European Institute of Innovation and Technology

EIT Urban Mobility

Mobility for more liveable urban spaces
Summary

• EIT and EIT Urban Mobility
• Main Features of EIT Urban Mobility Master School Programmes
• Main Features of each Programme at UPC. Double Degrees
• Scholarships offered by EIT Urban Mobility. Deadlines and other important requirements to apply
• Who is who
What is EIT? And EIT Urban Mobility?
Creation: March 2008 by the European Parliament and Commission (Horizon 2020)

Mission:
- to boost Europe’s innovation capacity
- to foster its sustainable economic growth and job creation merging the best innovative nods in Europe
- to be the open innovation hub for a radical change in European innovative capacity
  - from idea to product
  - from laboratory to market
  - from student to entrepreneur
- to be a start-up accelerator

Tool:
The Knowledge Innovation Communities (KICs) bring together the knowledge triangle of business, education and research to form dynamic cross border partnerships
- each KIC is an independent legal entity
- each KIC consists of 5-6 “Innovation Hubs” with max. 50 partners in total (at the beginning)
- There is a managing Head Quarter for every KIC
- duration: min. 7 years with annual business plans
Mobilus: MOBIllity for Liveable Urban Spaces

Mobilus will strengthen the **European knowledge and business position** in safeguarding **access to mobility and logistics** in urban areas in a **greener, more inclusive, safer and smarter way**, whilst improving the **fundamental value** of urban areas as **places to live, meet, experience and work**.

The Consortium called “Mobilus” was the winner of the Call in December 2018. Now, we call it directly **EIT Urban Mobility**.
EIT Urban Mobility Partners

Figure C-3: EIT Urban Mobility partnership 2019
EIT Urban Mobility Lines

- Business Creation
- Academy
- City Club
- Innovation
- Factory

Co-funded by the European Union
EIT Urban Mobility Academy

Master School
Our Master School offers a wide-ranging master’s degree in urban mobility and aims to train 500 graduates per year in partnership with ten universities. This EIT labelled challenge-based double degree programme (1st and 2nd year in a different university) includes extensive training in innovation and entrepreneurship. The Master School will open its doors in autumn 2020 starting with 4 universities and 2 tracks. The Master School also includes summer schools held in several European cities addressing critical urban mobility challenges.

+READ MORE
What are the Main Features of the EIT Urban Mobility Master School Programmes?
EIT Urban Mobility Master School

Master Programme Structure: 2 Years/120 ECTS

1. Year 1 – Entry University
   - Pan-European Kick-Off
   - Summer School
     - Summer School visiting 2 European cities

2. Year 2 – Exit University
   - Internships with partners
   - Graduation Ceremony
   - Double Degree EIT Label Certificate

Total ECTS: 60 + 60 = 120
EIT Urban Mobility Master School

Master Programme Structure: 2 Years/ 120 ECTS

Year 1 – Entry University
- Introduction to I&E
- Core Skills in Urban Mobility

2-Week Summer School visiting two European cities

Pan-European Kick-Off

1+ Month Internship

Year 2 – Exit University
- Challenge Project 1
- Specialisation in Urban Mobility
- Elective in I&E
- Master Thesis

2+ Month Industry Placement

Double Degree Exam

EIT Label Certificate

Graduation Ceremony

- Programme 1: Data Science and Smart Mobility 2021
- Programme 2: Innovative Mobility Technology 2021
- Programme 3: Future Mobility Markets and Services 2021
- Programme 4: Sustainable Mobility Transitions 2020
EIT Urban Mobility Master School

UPC Example  https://camins.upc.edu/en/Studies/master/urban_mobility/mum#

Collaboration with Stake Holders:
- I&E Courses and Master Thesis
- Invited talks in Regular Lectures
- External Advisory Board
Planned Programmes (so far)

**Sustainable Urban Mobility Transitions***
Integrated spatial and transport planning, sustainability science, policy and economics

**Advanced Mobility Services**
MaaS, new business models, goods and personal travel

**Smart Mobility Data Science & Analytics**
IoT, machine learning, real-time analytics, geospatial analysis

**Innovative Mobility Technology**
Vehicle technology, Connectivity & Communications, Sensors, Human Interfaces (computer vision, speech processing & others), green energy,

*Awarded EIT Label in 2020*
What are the Main Features of each of these four Programmes at UPC?

