Digital 4 Business
Evolving your digital future

Generative AI:

Realising potential — from essential principles to breakthrough applications

Master advanced AI techniques and real-world applications

Elevate your expertise in generative AI to shape the future of digital innovation. The Generative AI module is designed to prepare the digital leaders of tomorrow. This innovative programme offers a deep dive into generative AI technologies and their transformative impact on digital business.

In this module, you will master natural language processing (NLP) and transformer models, refine your skills in prompt engineering, automate tasks with AI, and embrace ethical practices in AI development. This comprehensive approach ensures you're equipped to lead in the AI-driven landscape.

Learning objectives

This module equips students with the critical skills to analyse, design, and implement generative AI models, preparing them to drive innovation and create real-world business solutions across multiple sectors. You'll learn to:

Analyse and differentiate between core principles and mechanisms of generative AI technologies, including text, image, video, and code generation. (Transferable Skills: analytical thinking, critical thinking)

Evaluate recent advancements in generative AI through academic and industry research, understanding their applications and limitations. (Transferable skills: research and communication skills)

Design and implement effective prompt engineering strategies for optimising generative AI outputs in diverse contexts. (Transferable skills: problem solving, creativity)

Develop competencies to architect and integrate generative AI models into complex real-world applications, assessing their potential impact and effectiveness.

Innovate by identifying and exploiting opportunities for leveraging generative AI in creating novel business solutions across various sectors and activity domains.

Criteria — are you eligible?

- **Language proficiency:** Minimum B2 English proficiency, or 2 years' work or education in an English-speaking environment. IELTS: 6.0; TOEFL PBT: 600; TOEFL CBT: 200; TOEFL iBT: 100. Alternatively, proficiency may be assessed via a test or interview.

- **Education:** Relevant EQF Level 6 qualification required in a relevant field including but not limited to: computer science, IT, engineering, maths, business, or economics. Without this you will have an interview and assessment to evaluate certifications, qualifications or professional experience.
*EQF levels explained

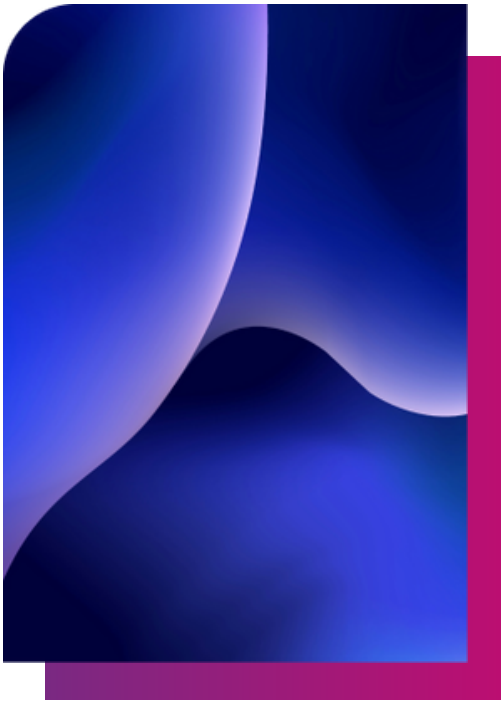
- **Residency:** This EU co-funded programme is open to all EU27, EEA, UK and Ukrainian nationals with a passport or valid ID from one of these countries.

Digital Transformation

Real-world applications

Generative AI is poised to shape progress for generations. Its potential applications are virtually endless, from automating customer service to generating marketing content and developing AI-driven tools for software development.

Graduates will be prepared for roles such as AI specialists, data scientists, machine learning engineers, and digital transformation consultants.



Innovative teaching for mastering digital business technologies

The module will be delivered using an innovative teaching approach, alternating between scheduled live sessions and flexible self-paced study, with learning materials provided through the virtual learning environment. A tutor, who is both an expert in the subject matter and a guide for the learning process, supports students throughout. Learning activities include live lectures, independent study and lab work.

Key teaching strategies include problem-based learning, gamification and the flipped classroom. These methods are enhanced by emerging technologies, such as artificial intelligence, to provide a richer learning experience through the digital platform.

Time commitment

- Classroom and demonstrations: 18 hours
- Practical work/tutorials: 18 hours
- Independent learning: 90 hours
- Total: 125 hours

Credit points

- 5 ECTS

Full course content

Generative AI for Business is a 5 ECTS module with 3 hours per week, over 12 weeks — 1.5 hours' live classes and 1.5 hours' asynchronous study with provided materials. The following schedule outlines the topics covered each week:

- **Introduction to Generative AI**
  - Overview of generative AI, its evolution, and recent breakthroughs.
  - Introduction to key generative models,
  - including GANs, VAEs, and diffusion models.
- **Natural Language Processing Fundamentals**
  - Foundations of NLP, covering encoders and decoders.
- **Transformer Architectures**
  - A deep dive into transformer architectures like BERT, exploring their applications and significance in language models and generative AI.
- **Automating Work with Code and Content Generation (Part 1)**
  - Leveraging generative AI for automating tasks in software development, document creation (Excel, Word), and content generation.
- **Automating Work with Code and Content Generation (Part 2)**
  - Hands-on session focused on using generative AI models to create websites and web applications.
- **Automating Work with Code and Content Generation (Part 3)**
  - Developing mobile applications using generative AI models.
- **The Creative Potential of Generative Art (Part 1)**
  - Exploring the possibilities of generative art, including the creation of images, music, and videos using models like DALL-E, MuseNet, and GPT-3.
- **The Creative Potential of Generative Art (Part 2)**
  - Hands-on experience with prompt engineering for generative art, unlocking new avenues for human-AI creativity and collaboration.
- **Developing Responsibly with Generative AI (Part 1)**
  - Investigating bias and ethical concerns in synthetic content created by AI models.
- **Developing Responsibly with Generative AI (Part 2)**
  - Addressing transparency, accountability, and regulatory considerations in the development and deployment of generative AI systems.
- **Generative AI in Action**
  - Real-world case studies showcasing generative AI applications across industries like healthcare, finance, and transportation.
- **New Trends and Advances in Generative AI**
  - An exploration of cutting-edge generative AI research, emerging techniques like diffusion models and multimodal models, and novel applications across different industries.

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Thank You!

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