

Master of science in Electromechanical Engineering

Focus Operations engineering and management

Bloc 1 | M-IREMI | MA-IREM

Common courses - Block 1

ELEC-H406	Electrical drives Johan GYSELINCK (Coordinator) and Omar HEGAZY ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨 English
MATH-H407	Control system design Emanuele GARONE (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 24h] 📅 first term 🗨 English
MECA-H402	Turbomachinery Patrick HENDRICK (Coordinator) ⌚ 5 credits [lecture: 36h, tutorial classes: 20h, practical work: 4h] 📅 second term 🗨 English
MECA-H409	Design methodology Alain DELCHAMBRE (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h, personal assignments: 12h] 📅 first term 🗨 English
MECA-H419	Data-Driven Engineering Alessandro PARENTE (Coordinator), Axel Coussement, Emanuele GARONE, Omar HEGAZY, Alassane Ballé NDIAYE and Mehrdad TERATANI ⌚ 4 credits [lecture: 36h, tutorial classes: 12h] 📅 second term 🗨 English

Partially common courses - Block 1

Courses to choose

CNST-H421	Structural analysis and finite elements Peter BERKE (Coordinator) and Lincy Pyl ⌚ 5 credits [lecture: 36h, tutorial classes: 24h] 📅 first term 🗨 English
MECA-H411	Mechanical Vibrations Arnaud DERAEMAEKER (Coordinator) and Wout Weijtjens ⌚ 5 credits [lecture: 36h, tutorial classes: 24h] 📅 first term 🗨 English
MECA-Y401	Piston engines Axel Coussement (Coordinator) ⌚ 3 credits [lecture: 26h, practical work: 8h] 📅 first term 🗨 English

Optional courses

One course chosen from the following

PROJ-H405 (optional)	Project in Electromechanical Engineering Emanuele GARONE (Coordinator), Aurélie Bellemans, Svend Bram, Alain DELCHAMBRE, Johan GYSELINCK, Patrick HENDRICK, Pierre HENNEAUX, Joeri VAN MIERLO and Bram VANDERBORGHT ⌚ 5 credits [personal assignments: 150h] 📅 first and second terms 🗨 English
PROJ-H417 (optional)	Projet coopération au développement Antoine NONCLERCQ (Coordinator) ⌚ 5 credits [project: 150h] 📅 first and second terms 🗨 French Only on selection : see the Development Unit of the Polytechnic School of Brussels (http://polytech.ulb.be/en/international/development-cooperation)
PROJ-H418 (optional)	Hands-on learning: project manager (chef de projet) Peter BERKE (Coordinator) ⌚ 5 credits [project: 150h] 📅 first and second terms 🗨 French
PROJ-H420 (optional)	Eco-marathon project Patrick HENDRICK (Coordinator) and Johan GYSELINCK ⌚ 5 credits [project: 150h] 📅 first and second terms 🗨 English

Specific courses - Block 1

GEST-H501	Logistics Engineering and Management Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h] 📅 first term 🗨 English
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GEST-H502 [Supply Chain Performance Analytics](#) | Alassane Ballé NDIAYE (Coordinator)
⌚ 5 credits [lecture: 12h, tutorial classes: 36h, personal assignments: 12h] 📅 second term 🗨 English

INFO-H420 [Management of Data Science and Business Workflows](#) | Dimitrios SACHARIDIS (Coordinator)
⌚ 5 credits [lecture: 24h, tutorial classes: 36h] 📅 first term 🗨 English

STAT-S406 [Data management and business analytics](#) | Martine GEORGE (Coordinator)
⌚ 5 credits [lecture: 36h, tutorial classes: 24h] 📅 second term 🗨 English



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Bloc 2 | M-IREMI | MA-IREM

Partially common courses - Block 2

Courses to choose

- MATH-H503 **Model-Based and Data-Driven Fault Detection and Isolation** | Michel KINNAERT (Coordinator)
⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 second term 🗨 English
- MECA-H406 **Composite structures** | Patrick HENDRICK (Coordinator)
⌚ 3 credits [lecture: 18h, tutorial classes: 18h] 📅 second term 🗨 English
- PHYS-H524 **Reliability and risk analysis of industrial installations** | Pierre-Etienne LABEAU (Coordinator)
⌚ 4 credits [lecture: 24h, tutorial classes: 18h, practical work: 6h] 📅 first term 🗨 English

Master Thesis

- MEMO-H502 **Master thesis in Electromechanical Engineering** | Patrick HENDRICK (Coordinator), Aurélie Bellemans, Svend Bram, Alain DELCHAMBRE, Emanuele GARONE, Johan GYSELINCK, Pierre HENNEAUX, Joeri VAN MIERLO and Bram VANDERBORGHT
⌚ 24 credits [mfe/tfe: 600h] 📅 academic year 🗨 English

Specific courses - Block 2

10 ECTS

A total of ten credits chosen from the following

- GEST-S421 (optional) **Entrepreneurial ecosystems** | Judith BEHRENS (Coordinator)
⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 second term 🗨 English
- GEST-S564 (optional) **Project management** | FREDERIC HOFFMANN (Coordinator)
⌚ 5 credits [seminars: 24h] 📅 second term 🗨 English

Elective courses - Block 2

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A total of 15 credits chosen from the following

