BEng (Hons)
Software Engineering

INFORMATICS INSTITUTE OF TECHNOLOGY

UNIVERSITY OF WESTMINSTER

20 Years of PARTNERSHIP 2005 - 2025

Why Follow this programme

The **BEng (Hons) Software Engineering** degree provides a strong foundation in the principles and practices of modern software engineering, equipping students with the knowledge, technical expertise, and professional skills required to design, develop, deploy, and maintain enterprise-level software systems.

The curriculum integrates core software engineering concepts with contemporary technologies, covering software development, Computer Engineering and design, software architecture, programming, databases, quality assurance, and project management. Students also gain expertise in web and mobile application development, enterprise systems, and emerging software technologies through a combination of academic study, practical projects, and industry-relevant learning experiences.

Reflecting the growing demand for AI-driven solutions, Artificial Intelligence is embedded throughout the programme. Students begin building AI competencies in their first year through **Applications of AI and Prompt Engineering**, while also developing knowledge and practical skills in areas such as backend web development, machine learning, and robotics. This future-focused approach prepares graduates to develop innovative, intelligent software solutions while strengthening their critical thinking, problem-solving, teamwork, and professional practice.

Aim of the programme

- Develop a strong foundation in Software Engineering principles, programming, software architecture, database systems, and modern software development practices.
- Gain in depth knowledge of industry standard methodologies, tools, and technologies used to design, develop, and manage high-quality software solutions for real world applications.
- Master the complete Software Development Life Cycle, from requirements analysis and system design through implementation, testing, development, and ongoing maintenance.
- Explore high demand specialisations including web application development, mobile application development, Enterprise Software Engineering, Cloud Computing, DevOps, and Software Quality Assurance.
- Build hands-on experience through practical projects, collaborative development environments, and industry relevant learning activities that reflect current professional practices.
- Develop critical problem-solving, analytical, leadership, and communication skills essential for success in dynamic and technology-driven organisations.
- Graduate with the technical expertise and professional competencies required to pursue rewarding careers as Software Engineers, Full Stack Developers, Mobile Application Developers, Systems Analysts, Cloud Engineers, DevOps Engineers, and Software Architects.
- Prepare for a future at the forefront of digital innovation by acquiring the skills and adaptability needed to excel in an ever evolving global technology landscape.

Course structure - Core and Optional modules (Semester Wise) - Full Time

Year	Semester	Module	Core/ optional	Credits
Year 1 - (Level 4 - Certificate of Higher Education)				
1	1	**Software Development I** Introduction to programming principles and software development processes.	Core	20
	1	**Mathematics for Computing** Key mathematical concepts like logic and algorithms, essential for computing problem-solving.	Core	20
	2	**Applications of AI and Prompt Engineering** This module provides an introduction to interactive and generative AI systems. Developing skills to optimise the responses of generative AI and apply interactive AI systems to real-world problems.	Core	20

1	1	**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	N/A
	1	**Software Engineering Professional Practice** This module introduces the principles and professional practices of software engineering, focusing on how software is planned, developed, and managed throughout its lifecycle.	Core	20
	2	**Software Development II** A deeper dive into advanced programming concepts and the development of more complex systems.	Core	20
	2	**Web Design and Development** Learn how to design and develop websites and web applications using HTML, CSS, JavaScript, and server-side technologies.	Core	20
Award of Diploma of Higher Education available				

Year 2 (Level 5 - Diploma of Higher Education)				
2	1	**Object Oriented Programming** Software design using object-oriented principles like inheritance and polymorphism.	Core	20
	1	**Database Systems** Understanding database design, management, and querying.	Core	20
	2	**Data Structures and Algorithms** Introduces the fundamental concepts of algorithms and data structures, covering trees, graphs, searching, sorting, and pathfinding. Students also develop skills in algorithm design, analysis, and problem-solving for efficient software development.	Core	20
	Year	**Agile Team Project** Provides hands-on experience in developing a real-world software prototype through teamwork and industry guidance.	Core	20
	1	**Software Engineering Principles and Practice** Introduces the software development lifecycle, covering software design, implementation, testing, maintenance, and sustainable development practices. Students also explore agile methodologies, SOLID design principles, and techniques for building scalable, maintainable software systems.	Core	20
	Year	**Professional Development** Develops key employability, communication, and self -management skills for IT careers through practical activities. It builds CV writing, interview, teamwork,and presentation skills, preparing students to work confidently and professionally in industry environments.	Core	N/A

