

BEng (Hons)

Artificial Intelligence and Data Engineering



INFORMATICS
INSTITUTE OF
TECHNOLOGY



ROBERT GORDON
UNIVERSITY ABERDEEN



Why Follow This Programme

The BEng (Hons) Artificial Intelligence and Data Engineering programme is designed to develop industry-ready AI engineers equipped to meet the growing global demand for intelligent systems and data-driven technologies. The programme combines strong foundations in computing, mathematics, and engineering with practical experience in developing end-to-end AI solutions.

Students gain hands-on experience in areas such as machine learning, data engineering, cloud computing, distributed systems, and MLOps, enabling them to design, deploy, and manage scalable AI applications in real-world environments. Through industry-focused projects, applied coursework, and research activities, students develop both technical expertise and professional problem-solving skills.

Graduates will be well-prepared for careers in artificial intelligence, data engineering, machine learning, and intelligent systems development, with an engineering qualification that is highly valued in both local and global industries.

Aim of the programme

The BEng (Hons) Artificial Intelligence and Data Engineering programme aims to develop graduates who can design, implement, deploy, and manage intelligent systems and data-driven infrastructures that are scalable, reliable, and ethically responsible.

The programme provides students with:

- A strong foundation in programming, computational mathematics, data structures, algorithms, and computer systems.
- Advanced knowledge in machine learning, deep learning, machine vision, edge AI, and intelligent systems.

- Expertise in data engineering, including big data architectures, distributed systems, ETL/ELT pipelines, and cloud-based data platforms.
- Practical skills in system design, software engineering, and full AI lifecycle development, including data acquisition, model training, evaluation, deployment, and monitoring.
- Exposure to modern industry practices such as MLOps, AI system integration, performance optimization, and governance-compliant data management.
- The ability to critically evaluate AI solutions, considering scalability, reliability, ethical implications, and societal impact.

Through a combination of lectures, labs, projects, and independent research, students will learn to translate theoretical knowledge into deployable solutions, preparing them to address complex real-world challenges using AI and data engineering principles.

Course structure - Core and optional modules (Semester-wise) _____

Year	Semester	Module	Core/ Electi	Credits
Year 1 - (Level 7 - Certificate of Higher Education)				
1	1	Database Systems Design and Implementation Learn how to organise, store, and manage data using databases.	Core	15
		Computer Systems Fundamentals Understand how computers work behind the scenes, from hardware to software.	Core	15
		Computational Mathematics (year-long)* Get to grips with the math needed for coding and algorithms.	Core	-
		English Communication Skills Develops essential English language skills for academic and professional success in IT. It focuses on improving speaking, listening, reading, and writing through practical tasks such as emails, reports, and presentations.	Core	-
		Programming Fundamentals (year-long)* Learn basic coding, helping students write efficient programs and build foundational skills for their degree.	Core	-
		English Communication Skills Improve your ability to communicate clearly in both writing and speaking.	Core	[15]

1	2	Web Technology Discover how to build websites and web applications from scratch.	Core	15
		Programming Fundamentals	Core	30
		Data Structures & Algorithms for AI Learn how to organise data and use algorithms to solve problems in AI.	Core	15
		Computational Mathematics	Core	30
				120
Level 8				
2	1	Machine Learning Study how computers can learn from data to make predictions or decisions without being explicitly programmed.	Core	15
		Artificial Intelligence Leran how to create systems that can think and learn like humans, using techniques like machine learning and problem-solving algorithms.	Core	15
		Advanced Mathematics Learn the math behind data analysis, like statistics, algebra, and calculus, which help with building data models.	Core	15
		Data Science Group Project (year-long)* Work with a team to solve a real-world problem using data analysis and predictive machine learning techniques.	Core	-
	2	Object-Oriented Development Learn how to write code using objects and classes, making your software more organised and reusable.	Elective or	15
		Agentic AI Agentic AI introduces students to the concepts and architectures of autonomous AI agents, enabling them to design and evaluate AI systems capable of reasoning, planning, tool usage, and goal-directed decision-making.	Elective	15
		Data Engineering Students learn how to build and manage systems that collect, store, and process large amounts of data, making it ready for analysis and use in machine learning models.	Core	15
		AI Systems integration and Deployment AI Systems equips students with the knowledge and practical skills required to deploy, integrate, monitor, and manage AI models in real-world environments using modern tools and infrastructure.	Elective or	15

2	2	Simulation and Modeling Techniques Learn how to create models to simulate real-world systems and predict their behaviour.	Elective	15
		Data Science Group Project	Core	30
				120
Level 9				
3	1	Industrial Training (year-long)*	Core	90
		Deep Learning Develop practical skills in designing, training, evaluating, and deploying deep learning models using industry-standard frameworks, with hands-on experience across the complete deep learning lifecycle.	Core	15
	2	Edge AI Learn how AI works directly on devices (like phones or sensors) for faster decisions without needing the cloud	Election	15
		IoT and Wearables Study how devices like smartwatches and sensors connect to the internet and collect data.	Election	15
		AI robotics AI Robotics introduces students to the principles of intelligent robotic systems, enabling them to design, program, and apply AI techniques for perception, decision-making, and autonomous operation.	Election	15
				120
Level 10				
4	1	Individual Research Project (year-long) Students work on a research project in AI or Data Engineering	Core	60
		Research Trends (year-long) Students learn about the latest discoveries and trends in AI and DE.	Core	30
		Computational Intelligence (year-long) Students explore how AI solves problems like humans using techniques such as genetic algorithms.	Core	15

4	1	Machine Vision Students study how computers understand images and videos.	Elective	15
		Research Trends (year-long) Students learn about the latest discoveries and trends in AI and DE.	Elective	30
		AI Entrepreneurship AI Entrepreneurship enables students to identify opportunities for AI-driven innovation and develop the business, ethical, and strategic skills required to transform AI ideas into viable products and ventures	Elective	15
		Natural Language Processing The module teaches students how computers can understand and process human language using techniques like text analysis and machine learning.	Elective	15
	2	Individual Research Project (year-long)	Core	-
		Research Trends (year-long)	Core	-
				120

*Choose 2 electives in level 8, one elective in level 9 and one elective in level 10

- Delivery Modes - Fulltime (Blended, placement year modules will be online)
- Duration – 4 years
- Exam styles

In class test, final exams (close book/open book)

Employability and work placement opportunities

Graduates of the BEng (Hons) Artificial Intelligence and Data Engineering programme are well-positioned for a wide range of technical and engineering roles within the rapidly expanding AI and data ecosystem.

Potential career pathways include:

- Data Engineer
- Machine Learning Engineer
- AI Engineer
- Software Engineer (AI-focused)
- Cloud/Platform Engineer (Data & AI systems)
- MLOps Engineer
- AI Systems Developer
- Edge AI / IoT Engineer

Admission Requirements ---

Students are required to meet the following O/L requirements:

- Local O/L: Minimum of 6 passes, including 3 credits with Mathematics and English.
- Cambridge/Edexcel O/L: Minimum of 5 passes, including 3 credits with Mathematics and English.

And students must achieve the required entry points from their A/L examinations and need to pass the AI & DE entrance examination.

AL Stream	Special Notes	Entry Points
Physical Science		12
Biological Science		12
Technology	With Mathematics	12

Please refer to the points awarded according to the A/L results below:

Local/ London Result	Awarded Points
A	10
B	8
C	6
S/D	4
E	2