



Keywords

Building equipment
 Management of buildings
 Artificial intelligence and smart cities
 Automation, regulations and intelligent buildings
 Lab projects

URBAN ENGINEERING (GÉNIE URBAIN) SMART CITIES

PRESENTING THE UTC DEPARTEMENT OF URBAN ENGINEERING

Urban engineering at UTC offers a generalist training based on an approach to the city through its technical networks (energy, roads, transportation, water and sanitation, waste) as well as its built spaces (buildings, equipment, public spaces, development). Parting from a threefold perspective (scientific, technical, and societal) and aiming at a sustainable and/or intelligent city, it also addresses the topics of their design and maintenance (design, construction, management, coordination, and optimized maintenance- operations).

COURSE DESCRIPTIONS

BA02 - MANAGEMENT OF BUILDINGS AND URBAN INFRASTRUCTURE (6 ECTS)

Responsible : Jean-Pascal Foucault (fall)

The course presents an overall view on the principal functions and activities of service management and technical engineering of real estate complexes: 1. Knowledge and programing: elaborate and implement a master plan (schéma directeur). 2. Build and operate: construct, renovate, maintain and control exploitation and current maintenance. 3. Optimize: Audit, measure and evaluate the operating performance.

BA05 - AUTOMATION, REGULATIONS AND INTELLIGENT BUILDINGS (6 ECTS)

Responsible : Manuela Sechilariu (fall)

This course discusses network architecture, components and operation of communications networks and remote management dedicated to building equipment: KONNEX, LonMark, BACnet. The regulation and control of key technical building systems will be explored with practical applications associated with numerical simulations.

BA08: DATA SCIENCE FOR THE SMART CITY (6 ECTS)

Responsible : Gilles Morel (fall)

This course presents and develops the concepts, challenge, applications and technology of the smart city and the smart building, especially in the context of the urban « Internet of Things » (IoT), and networks of multi-domain sensors (transport, environment, energy etc.) The methods and tools of data science and urban computing will be introduced or recalled and put into practice with the Python language and libraries, on real use cases and data related to urban systems.

BA10: SMART GRIDS: INTELLIGENT AND SUSTAINABLE ELECTRICAL SYSTEMS (6 ECTS) *Responsible : Berk Celik (fall)*

This course deals with smart grids and in particular the architecture of urban microgrids as well as the optimization strategies between the renewable energy potential, the local valorization according to the usage scenarios and the cost. The STELLA platform serving as a living lab provides several case studies to accompany the simulations.

GENERAL LAB AND PROJECT COURSES

PR00 – MULTIDISCIPLINARY PROJECT (5 ECTS)

Responsible: Bruno Ramond (Fall and Spring semesters)

The goal of this course is to have students participating to the achievement of a project. The project should be under the supervision of one adviser.

TX00 - LAB PROJECT (5 ECTS)

Responsible: Claude-Olivier Sarde (Fall and Spring semesters)

The TX Unit is a technical Unit belonging to the category "Techniques and Methods" (TM). It allows the students to realize a concrete technical project operating an approach of engineering.

HUMANITIES AND LANGUAGES

EI02 : INTERNATIONAL PROJECT MANAGEMENT (4 ECTS)

Responsible: Frederic Huet (Fall and Spring semesters)

Managing international projects presents unique challenges: implementing standard project management methods and tools while accommodating cultural differences and distance in the project team. This course addresses the knowledge, skills, and behaviors required to successfully manage projects across the world.

EI05 : EUROPEAN UNION, SOCIETY AND SCIENCE POLICY (4 ECTS)

Responsible: Martin Morgeneyer (Fall and Spring semesters)

Introduction to Europe: Countries, figures, languages - and you! - EU's history and EU's news - From an economic to a political Europe: The treaties and the constitution project, Introduction to Lisbon - The European Institutions - Europeans about Europe - The European citizenship - Key figures - Intro to ERA and REACh - Intro to Bologna - Decision making - European law - Research, EIT, REACh and Sustainable development in Europe - Horizon 2020 - Public consultations - Europe and me.

SO07 : DIGITAL POLICIES AND INTERNET REGULATION (4 ECTS)

Responsible: Anne Bellon (Fall and Spring semesters)

Can we govern technology and how? By bringing together different disciplines (political science, law, and economics). This course explores the technical and social arrangements that shape the organization and transformation of content and practices on the web. It adopts a thematic and historical perspective, which aims to discuss specific issues, but above all to grasp the evolution and ruptures that mark the regulation of the Internet.

LA91 - FRENCH AS A FOREIGN LANGUAGE - level 1 (4 ECTS)

Responsible: Anna Wiacek-Le Verger (Fall and Spring semesters)

LA92 - FRENCH AS A FOREIGN LANGUAGE - level 2 (4 ECTS)

Responsible: Anna Wiacek-Le Verger (Fall and Spring semesters)

LA93 - FRENCH AS A FOREIGN LANGUAGE - level 3 (4 ECTS)

Responsible: Carole Lefrancois-Yasuda (Fall and Spring semesters)

LA94 - FRENCH AS A FOREIGN LANGUAGE - level 4 (4 ECTS)

Responsible: Carole Lefrancois-Yasuda (Fall and Spring semesters)

Contact

Academic exchange
coordinator Berk
Celik
berk.celik@utc.fr

International office
incoming@utc.fr