





















# 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  
 4 credits [lecture: 12h, practical work: 12h, personal assignments: 48h]  second term  English
- ARCH-H406 **Post-war history of construction and architecture** | Rika DEVOS (Coordinator)  
 5 credits [lecture: 18h, tutorial classes: 6h, practical work: 24h, personal assignments: 12h]  second 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)  
 5 credits [lecture: 18h, practical work: 24h, personal assignments: 24h]  second term  English
- ARCH-Y405 **Design of steel structures**  
 5 credits [lecture: 24h, practical work: 36h]  first term  English
- ARCH-Y406 **Structural renovation techniques** | Ine WOUTERS (Coordinator)  
 5 credits [lecture: 24h, practical work: 24h, personal assignments: 12h]  first term  English
- CNST-Y504 **Transformable structures for circularity** | Niels DE TEMMERMAN (Coordinator)  
 5 credits [lecture: 18h, practical work: 24h, personal assignments: 24h]  first term  English
- CNST-Y512 **Energy performance of buildings**  
 5 credits [lecture: 24h, practical work: 36h]  second term  English

## Electives MA1

### Course to choose

*One course chosen from the following*

- ARCH-Y407 (optional) **Theoretical reflections on architectural heritage** | Stéphanie VAN DE VOORDE (Coordinator)  
 5 credits [lecture: 24h, practical work: 24h]  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-H423 (optional) **Architecture, engineering and construction project management** | Philippe BOUILLARD (Coordinator)  
 5 credits [lecture: 36h, practical work: 24h]  second term  English

# Master of science in Architecture and Engineering

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## Bloc 2 | M-IRARE | MA-IRAR

### Advanced design studio MA2

ARCH-H5041 **Advanced design studio - part 1** | Jonas Lindekens (Coordinator), Stéphane Meyrant and Laurent NEY  
⌚ 4 credits [workshop: 120h] 📅 first term 🗨 English

ARCH-H5042 **Advanced design studio - part 2** | Jonas Lindekens (Coordinator), Stéphane Meyrant and Laurent NEY  
⌚ 4 credits [workshop: 120h] 📅 second term 🗨 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 MA2

#### Elective courses

Up to 6 ECTS can be selected in the transversal module, or in other Master programmes at ULB or VUB (after academic validation).

1 to 28 credits chosen from the following

#### Elective courses

ARCH-H502 (optional) **Theory of architecture and urbanism** | Ahmed Zaib KHAN MAHSUD (Coordinator)  
⌚ 5 credits [lecture: 24h, practical work: 24h, personal assignments: 12h] 📅 first term 🗨 English

ARCH-Y407 (optional) **Theoretical reflections on architectural heritage** | Stéphanie VAN DE VOORDE (Coordinator)  
⌚ 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 English

ARCH-Y500 (optional) **Low energy design for sustainable buildings**  
⌚ 5 credits [lecture: 12h, practical work: 48h, personal assignments: 6h] 📅 first term 🗨 English

ARCH-Y501 (optional) **Daylighting in buildings**  
⌚ 4 credits [lecture: 12h, practical work: 24h, personal assignments: 30h] 📅 first term 🗨 English

ARCH-Y503 (optional) **Forensic engineering** | Nicolas DECLERCK (Coordinator)  
⌚ 5 credits [lecture: 48h] 📅 second 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-Y515 (optional) **Room acoustics**  
⌚ 3 credits [lecture: 12h, practical work: 24h] 📅 first term 🗨 English

ELEC-Y514 (optional)	<b>Sustainability : an interdisciplinary Approach</b>   Cathy MACHARIS (Coordinator) and Waldo Galle ⌚ 6 credits [lecture: 36h, practical work: 24h, personal assignments: 100h] 📅 academic year 🗨 English
PROJ-H502 (optional)	<b>Design project competition</b>   Philippe BOUILLARD (Coordinator) and Vincent GERIN ⌚ 4 credits [seminars: 30h, project: 90h] 📅 second term 🗨 English
STAG-H501 (optional)	<b>Internship (60 days)</b>   Frédéric ROBERT (Coordinator) ⌚ 10 credits [work placement: 300h] 📅 first term 🗨 English
STAG-H506 (optional)	<b>Internship architectural engineering (40 working days)</b>   Lincy Pyl (Coordinator) ⌚ 6 credits [personal assignments: 180h] 📅 first term 🗨 English
URBA-H500 (optional)	<b>Infrastructure and Mobility</b>   Philippe BOUILLARD (Coordinator) ⌚ 5 credits [lecture: 24h, tutorial classes: 12h, field trips: 30h, personal assignments: 30h] 📅 second term 🗨 English
URBA-H5002 (optional)	<b>Urban, environmental and construction law</b>   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)	<b>Interfaculty and interdisciplinary program in Healthcare Innovation</b>   Hilde STEVENS (Coordinator) ⌚ 5 credits [lecture: 40h, tutorial classes: 20h] 📅 second term 🗨 English
CHIM-H504 (optional)	<b>Engineering aspects of circular economy</b>   Prakash VENKATESAN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨 English
DROI-C5174 (optional)	<b>Approche interdisciplinaire du droit de la propriété intellectuelle/Interdisciplinary Approach to In</b>   Julien CABAY (Coordinator) ⌚ 5 credits [lecture: 24h] 📅 first term 🗨 English/French
EDUC-H601 (optional)	<b>Summer School</b>   Johan GYSELINCK (Coordinator) ⌚ 5 credits [personal assignments: 5h] 📅 academic year 🗨 English
ELEC-Y514 (optional)	<b>Sustainability : an interdisciplinary Approach</b>   Cathy MACHARIS (Coordinator) and Waldo Galle ⌚ 6 credits [lecture: 36h, practical work: 24h, personal assignments: 100h] 📅 academic year 🗨 English
ENVI-F405 (optional)	<b>Climat: sciences et politiques</b>   Frank PATTYN (Coordinator) ⌚ 5 credits [lecture: 40h] 📅 second term 🗨 French
ENVI-F452 (optional)	<b>Environmental impact analysis and management</b>   Wouter ACHTEN (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 12h, project: 24h] 📅 first term 🗨 English/French
ENVI-F454 (optional)	<b>Energie: Société et environnement</b>   Michel HUART (Coordinator) and Nadine MATTIELLI ⌚ 5 credits [lecture: 30h, practical work: 12h, project: 24h] 📅 first term 🗨 French
GEST-H501 (optional)	<b>Logistics Engineering and Management</b>   Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h] 📅 first term 🗨 English
GEST-H502 (optional)	<b>Supply Chain Performance Analytics</b>   Alassane Ballé NDIAYE (Coordinator) ⌚ 5 credits [lecture: 12h, tutorial classes: 36h, personal assignments: 12h] 📅 second term 🗨 English
GEST-S101 (optional)	<b>Comptabilité financière</b>   Laurent GHEERAERT (Coordinator) and Gilles GEVERS ⌚ 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)  
⌚ 5 credits [tutorial classes: 48h, personal assignments: 12h] 📅 first and second terms 🗨 English
- PROJ-H421  
(optional) **Projet polydaire: expériences didactiques innovantes pour le secondaire** | Simon-Pierre GORZA (Coordinator)  
⌚ 5 credits [project: 150h] 📅 academic year 🗨 French