What Double Degrees are Possible?
Master on Urban Mobility at UPC

Common structure for all programmes

120 ECTS, 2 years
The EIT Urban Mobility Master School programmes are a comprehensive combination of:
• 30 ECTS mandatory courses (‘common base’)  
• 20 + 10 ECTS I&E Minor  
• 10 + 20 ECTS Technical intensification (SUMT, AMS, SMDSA, IMT)  
• 30 ECTS Master’s thesis project.

<table>
<thead>
<tr>
<th>Mandatory courses</th>
<th>I&amp;E Minor</th>
<th>Technical intensification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility modeling</td>
<td>Innovation &amp; entrepreneurship for world challenges</td>
<td>SUMT – Smart Urban Mobility Transitions</td>
</tr>
<tr>
<td>Operation &amp; management of transport systems</td>
<td>Decision making &amp; economy in urban mobility</td>
<td>AMS – Advanced Mobility Services</td>
</tr>
<tr>
<td>Data analysis in transport systems</td>
<td>Project based on an innovation challenge</td>
<td>SMDSA – Smart Mobility Data Science &amp; Analytics</td>
</tr>
<tr>
<td>Introduction to supply chain</td>
<td>Product or service development project</td>
<td>IMT – Innovative Mobility Technology</td>
</tr>
<tr>
<td>Liveable cities &amp; urban mobility</td>
<td>Innovation &amp; entrepreneurship elective courses</td>
<td></td>
</tr>
<tr>
<td>Travel demand &amp; behavioral modeling</td>
<td></td>
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</tr>
</tbody>
</table>
Planned Programmes

Sustainable Urban Mobility Transitions
Integrated spatial and transport planning, sustainability science, policy and economics
EIT Urban Mobility Master School

Sustainable Urban Mobility Transitions Programme (SUMT)
https://www.eiturbanmobility.eu/sustainable-urban-mobility-transitions/

- At UPC, the intensification requires to take 5 or 6 elective courses (25-30 ECTS), two in Year 1, the rest in Year 2, and the Master Thesis (30ECTS)

| Optimization models for transportation networks | Railway transport | Public transport |
| Transportation system planning & management | Mobility & development | Traffic simulation models |
| Sustainable mobility | Freight transport | Vehicle routing models |
| Smart mobility (SMART) | Airport management | Port management & maritime transport |
| Traffic |

Year 1 at UPC

• We are in the era of the (urban) mobility revolution
  - Smart cities with efficient collective transportation systems
  - Green mobility => pedestrians, cyclists… return cities to people
  - Rethink the urban space => reduce the role of the car
  - Shared mobility initiatives => Uber, Car-to-Go, Bicing, eCooltra
  - Autonomous vehicles => impact to mobility management

Year 2 at UPC

• These are hot topics in our society
# Sustainable Urban Mobility Transitions

<table>
<thead>
<tr>
<th>Participating Universities</th>
<th>UPC</th>
<th>TU Eindhoven</th>
<th>KTH</th>
<th>Aalto University</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree Awarded</strong></td>
<td>Master of Science, Urban Mobility</td>
<td>Master of Science, Architecture, Building, and Planning</td>
<td>Master of Science: Transport, Mobility and Innovation</td>
<td>Master of Science in Technology and Engineering</td>
</tr>
<tr>
<td><strong>Supporting Faculty</strong></td>
<td>School of Civil Engineering, School of Industrial Engineering</td>
<td>Department of the Built Environment</td>
<td>Department of Arch. &amp; the Built Environment</td>
<td>Department of Built Environment</td>
</tr>
<tr>
<td><strong>Example Career Paths</strong></td>
<td>Cities, transport authorities, research institutes and industries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relevant Backgrounds</strong></td>
<td>Engineering, Information Science, Computer Science, Statistics, Geoinformation Technology, Urban Planning, Geography, and/or Economics with a strong quantitative background</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Planned Programmes

Advanced Mobility Services
MaaS, new business models, goods and personal travel
At UPC, the intensification requires to take 5 or 6 elective courses (25-30 ECTS), two in Year 1, the rest in Year 2, and the Master Thesis (30ECTS)

- Prepare you to face the mobility challenges generated by rapid urbanization and e-commerce activities
- Design or improve urban logistic solutions
- Design or improve mobility services for people
- Create sustainable business models for mobility services

The programme takes a holistic approach to studying, designing, and implementing advanced mobility services by integrating technical expertise with innovative approaches and entrepreneurial skills.

