



Future Networks Academy

Benchmarking Report on Training Offers in Future Network Technologies

Introduction

As we move into the era of 5G and look ahead to 6G, big changes are coming to the way we use technology. The FNA project has taken a close look at the training programs available in Europe for these new technologies. Our goal is to find out what kind of training is already out there and to spot any missing pieces in the education of people who work or will work in telecommunications. We aim to figure out how the FNA project can help fill in these gaps in order to contribute to the comprehensive and learner-centered education in this field.

We benchmarked the training programs in six European countries (Germany, France, Finland, Spain, Luxembourg and the Netherlands) because we believe that these countries are leading the way in the field of future networks technology and education, which gave us a representative picture of the current situation across Europe.

Training Programs by Country

France

Provider: Télécom Paris

Program: Cybersecurity and Cyberdefense

Degree: Master's degree

Duration: 1 year

Language: French

URL: <https://shorturl.at/nuBIM>

Details: Focused on security for wired and wireless IP environments, this program delves into critical areas like cryptography, network infrastructure, and security management.

Provider: Paris-Saclay University

Program: Internet of Things

Degree: Master's degree

Duration: 1 to 2 years

Language: French

URL: <https://shorturl.at/lvCQ0>

Details: Offering a cutting-edge education in IoT, this course integrates practical applications in smart city and industry 4.0 environments, with a strong emphasis on modern technologies like 5G, edge computing, and AI.

Provider: CentraleSupélec

Program: Cybersecurity

Degree: Master's degree

Duration: 1 year

Language: French/English

URL: <https://shorturl.at/uSXZ9>

Details: Co-developed with IMT Atlantique, this course covers both organizational and technical aspects of information system security, preparing students for comprehensive risk management.

Spain

Provider: Enable 6G

Program: 6G Research

Duration: Not applicable

Language: English/Spanish

URL: <https://enable6g.eu/about-ap/>

Details: As a research-centric initiative, ENABLE-6G is focused on overcoming the technological challenges posed by the next generation of connectivity, including machine learning applications in 6G.

Provider: TELECOMA GLOBAL

Program: 6G online training

Certification: Yes

Duration: Short-term

Language: English

URL: <https://telcomaglobal.com/p/6g-technology-training-certification>

Details: This continually updated online course offers a dynamic learning platform for the ever-evolving field of 6G, advocating for regular engagement with new material.

Provider: Universidad Politécnica de Madrid

Program: Cybersecurity

Degree: Master's degree

Duration: 1 year

Language: Spanish/English

URL: <https://masterciberseguridad.etsit.upm.es/>

Details: The program offers comprehensive training in both technological and organizational aspects, preparing students to design and implement cybersecurity strategies. The program covers economic and legislative considerations, ensuring graduates can tackle diverse cybersecurity challenges. Moreover, it facilitates connections with relevant industry partners, offering networking opportunities, internships, and potential career paths in cybersecurity.

Provider: Universidad Politécnica de Madrid

Program: Technologies and Business Strategies in 5G Networks
Degree: Master's degree

Duration: 6 Credits, 2 months

Language: Spanish/English

URL: <https://www.programa5gfranciscos.etsit.upm.es/?lang=en>

Details: The program offers a comprehensive exploration of the technical and strategic dimensions of the forthcoming generation of mobile technologies. Intended for undergraduate, master's, and doctoral students across global universities, as well as ICT professionals seeking to enhance their understanding of mobile technologies, the course emphasizes priority for applicants from STEM disciplines, including professors, researchers, doctoral students, and recent master's graduates.

Provider: Universidad Carlos III de Madrid

Program: Network Function Virtualization (NFV) and Software Defined Networks (SDN) for 5G Networks

Degree: Online Master of Lifelong Learning

Duration: 60 credits, duration not specified

Language: English

URL: <https://www.uc3m.es/master/NFV-SDN-5g-networks>

Details: A program dedicated to NFV and SDN within the context of 5G networks.

The Netherlands:

Provider: Delft University of Technology

Program: Computer & Embedded Systems Engineering

Degree: Master's degree

Duration: 2 years

Language: English

URL: <https://rb.gy/0f3j7d>

Details: This program goes beyond theory to hands-on projects that integrate hardware and software, focusing on real-time systems and optimized processor design within telecommunications.

