EIT Digital Master School

Fintech

What can I study at the entry and exit points?

FOR A STRONG
DIGITAL EUROPE

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Entry - 1st year, common courses

Eötvös Lorand University (ELTE), Hungary

Contact: Molnár Bálint, molnarba@inf.elte.hu

Entry year

Semester 1

- I&E Basics (5 ECTS)
- Principles of artificial intelligence (5 ECTS)
- Introduction to Computer Security (5 ECTS)
- Introduction to Data Sciences (5 ECTS)
- Introduction to Finance (5 ECTS)
- Business Development Lab I. (5 ECTS)

Semester 2

Obligatory courses

- Business Development Lab II. (5 ECTS)
- Information Security Management (6 ECTS)
- Management skills for tech entrepreneurs (5 ECTS)
- Service Science (5 ECTS)
- Machine Learning (5 ECTS)
- Thematic Summer Schools with I&E project (4 ECTS)

University of Trento (UNITN), Italy

Contact: Sandro Fiore, sandro.fiore@unitn.it

Entry year

Semester 1

- Innovation and Entrepreneurship Basic
- Introd. to Computer and Network Security
- Machine Learning
- Web architectures
- Concurrency
- International Accounting and Finance I: International Accounting 2
- Financial Mathematics 2
- Statistical models 3

Semester 2

- Business Development Laboratory (9ECTS)
- ICT Innovation (includes EIT Summer School) (9ECTS)
- Agent-Oriented Software Engineering
- Cyber Security Risk Assessment
- Deep learning
- Distributed systems 1
- International Accounting and Finance II: International Corporate Finance 2
- Workshop on Financial simulation
- Intelligent Optimization for data science

University of Rennes 1 (UR1), France

Contact: Alvaro Pina Stranger, alvaro.pina-stranger@univ-rennes1.fr

Entry year

Semester 1

- Innovation and Entrepreneurship / Fintech Basics (5 ECTS)
- Business Development Laboratory 1 (5 ECTS)
- Introduction to Finance (5 ECTS)
- Basics of Data Analysis (6 ECTS)
- Advance Data Bases (4 ECTS)
- Object oriented analyses and design (5 ECTS)

Semester 2

- Business Development Laboratory 2 (5 ECTS)
- Knowledge and Intangible Assets Management - KNI (5 ECTS)
- FinTech business cases (5 ECTS)
- Machine learning 1 (5 ECTS)
- Semantic Web Technologies (5 ECTS)
- Database Security (5 ECTS)

Politecnico di Milano (POLIMI), Italy

University's programme page

Contact: Federico Schiepatti, federico.schiepatti@polimi.it

Technical Major (total ECTS: 21)

- Data Bases 2 (5 ECTS) - I semester
- Software Engineering 2 (5 ECTS) - I semester
- Computer Security (5 ECTS) - II semester
- Fintech (6 ECTS) - II semester

Elective Courses (3 choices, total ECTS: 15)

- First semester: Data Mining, Artificial Neural Networks and Deep Learning, Systems and Methods for Big and Unstructured Data
- Second semester: Financial Risk Management, Computing Infrastructures, Cryptography and Architectures for Computer Security

I&E Minor - Innovation & Entrepreneurship courses (total ECTS: 24)

- Strategy and Marketing (10 ECTS) - I semester
- Financial Markets and Institutions (5 ECTS) - I semester
- Digital Business Lab (5 ECTS) - II semester
- I&E Summer School (4 ECTS)

POLIMI as entry university is best suited for applicants with a bachelor's degree in computer engineering (or similar programmes). It means a strong base of ICT, computer science, programming, and engineering courses in your transcript of records, including physics and math courses at academic level.

Universidad Politécnica de Madrid (UPM)

Visit:

- University homepage
- Programme homepage

Contact: Alejandro Rodríguez González, alejandro.rg@upm.es

Entry year

Semester 1:

- Introduction to Innovation and Entrepreneurship management (6 ECTS)
- Fundamentals of finance (6 ECTS)
- Blockchain and Services for Fintech Enterprise Integration (5 ECTS)
- Requirements Engineering (6 ECTS)
- Software Verification and Validation (6 ECTS)

Semester 2:

- Introduction to technology watch and competitive intelligence (1 ECTS)
- I&E Seminars (5 ECTS)
- Entrepreneurship and business modelling (6 ECTS)
- Launching of ICT product/services to the market (2 ECTS)
- Summer School (4 ECTS)
- Data Mining (Data Engineering) (4 ECTS)
- Seminars on Systems for Finance (4,5 ECTS)
- Programming for data processing (4,5 ECTS)

Exit - 2nd year, specialisation

Eötvös Lorand University (ELTE), Hungary

Contact: Molnár Bálint, molnarba@inf.elte.hu

Exit year (specialization): Systems Engineering for Financial Technologies

The specialization will provide content oriented towards "Systems Engineering for Financial Technologies". It includes courses in Consultation for Dissertation (Fintech Lab.), Development of Financial IT Systems, Advanced Machine Learning, Cryptography, Business Intelligence and Data Visualization, among others.