Work opportunities in logistics, transport managers, mobility authorities and manufacturers and service providers in the mobility sector.
# Advanced Mobility Services

<table>
<thead>
<tr>
<th>Participating Universities</th>
<th>UPC</th>
<th>Politecnico-di-Milano</th>
<th>TU Braunschweig (2nd Year Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree Awarded</strong></td>
<td>Master of Science, Urban Mobility</td>
<td>Master of Science, Mobility Systems</td>
<td>Master of Science, Technology-Oriented Management</td>
</tr>
<tr>
<td><strong>Supporting Faculty</strong></td>
<td>School of Industrial Engineering, School of Civil Engineering</td>
<td>School of Industrial &amp; Information Engineering</td>
<td>Automotive Research Centre (NFF) and Carl-Friedrich-Gauß Faculty</td>
</tr>
<tr>
<td><strong>Example Career Paths</strong></td>
<td>Logistics, transport management, mobility authorities and the automotive manufacturers and service providers in the mobility sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relevant Backgrounds</strong></td>
<td>Industrial Engineering or Information engineering; other technical degrees with strong economics and business backgrounds</td>
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<td></td>
</tr>
</tbody>
</table>
EIT Urban Mobility Master School

Advanced Mobility Services

Studying at TU Braunschweig – what can you expect…?

**Exceptional research & education**
- interesting courses in a region with the highest density of scientists in Europe
- to study at a TU9-network universities (alliance of leading technological universities in Germany)
- about 20,000 students enrolled in 84 programs
- an open-minded international community (about 3,000 international students)

A charming & vibrant city
- With 250,000 inhabitants Braunschweig is a lively city with a history that dates back to the year 1031

**Practical experience through the Automotive Research Centre Niedersachsen (NFF)**
- The NFF is one of the largest and most modern centres for mobility research with partners ranging from small start-ups to big cooperation
- Through the NFF you are provided with the chance to work with industry partners to apply your knowledge
- Leading companies within the mobility sector such as Aistom, Siemens Mobility, and the Volkswagen Group provide exciting opportunities for your future career

**A Master’s degree from TU Braunschweig**
- After successfully finishing the "Advanced Mobility Services" track you receive a Master’s degree in “Technology-oriented management”

Co-funded by the European Union
Planned Programmes

Smart Mobility Data Science & Analytics
IoT, machine learning, real-time analytics, geospatial analysis
The Smart Mobility Data Science and Analytics (SMDSA) Programme focuses on future transport system analysis and engineering in the era of big data.

- At UPC, the intensification requires to take 5 or 6 elective courses (25-30 ECTS), two in Year 1, the rest in Year 2 and the Master Thesis (30ECTS).

The scope is interdisciplinary and covers all modes of urban and regional transport for personal travel and goods and logistics.

The Programme provides tools for creative analysis of urban system dynamics and geospatial analysis, and advanced analytics methods, including artificial intelligence methods, data collection and data management processes.

- Multivariate Analysis
- Data Management for Transportation
- Semantic Data Management
- Algorithmics for Data Mining
- Information Retrieval
- Machine Learning
- Big Data Management
- Data Management for Transport Apps
## Smart Mobility, Data Science and Analytics

<table>
<thead>
<tr>
<th>Participating Universities</th>
<th>UPC</th>
<th>TU Eindhoven</th>
<th>University of Tartu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Awarded</td>
<td><strong>Master of Science, Urban Mobility</strong></td>
<td><strong>Master of Science, Architecture, Building, and Planning</strong></td>
<td><strong>Master of Science, Computer Science</strong></td>
</tr>
<tr>
<td>Supporting Faculty</td>
<td>Faculty of Informatics School of Industrial Engineering School of Civil Engineering</td>
<td>Department of the Built Environment</td>
<td>Institute of Computer Science</td>
</tr>
<tr>
<td>Example Career Paths</td>
<td>Private companies in logistics and transport management, shared mobility startups, the automotive sector, public transport operators, and cities and public institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant Backgrounds</td>
<td>Engineering, Computer Science, or Information Technology and Systems degree</td>
<td></td>
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</tr>
</tbody>
</table>

Co-funded by the European Union
Planned Programmes

Innovative Mobility Technology
Connectivity, Communications, Sensors, HMI, machine learning, green energy, vehicle technology,
EIT Urban Mobility Master School
Innovative Mobility Technology (IMT)
https://www.eiturbanmobility.eu/innovative-mobility-technology

• At the UPC, this intensification requires to take 5 or 6 elective courses (25-30 ECTS), two in Year 1, the rest in Year 2, and the Master Thesis (30 ECTS)