Provider: Telecommunications Education Center (TEC)

Program: 5G Readiness Program

Degree: Certification

Duration: Various

Language: English

URL: <https://tec-online.org/5g-readiness-program/>

Description: The 5G Readiness Program provides industry-validated training for the 5G job market, equipping students with the latest competencies required to design and deploy broadband infrastructure.

Finland

Provider: Business Finland

Program: 6G Bridge Program

Certification: Various

Duration: 2023-2026

Language: English

URL: <https://rb.gy/b1fyyf>

Details: With a vision to establish Finland as a world leader in 5G and 6G technologies, the 6G Bridge Program advocates for ecosystem-based collaboration in research and innovation. It supports the development of commercial ecosystems and strengthens Finland's capabilities in the field. The program has allocated a budget of 130 million euros and is inclusive of Finnish and international entities investing in Finland.

Provider: Oulu University

Program: 6G Flagship

Certification: Various

Duration: 2018-2026

Language: English

URL: <https://www.6gflagship.com/>

Details: As the world's first 6G research program, the 6G Flagship is part of Finland's national research initiative, aiming to create vital 6G technological components and a 6G Test Network.

It is dedicated to accelerating societal digitization and maintaining Finland's position as a leader and a preferred partner in global 6G research.

Provider: Oulu University

Program: Wireless Communications Engineering

Degree: Master's degree

Duration: 2 years

Language: English

URL: <https://www.oulu.fi/en/apply/masters-wireless-communications-engineering>

Details: Focuses on Radio Access Networks and RF Engineering within the scope of 6G research.

Luxembourg

Provider: Luxembourg Institute of Science and Technology

Program: 6G-TWIN Project

Research Programs: Yes

Duration: Not specified

Language: English

URL: <https://rb.gy/s63sbp>

Details: The 6G-TWIN Project engages in various research activities, including thesis projects and courses at Bachelor's and Master's levels. It focuses on advancing telecommunications technologies and fostering innovation in the field.

Germany:

Provider: WHZ University of Applied Sciences

Program: Internet of Things and Smart Systems

Degree: Master's degree

Duration: 2 years

Language: English

URL: <https://shorturl.at/pwST3>

Details: The program harnesses the vast potential of digital technology in the Internet of Things (IoT), which is revolutionizing various economic sectors. Students delve into technical and business disciplines essential for creating innovative IoT products. The program equips students with the ability to design user-friendly, customer-tailored products, offering specialization in design and usability, business acumen, or advanced programming.

Provider: Technical University of Munich

Program: Internet of Things and Cyber-Physical Systems

Degree: Master's degree

Duration: 2 years

Language: English

URL: <https://shorturl.at/noFHM>

Details: The program offers a robust curriculum that includes a partnership with ISAE-SUPAERO-Toulouse and covers areas such as aerospace systems, embedded systems, and space system engineering, alongside IoT and cybersecurity.

Provider: TH Köln

Program: Communication Systems and Networks

Degree: Master's degree

Duration: 3 semesters

Language: English/German

URL: <https://rb.gy/gtzadi>

Details: The program offers insights into modern communication systems with a practical approach.

Conclusion

The training options across Europe indeed put a lot of weight on the technical skills needed for telecommunications, cybersecurity, and the Internet of Things (IoT). Yet, there's a clear need for these programs to be more flexible and to offer options that fit a variety of learners and professionals.

The FNA project sees this need and is actively working to create training that better suits the specific needs of different groups. This includes considering how people like to learn, what content they need, and how much time they can spend on training. We plan to offer short, focused workshops for professionals, alongside more in-depth courses for students and learners looking to dive deeper into the subjects.

Drawing on what we've learned from our survey, the FNA project is putting together training activities that tackle the skills needed right now and those that will be important in the future. We're dedicated to building a place where learning never stops and where everyone can keep up with the fast pace of technology changes. Our goal is to make sure Europe stays a leader in the world of future network technologies by preparing its workforce for what's next.