

MAS

Master of Advanced Studies
Maîtrise d'études avancées

The Internet of Things

Certificates of Advanced Studies in the Internet of Things





Direction

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- Sébastien Ziegler, IoT Forum and Mandat International

Coordination

- Prof. Dimitri Kostantas, University of Geneva

Target Audience

- Chief technology officer
- Member of direction or manager in charge of defining the technological strategy of his company
- Civil servant in charge of smart cities planning, deployment and maintenance
- Director of information systems
- Project manager with IoT
- Research and innovation manager
- Business and production manager
- Engineer with several years of experience



The Internet of Things (IoT) is expected to be the next major technological wave, with over 50 billion connected devices by 2020, over 14 trillion US\$ economic value creation by 2022, and major gains in efficiency for the industry and public administrations. In response to this evolution, professionals and companies need to develop their expertise, update their knowledge and support innovative solutions.

The Master of Advanced Studies (MAS) in the Internet of Things (MAS-IoT) is co-organized by the University of Geneva, the IoT Forum and Mandat International. The programme includes the Certificate of Advanced Studies (CAS) in IoT Fundamentals, the CAS in IoT Networks and Standards, the CAS in IoT Security and Privacy and the CAS in IoT Applications.

The course has been tailored to provide professionals and future professionals an IoT cutting edge education.

Top professors and experts from European Universities, research centers and industry will be invited to offer scientific and professional inputs. Participants will develop skills and expertise on how to analyze, design, plan, deploy, manage, exploit and maintain the Internet of Things. Emerging trends, requirements, models, technologies, applications and approaches will be dealt with a direct integration with leading research teams and industry. Participants will mutualise their experience and knowledge and develop their professional network during and after the training.

A strong emphasis is placed on the transfer of knowledge acquired during the training in the work environment of the participants. This will be done through case studies and lessons and the followup of the master thesis. Personalized coaching and mentoring are proposed throughout the training.



Objectives

- Provide a multidisciplinary education on the Internet of Things with cutting edge experts from the European research and industry ecosystem.
- Empower the professionals to lead the evolution of the IoT in companies and in public administrations.
- Develop skills and expertise articulating academic knowledge and business expertise.
- Encourage the pooling of experience and knowledge between peers and with stakeholders to develop innovative approaches.
- Build a professional network.

Skills and Competences

- Master strategic and holistic view of the Internet of Things encompassing technological, societal and business dimensions
- Develop an innovative, interdisciplinary and holistic approach.
- Identify critical issues and solutions related to Internet of Things strategy design and implementation.
- Acquire a holistic view and a sound understanding of the Internet of Things ecosystems and deployments.
- Capacity to lead Internet of Things strategies, projects, implementation and deployments.
- Acquire a comprehensive view and understanding of emerging technologies and trends in the Internet of Things ecosystems and industry.
- Capacity to handle related issues such as user-acceptance, security, privacy and business modelling.



Programme Structure

12 thematic modules (average 24 hours of teaching per module) organised in 4 parts:

- IoT Fundamentals
- IoT Networks and Standards
- IoT Security or Privacy
- IoT Applications

A written master thesis, with two subcategories focusing on:

- a) Research, innovation and analysis
- b) IoT deployment plan and implementation

- A one week summer school that will allow students to meet international experts and stay in touch with latest developments.
- Dissertation: 336 hours
- Teaching: 288 hours
- Number of ECTS Credits: 60
- Each module is subject to an evaluation in order to be accredited

CAS in IoT Fundamentals | CAS in IoT Networks and Standards | CAS in IoT Security or Privacy | CAS in IoT Applications

Each CAS (12 ECTS credits) can be attended individually and be credited in the MAS programme in a period of 3 years. Each CAS will comprise 3 thematic modules, followed by an individual work and/or an examination test.

Some modules may be attended individually, on request.

Language

English



Modules

CAS | IoT Fundamentals

- Overview IoT Landscape, Evolution and Trends
- IoT Hardware, Enablers and Sensor Networks
- IoT Architectures and Main IoT Platforms

Modules

CAS | IoT Networks and Standards

- IoT Communication, Interoperability and Standards
- IoT Networks, IPv6 and Scalability
- Designing and Deploying IoT Enterprises

Modules

CAS | IoT Security and Privacy

- IoT Security
- IoT Privacy and Personal Data Protection
- IoT Information Management System

Modules

CAS | IoT Applications

- IoT Market, Value Creation and Business Models
- Smart Cities and other IoT Application Domains
- IoTathon – Use-case Design and Deployment Exercise

Master Thesis

Teaching Schedule

The thematic modules will be delivered within a regular academic year, from September to July.

By default, each Module will be organized over two periods of two days, on Friday (14:00-21:00) and Saturday (9:00-14:00/21:00), to facilitate the participation of professionals. Complementary activities, such as laboratory and group works will be part of the programme. The master thesis will be written and submitted by the participant during the subsequent semester.



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Assessment

Each module will be evaluated through personal or group work and/or examination tests.

The Master thesis will comprise an assessed written work.

Each module will be evaluated by the participants in order to identify potential improvements.

Diplomas Awarded

Participants who successfully complete the programme of the MAS will be awarded the Master of Advanced Studies in Internet of Things/ *Maîtrise universitaire d'études avancées en Internet of Things* delivered by the University of Geneva. It equates to 60 ECTS (European Credit Transfer and Accumulation System) credits.

Participants who successfully complete the programme of the CAS will be awarded

- Certificate of Advanced Studies in IoT Fundamentals/*Certificat de formation continue en Fondamentaux de IdO*
- Certificate of Advanced Studies in IoT Networks and Standards/*Certificat de formation continue en Réseaux et standards de IdO*
- Certificate of Advanced Studies in IoT Security and Privacy/*Certificat de formation continue en Sécurité et confidentialité de IdO* **and/or**
- Certificate of Advanced Studies in IoT Applications/*Certificat de formation continue en Applications de IdO*

Delivered by the Centre universitaire d'informatique (CUI) of the University of Geneva.

Each CAS equates to 12 ECTS (European Credit Transfer and Accumulation System) credits.



General Information

Admission Criteria

- At least Bachelor's or master's degree
- Minimum of 3 years of relevant work experience
- Ability to speak and write in English

Registration Fees

The **total registration** fees for the MAS refers to the maximum training time (4 semesters). It is set for each edition by the Steering Committee. These fees do not cover the personal expenses of students, nor travel costs, accommodation costs and insurance. For the first edition, which will begin in October 2017, the registration fees will amount to:

- CHF 17,500.- for the MAS
- CHF 5,000.- for each CAS

Participants who have obtained the four CAS over a period of time of three years can apply to the MAS with a complementary registration fee of CHF 2,500.

Number of Participants: Minimum 10 – Maximum 22

Application and Deadline

Application may be submitted via the program website: mas-iot.unige.ch by the end of September 2017.

- Candidates should send copies of relevant university degrees, a curriculum vitae and a covering letter
- For individual modules, application should be sent at least one month prior to the beginning of the selected module. Priority will be given to candidates applying for the MAS and for the CAS

Course location

The courses will take place mainly at the University of Geneva. The possibility to hold sessions, activities and visits to other locations will be considered too.

Contact

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IoT·Forum



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