0493-2	<i>Vehicle aerodynamics</i> (english language) - Grigorios DIMITRIADIS	15	10	-	2
MECA0494-3	<i>Driveline and braking systems</i> (english language) - JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX	30	20	-	4
MECA0495-1	<i>Introduction to vehicle safety and body structure design</i> (english language) - Pierre DUYSINX, Ludovic NOELS	15	10	-	2
MECA0496-2	<i>Materials for automotive applications</i> (english language) - Jacqueline LECOMTEBECKERS, Ahmed RASSILI	30	20	-	4

*Notice* : Students who, during the 1st year of the master programme, have already followed a course that is equivalent to one of the courses offered in this specialisation, must substitute it with one or several courses chosen among the faculty's offering; these courses must be approved by the president of the panel for master studies.

**Module 2 : Engine and electric propulsion systems**

*Notice* : students who have already taken the course MECA0041-1 in the 1st Master have to replace the course MECA0498-1 by another course, with the approval of the cycle's Jury President.

MECA0497-2	<i>Vehicle performance</i> (english language) - Pierre DUYSINX	15	10	-	2
MECA0498-2	<i>Internal combustion engines</i> (english language) - Philippe NGENDAKUMANA	30	20	-	4
MECA0499-2	<i>Electric traction motors</i> (english language) - Johan GYSELINCK	15	10	-	2
MECA0500-2	<i>Hybrid electric and fuel cell vehicles</i> (english language) - Pierre DUYSINX, Nathalie JOB	30	20	-	4
MECA0501-1	<i>Thermal and Electrical Management of vehicles</i> (english language) - Vincent LEMORT	15	10	-	2