- GEST-H506 (optional) **Energy policy and management** | Pierre HENNEAUX (Coordinator), Adel EL Gammal and Benjamin GENET
⌚ 5 credits [lecture: 42h, practical work: 18h] 📅 first and second terms 🗨 English
- GEST-S440 (optional) **Applied marketing analytics** | Sandra ROTHENBERGER (Coordinator) and Philippe MAUCHARD
⌚ 5 credits [lecture: 48h] 📅 second term 🗨 English
- GEST-S448 (optional) **Organizational behaviour and leadership** | Claudia TOMA (Coordinator) and Julie Terache
⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗨 English

GEST-S471 (optional)	Management and sustainable development : constraints and opportunities Eric MONAMI (Coordinator) ⌚ 5 credits [lecture: 36h, seminars: 36h] 📅 second term 🗨 English
INFO-F422 (optional)	Statistical foundations of machine learning Gianluca BONTEMPI (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 12h, project: 60h] 📅 second term 🗨 English
MATH-H510 (optional)	Risk-based methodologies for energy systems Pierre-Etienne LABEAU (Coordinator) and Pierre HENNEAUX ⌚ 4 credits [lecture: 30h, tutorial classes: 18h] 📅 second term 🗨 English
STAG-H501 (optional)	Internship (60 days) Frédéric ROBERT (Coordinator) ⌚ 10 credits [personal assignments: 300h] 📅 first term 🗨 English

Free elective courses

Students have also the opportunity to choose courses among the courses of the 'transversal modules' of the School.

English : LANG-H500

Engineering and society : PROJ-H421 - GEST-H509 - BIME-G5505 - PHYS-F517

Sustainability : GEST-S492 - ENVI-F405 - CHIM-H504 - ENVI-F452 - ENVI-F454 - ELEC-Y514

Finance, accounting, management, marketing, logistics and quality : GEST-S101 - GEST-S318 - GEST-S421 - GEST-Y501 GEST-H501 - GEST-H502

Participation to a summer school : EDUC-H601

Free elective courses

Up to six credits chosen from the following

BIME-G5505 (optional)	Interfaculty and interdisciplinary program in Healthcare Innovation Hilde STEVENS (Coordinator) ⌚ 5 credits [lecture: 40h, tutorial classes: 20h] 📅 second term 🗨 English
CHIM-H504 (optional)	Engineering aspects of circular economy Prakash VENKATESAN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨 English
DROI-C5174 (optional)	Approche interdisciplinaire du droit de la propriété intellectuelle/Interdisciplinary Approach to In Julien CABAY (Coordinator) ⌚ 5 credits [lecture: 24h] 📅 first term 🗨 English/French
EDUC-H601 (optional)	Summer School Johan GYSELINCK (Coordinator) ⌚ 5 credits [personal assignments: 5h] 📅 academic year 🗨 English
ELEC-Y514 (optional)	Sustainability : an interdisciplinary Approach Cathy MACHARIS (Coordinator) and Waldo Galle ⌚ 6 credits [lecture: 36h, practical work: 24h] 📅 academic year 🗨 English
ENVI-F405 (optional)	Climat: sciences et politiques Frank PATTYN (Coordinator) and Louise Knops ⌚ 5 credits [lecture: 40h] 📅 second term 🗨 French
ENVI-F452 (optional)	Environmental impact analysis and management Wouter ACHTEN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 12h, project: 24h] 📅 first term 🗨 English/French
ENVI-F454 (optional)	Energie: Société et environnement Michel HUART (Coordinator) and Nadine MATTIELLI ⌚ 5 credits [lecture: 30h, practical work: 12h, project: 24h] 📅 first term 🗨 French
GEST-H501 (optional)	Logistics Engineering and Management Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h] 📅 first term 🗨 English
GEST-H502 (optional)	Supply Chain Performance Analytics Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h, personal assignments: 12h] 📅 second term 🗨 English
GEST-H509 (optional)	📅 unknown term
GEST-S101 (optional)	Comptabilité financière Gilles GEVERS (Coordinator) and Laurent GHEERAERT ⌚ 5 credits [lecture: 36h, tutorial classes: 8h] 📅 second term 🗨 French

GEST-S318 (optional)	Introduction to theoretical finance Laurent GHEERAERT (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 second term 🗨 English
GEST-S421 (optional)	Entrepreneurial ecosystems Judith BEHRENS (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 second term 🗨 English
GEST-S492 (optional)	Energy policy, sustainability & management Adel EL Gammal (Coordinator), Julien BLONDEAU and Michel HUART ⌚ 5 credits [lecture: 36h, seminars: 24h] 📅 first term 🗨 English
GEST-Y501 (optional)	Business Management and Entrepreneurship Marc GOLDCHSTEIN (Coordinator) ⌚ 3 credits [lecture: 33h] 📅 first term 🗨 English
LANG-H500 (optional)	English for professional purposes Alexander CORNFORD (Coordinator) and Matthew LANGSLEY ⌚ 5 credits [tutorial classes: 48h, personal assignments: 12h] 📅 first and second terms 🗨 English
PHYS-F517 (optional)	How To Make (almost) Any Experiment Using Digital Fabrication Denis TERWAGNE (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 French
PROJ-H421 (optional)	Projet polydaire: expériences didactiques innovantes pour le secondaire Simon-Pierre GORZA (Coordinator) ⌚ 5 credits [project: 150h] 📅 academic year 🗨 French