Accessibility of the actual information:

http://csmsc.elte.hu/curriculum/curriculum_FT.pdf
http://csmsc.elte.hu/elective-courses/

Semester 1

- Fintech. Lab I. (4 ECTS) (Computational Finance exercises based on MatLab)
- I&E Study (6 ECTS)
- Advanced Machine Learning (5 ECTS)
- Cryptography (6 ECTS)
- Development of Financial IT Systems (5 ECTS)
- Business Intelligence and Data Visualization (4 ECTS)
- Freely elective for EIT students:
    - Fintech Lab II. (System/Software development independent, individual or team project, preparation of empirical basis for M.Sc. dissertation.)

Semester 2

- Master Thesis (30 ECTS)

University of Trento (UNITN), Italy

Contact: Sandro Fiore, sandro.fiore@unitn.it

Exit year (specialization): Distributed Fintech systems

The specialization will provide content oriented towards distributed FinTech systems that uses advanced machine intelligence and distributed algorithms while providing open and secure access. It includes courses in advanced learning methods, advanced distributed secure systems (blockchain and consensus, cryptography and zero knowledge) and evolutionary algorithms and AI and key notions of financial risks managements and markets.

Semester 1

- Innovation & Entrepreneurship Studies in ICT
- Machine Learning
- Concurrency
- Distributed systems 2
- Complexity, Cryptography and FinTech
- Bio-Inspired Artificial Intelligence
- International Accounting and Finance I: International Accounting 2
- (Financial) Risk management
- Financial Markets and Economic Activity
- Research Project (in alternative to any of the above)

Semester 2

- Company internship (6ECTS)
- Master Thesis (24ECTS)

Université Côte d'Azur (UCA), France

Contact: Francoise BAUDE, Francoise.BAUDE@univ-cotedazur.fr

Programme page

Exit year (specialization): Fintech for Financial and Insurance Business

The specialization will provide content oriented towards Financial or Insurance institution's needs, related to their common B2C activities but also to their investment activities on financial markets. This means courses content will include an introduction to financial markets, some mathematical and digitalised tools for modelling how financial products are priced and traded on such markets, and how associated risks can be covered. The rest of the program courses is devoted to typical subjects needed in FinTech: distributed systems, security, data science, etc.)

Semester 1

- I&E Study (6ECTS)
- Models and computation for risk coverage (6 ECTS)
- Elective in Security (2+2 ECTS)
- Project in Fintech (6 ECTS)
- Elective in CS (Big Data, Cloud, Distr. Systems, Data Science, Web Science) (2+2+2+2 ECTS)

Semester 2

- Company internship and Master Thesis (30ECTS)

University of Rennes 1 (UR1), France

Contact: Alvaro Pina Stranger, alvaro.pina-stranger@univ-rennes1.fr

Exit year (specialization): Fintech based on Data Management

Rennes 1 will provide specialization contents oriented to advanced data management, using scalable data analytics methods and techniques. Some of these techniques are distributed data management, distributed and parallel query processing, NoSQL technologies, NewSQL technologies, complex event processing, scalable data management ecosystems, and cloud infrastructure, specifically, computing and storage, and elastic management. The exit year specialization at Rennes 1 provides students with a stand towards financials, specifically, through the use of Bloomberg specialized services, which remains at the cutting edge of innovation by delivering fast access to indispensable news, data and trading tools.

Semester 1

- I&E study on Fintech (6 ECTS)
- Fintech Project (4 ECTS)
- Data Mining (5 ECTS)
- Machine Learning 2 (5 ECTS)
- Datawarehouses (3 ECTS)
- Cloud and Big Data Management (3 ECTS)

Semester 2

- Master Thesis (30 ECTS)

EIT Digital

We believe in making and shaping a competitive digital Europe that is inclusive, fair and sustainable and aim at global impact through European innovation fuelled by entrepreneurial talent and digital technology.

We embody the future of innovation by mobilizing a pan-European multi-stakeholder open-innovation ecosystem of top European corporations, SMEs, startups, universities and research institutes, where students, researchers, engineers, business developers and investors address the technology, talent, skills, business and capital needs of digital entrepreneurship.

We build the next generation of digital ventures, digital products and services, and breed digital entrepreneurial talent, helping business We build the next generation of digital ventures, digital products and services, and breed digital entrepreneurial talent, helping business and entrepreneurs to be at the frontier of digital innovation by providing them with technology, talent, and growth support:

For more information, visit www.eitdigital.eu. Follow us on Twitter: @EIT_Digital

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