

Master of science in Architecture and Engineering

Focus Professional

Bloc 1 | M-IRARE | MA-IRAR

Compulsory common courses - Block 1

ARCH-H400	Sustainable urban Design Studio Ahmed Zaib KHAN MAHSUD (Coordinator) and Hera Van Sande ⌚ 8 credits [workshop: 240h] 📅 first term 🗨 English
ARCH-H4002	Sustainable architectural design studio Ahmed Zaib KHAN MAHSUD (Coordinator) and Hera Van Sande ⌚ 8 credits [workshop: 240h] 📅 second term 🗨 English
ARCH-H403	Research methods in architectural engineering research Ine WOUTERS (Coordinator) and Ahmed Zaib KHAN MAHSUD ⌚ 3 credits [lecture: 12h, practical work: 24h] 📅 second term 🗨 English
ARCH-H406	Post-war history of construction and architecture Rika DEVOS (Coordinator) ⌚ 4 credits [lecture: 12h, practical work: 36h] 📅 first term 🗨 English
ARCH-Y400	Design of concrete structures Sven DE SUTTER (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 first term 🗨 English
ARCH-Y402	Spatial structures : design and analysis Lars DE LAET (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 second term 🗨 English
ARCH-Y405	Design of steel structures Wim HOECKMAN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 first term 🗨 English
ARCH-Y406	Structural renovation techniques Ine WOUTERS (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 second term 🗨 English
CNST-Y504	Parametric design of transformable structures Niels DE TEMMERMAN (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English
CNST-Y512	Energy performance in buildings Filip DESCAMPS (Coordinator) ⌚ 6 credits [lecture: 24h, practical work: 48h] 📅 second term 🗨 English

Electives MA1

Electives MA1

Choice of *minimum 9 ECTS* among the following list exclusively. Courses that have been already taken during the Bachelor curriculum cannot be selected anymore.

A total of nine credits chosen from the following

ARCH-Y008 (optional)	Form-active structures Lars DE LAET (Coordinator) ⌚ 4 credits [lecture: 12h, practical work: 36h] 📅 second term 🗨 English
ARCH-Y407 (optional)	Theoretical reflection on architectural heritage Stéphanie VAN DE VOORDE (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English
CNST-H302 (optional)	Soil mechanics Alessia Cuccurullo (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h, practical work: 12h] 📅 first term 🗨 English
CNST-H406 (optional)	Geotechnical engineering Alessia Cuccurullo (Coordinator) and Pierre GERARD ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 first term 🗨 English

CNST-H421
(optional)

Structural analysis and finite elements | Peter BERKE (Coordinator) and Lincy Pyl

5 credits [lecture: 36h, tutorial classes: 24h]  first term  English

CNST-H422
(optional)

Sustainability in construction | Didier Snoeck (Coordinator)

4 credits [lecture: 24h, practical work: 24h]  second term  English

CNST-H423
(optional)

Architecture, engineering and construction project management | Philippe BOUILLARD (Coordinator)

5 credits [lecture: 36h, practical work: 24h]  second term  English

CNST-Y403
(optional)

Digitalization in construction | Olivier Remy (Coordinator)

4 credits [lecture: 24h, practical work: 24h]  first term  English



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Bloc 2 | M-IRARE | MA-IRAR

Pre-defined choice of compulsory courses - Block 2

Compulsory courses

3 courses to select among these 4

Three courses chosen from the following

- ARCH-H502 (optional) **Theory of architecture and urbanism** | Ahmed Zaib KHAN MAHSUD (Coordinator)
 4 credits [lecture: 24h, practical work: 24h] first term English
- ARCH-Y500 (optional) **Low energy design for sustainable buildings** | Filip DESCAMPS (Coordinator)
 4 credits [lecture: 12h, practical work: 36h] first term English
- ARCH-Y501 (optional) **Daylighting in buildings** | Valérie Ann JACOBS (Coordinator), Bertrand Deroisy and Clotilde Pierson
 4 credits [lecture: 12h, practical work: 24h, personal assignments: 30h] first term English
- PROJ-H502 (optional) **Design project competition** | Philippe BOUILLARD (Coordinator) and Vincent GERIN
 4 credits [seminars: 30h, project: 90h] second term English

Advanced design studio - Block 2

- ARCH-H504 **Advanced Design Studio** | Jonas Lindekens (Coordinator), Stéphane Meyrant and Laurent NEY
 12 credits [workshop: 360h] academic year English

Master thesis - Block 2

- MEMO-H507 **Master thesis architectural engineering** | Rika DEVOS (Coordinator) and Stéphanie VAN DE VOORDE
 24 credits [personal assignments: 600h] first and second terms English

Electives courses - Block 2

Choice of 12 credits

Choice of 12 credits among the following list, among the MA1 electives courses not chosen before, and among the 1 remaining course from the pre-defined courses list not taken by the student. Courses from other master programmes can also be selected up to 6 credits.