• Modelling, identification & simulation dynamics system engineering
• Optimization

Year 1 at UPC

Energy
• Fuel cells
• Electric energy storage systems
• Charge network design & management

Year 2 at UPC

Sensors & communications
• Instrumentation & sensors
• Fundamentals of telecommunication systems
• 5G mobile communications

Human machine interaction
• Deep learning for artificial intelligence
• Computer vision
• Digital speech & audio processing
• Cognitive robotics

• We will prepare you to face challenges in cities
  – How to move people and goods efficiently and sustainably.
  – Design and develop user-centred future mobility tools and devices.
  – Understand applications of technological developments in various vehicle typologies and urban infrastructure.
## Innovative Mobility Technology

<table>
<thead>
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<th>Politecnico-di-Milano</th>
<th>Aalto University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Awarded</td>
<td>Master of Science, Urban Mobility</td>
<td>Master of Science, Mobility Systems</td>
<td>Master of Science in Technology and Engineering</td>
</tr>
<tr>
<td>Supporting Faculty</td>
<td>School of Telecom Engineering</td>
<td>School of Industrial &amp; Information Engineering</td>
<td>School of Electrical Engineering</td>
</tr>
<tr>
<td>Example Career Paths</td>
<td>vehicle and mobility system designer and engineer, technology innovator, mobility infrastructure designer, HMI (Computer Vision, Speech Processing &amp; others) mobility engineer, ITS system architect, X2X connectivity system engineer, system power engineer,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant Backgrounds</td>
<td>Engineering degree with strong mathematics, information science or programming</td>
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</table>
What Scholarships does EIT Urban Mobility offer?

What are the deadlines and other important requirements to apply?
## Tuition Fees and Available Scholarships

<table>
<thead>
<tr>
<th>Scholarship category</th>
<th>Annual Tuition Fee</th>
<th>Annual Fee Waiver</th>
<th>Monthly Allowances (max 24 months)</th>
<th>Annual Value for student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-EU</strong></td>
<td></td>
<td></td>
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<tr>
<td>Full paying student</td>
<td>€ 16 000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urban Mobility Excellence Scholarship</td>
<td>€ 10 000</td>
<td>- € 6 000</td>
<td>€ 850/ month</td>
<td>€ 16 200</td>
</tr>
<tr>
<td>Urban Mobility Merit Scholarship</td>
<td>€ 10 000</td>
<td>- € 6 000</td>
<td>€ 500/ month</td>
<td>€ 12 000</td>
</tr>
<tr>
<td><strong>EU</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full paying student</td>
<td>€ 4 000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urban Mobility Excellence Scholarship</td>
<td>0</td>
<td>- € 4 000</td>
<td>€ 500/ month</td>
<td>€ 10 000</td>
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<tr>
<td>Urban Mobility Merit Scholarship</td>
<td>€ 2 000</td>
<td>- € 2 000</td>
<td>€ 500/ month</td>
<td>€ 8 000</td>
</tr>
</tbody>
</table>
Important Facts to apply to the EIT Urban Mobility Master School

Deadline:
Recommended 31st of March. Final 16 of April

Important Requisite!! Proof of English:

**IELTS** Academic test (www.ielts.org)
- An overall band score of at least 6.5, with no section lower than 6, is required. No General training IELTS tests

**TOEFL** Internet-based test, iBT (www.toefl.org)
- A minimum total score of 92 (with writing section 22 and no section lower than 21) is required.

Detailed Information to apply:
https://www.eiturbanmobility.eu/masterschool/
Who is who?

• **Elisa Sayrol**, EIT Urban Mobility Main Contact at UPC  
elisa.sayrol@upc.edu

• **Francesc Soriguera**, local Programme Coordinator (Vice Dean of ETSECCPB), SUMT Coordinator at UPC  
francesc.soriguera@upc.edu

• **Imma Ribas**, AMS Coordinator at UPC, AMS Coordinator at EIT Urban Mobility  
imma.ribas@upc.edu

• **Lídia Montero**, SMDSA Coordinator at UPC  
lidia.montero@upc.edu

• **Mónica Aguilar**, IMT Coordinator at UPC  
monica.aguilar@upc.edu

**MUM Students here today:** Víctor Ferran Carpintero; Hao Luo Wang
We are looking forward to see you at UPC!
Thank you!

For more information, please contact:
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www.eiturbanmobility.eu

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