A total of 12 credits chosen from the following

Electives courses

- ARCH-Y502 (optional) **Visual and non-visual aspects of lighting** | Valérie Ann JACOBS (Coordinator), Soukaina Brarou and Gertjan Scheir
 4 credits [lecture: 12h, practical work: 36h] first term English
- ARCH-Y503 (optional) **Bouwpraktijk** | Nicolas DECLERCK (Coordinator)
 5 credits [lecture: 60h] second term Dutch

ARCH-Y504 (optional)	Histories of Architecture Pieter Martens (Coordinator) ⌚ 6 credits [lecture: 60h] 📅 first and second terms 🗨 English
CNST-H401 (optional)	Prestressed concrete Stéphanie STAQUET (Coordinator) ⌚ 3 credits [lecture: 18h, practical work: 18h] 📅 second term 🗨 English
CNST-H409 (optional)	Robustness of Structures and Reliability of materials Peter BERKE (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English
CNST-H530 (optional)	Integrated structural design Thierry MASSART (Coordinator) and Matthieu MALLIE ⌚ 6 credits [lecture: 24h, practical work: 48h] 📅 second term 🗨 English
CNST-Y400 (optional)	Experimental techniques for characterization of construction materials Dimitrios ANGELIS (Coordinator) ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English
CNST-Y404 (optional)	Lightweight composite structures Eric MOUSSIAUX (Coordinator) and Tine Tysmans ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English
CNST-Y507 (optional)	Steel bridges construction Wim HOECKMAN (Coordinator) ⌚ 3 credits [lecture: 12h, tutorial classes: 24h] 📅 second term 🗨 English
CNST-Y515 (optional)	Room acoustics ⌚ 3 credits [lecture: 12h, practical work: 24h] 📅 first term 🗨 English
CNST-Y518 (optional)	Bouwkundig ontwerp / Design of engineering constructions Danny VAN HEMELRIJCK (Coordinator) and Charlotte Nys ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨 Dutch
ELEC-Y514 (optional)	Sustainability : an interdisciplinary Approach Cathy MACHARIS (Coordinator) and Waldo Galle ⌚ 6 credits [lecture: 36h, practical work: 24h] 📅 academic year 🗨 English
SOCA-D494 (optional)	Sociologie de la ville Pierre LANNOY (Coordinator) ⌚ 5 credits [lecture: 24h] 📅 first term 🗨 French
STAG-H501 (optional)	Internship (60 days) Frédéric ROBERT (Coordinator) ⌚ 10 credits [work placement: 300h] 📅 first term 🗨 English
STAG-H506 (optional)	Internship architectural engineering (40 working days) Lincy Pyl (Coordinator) ⌚ 6 credits [personal assignments: 180h] 📅 first term 🗨 English
URBA-H500 (optional)	Infrastructure and Mobility Philippe BOUILLARD (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 12h, field trips: 30h, personal assignments: 30h] 📅 second term 🗨 English
URBA-H501 (optional)	Urban and construction law Kim MORIC (Coordinator) ⌚ 3 credits [lecture: 24h, field trips: 12h] 📅 second 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

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 <small>(optional)</small>	Summer School Johan GYSELINCK (Coordinator) ⌚ 5 credits [personal assignments: 5h] 📅 academic year 🗨 English
ELEC-Y514 <small>(optional)</small>	Sustainability : an interdisciplinary Approach Cathy MACHARIS (Coordinator) and Waldo Galle ⌚ 6 credits [lecture: 36h, practical work: 24h] 📅 academic year 🗨 English
ENVI-F405 <small>(optional)</small>	Climat: sciences et politiques Frank PATTYN (Coordinator) ⌚ 5 credits [lecture: 40h] 📅 second term 🗨 French
ENVI-F452 <small>(optional)</small>	Environmental impact analysis and management Wouter ACHTEN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 12h, project: 24h] 📅 first term 🗨 English/French
ENVI-F454 <small>(optional)</small>	Energie: Société et environnement Michel HUART (Coordinator) and Nadine MATTIELLI ⌚ 5 credits [lecture: 30h, practical work: 12h, project: 24h] 📅 first term 🗨 French
GEST-H501 <small>(optional)</small>	Logistics Engineering and Management Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h] 📅 first term 🗨 English
GEST-H502 <small>(optional)</small>	Supply Chain Performance Analytics Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h, personal assignments: 12h] 📅 second term 🗨 English
GEST-S101 <small>(optional)</small>	Comptabilité financière Gilles GEVERS (Coordinator) and Laurent GHEERAERT ⌚ 5 credits [lecture: 36h, tutorial classes: 8h] 📅 second term 🗨 French
GEST-S318 <small>(optional)</small>	Introduction to theoretical finance Laurent GHEERAERT (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 second term 🗨 English
GEST-S421 <small>(optional)</small>	Entrepreneurial ecosystems Judith BEHRENS (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 second term 🗨 English
GEST-S492 <small>(optional)</small>	Energy policy, sustainability & management Adel EL Gammal (Coordinator), Julien BLONDEAU and Michel HUART ⌚ 5 credits [lecture: 36h, seminars: 24h] 📅 first term 🗨 English
GEST-Y501 <small>(optional)</small>	Business Management and Entrepreneurship Marc GOLDCHSTEIN (Coordinator) ⌚ 3 credits [lecture: 33h] 📅 first term 🗨 English
LANG-H500 <small>(optional)</small>	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 <small>(optional)</small>	How To Make (almost) Any Experiment Using Digital Fabrication Denis TERWAGNE (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 French
PROJ-H421 <small>(optional)</small>	Projet polydaire: expériences didactiques innovantes pour le secondaire Simon-Pierre GORZA (Coordinator) ⌚ 5 credits [project: 150h] 📅 academic year 🗨 French