ONE Optional modules from following list **Please note:** Not all option modules will necessarily be offered in any one year.				
2	1	**Robotics Principles** Introduces the fundamentals of robotics, including robot kinematics, system modelling, and control systems. Students develop an understanding of robot design, dynamic system modelling, and real-time control techniques used in modern robotic applications.	Optional	20
	1	**Operating Systems** Introduces the core concepts of modern operating systems, covering process and memory management, file systems, CPU scheduling, and input/output management. Students develop both theoretical knowledge and practical skills in understanding how operating systems manage hardware and software resources.	Optional	20
	2	**Backend Web Development** Introduces the principles of designing and developing dynamic, database-driven web applications. Students develop practical skills in server-side programming, SQL, and web technologies to build secure, scalable, and high-quality applications that support business processes.	Optional	20
	2	**Practical Machine Learning** Develops practical skills in machine learning and data mining, covering the complete data lifecycle from preparation and modelling to validation and optimisation.	Optional	20
	2	**Mobile Application Development** Introduces the principles of developing applications for Android-based mobile devices, including smartphones, tablets, and wearables. Students gain practical skills in user interface design, networking, data storage, multi-threading, application deployment, and performance optimization for mobile platforms.	Optional	20
Award of Diploma of Higher Education available.				

Year 3				
3	Year	***Software Engineering Placement (year)** In Year 3, students have the option to complete an industrial placement, which provides valuable real-world experience and enhances employability. This year-long placement enables students to apply their academic knowledge in a professional setting, contributing to their development as confident, industry-ready professionals. Although industrial placement is optional, it offers a unique opportunity to build professional networks, improve CVs, and gain a competitive edge in the job market. Students who choose not to take the placement year can continue directly to their final year.		120
Year 4				
4	Year	**Software Engineering Final Year Project** An independent project where students demonstrate their research and development capabilities by tackling a real-world problem.	Core	40
	1	**Formal Methods** Introduces the use of formal techniques for system specification and software development. Students learn mathematical specification methods, structured system design, and the use of supporting tools to develop and verify reliable software systems.	Core	20
	1	**Concurrent Programming** Introduces the principles of concurrent software development, enabling students to analyse, design, and develop multi-threaded applications. Students gain practical experience using modern concurrency features in Java to build efficient and reliable software systems.	Core	20
	2	**Cyber Security** Study of how to protect systems and data from threats, focusing on encryption, ethical hacking, and network security.	Core	20
ONE Optional modules from following list **Please note:** Not all optional modules will necessarily be offered in a given Academic year				

4	1	**Applied Robotics** Develops students' understanding of robot dynamics, modelling, and control for 2D and 3D robotic systems. Students gain practical experience in implementing navigation, control, and machine learning algorithms while exploring robot simulations and the ethical implications of robotics.	Optional	20
	1	**iOS Application Development** Introduces machine learning and data mining through practical work. Students learn to prepare data, build and evaluate models using different algorithms. It also covers key challenges when applying these methods to real-world data.	Optional	20
	2	**Internet of Things** Introduces the principles of IoT systems, including IoT devices, gateways, communication standards, network architectures, and application protocols. Students also explore system design, connectivity trade-offs, and security considerations for modern IoT solutions.	Optional	20
	2	**Operational Research and Optimisation** Optimising systems for decision-making and operations.	Optional	20
	2	**Distributed Systems and DevOps Engineering** Explores techniques for building advanced applications using microservices architecture.	Optional	20

Delivery Modes

- The course will be offered

  Full time Mode - (Weekdays and Weekends)

  Part time mode

- Delivery method can be Online or Physical depending on the module.

Duration

- Full time - 4 Years
- Part time - 5 Years

Exam styles:

- Online In- Class Tests
- Written Examinations
- Lab based Practical Examinations
- Courseworks with VIVAs

Employability & Workplace opportunities

Potential Careers

- Career opportunities (Employability and work placement opportunities):
  - Software Engineer / Senior Software Engineer
  - Web Application Programmer
  - Software Designer/ Analyst
  - Website Designer/ Programmer
  - Senior Team Leader

Admission Requirements

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

- G.C.E. Ordinary Level Examination: Minimum of 6 passes, including at least 3 credits with Mathematics and English.
- Cambridge/Edexcel O/L: Minimum of 5 passes, including 3 credits with Mathematics and English.

A/L Stream	Special Notes	Entry Point
Physical Science	Physical science	12
Biological Science		12
Technology	With Mathematics	12
Technology		14
Commerce	If IT /Business Statistics is a main subject	12
Commerce		14
Arts	If IT /Business Statistics/Mathematics is a main subject	18

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

Or Foundation Certificate in Higher Education from IIT

Or Recognised foundation programme (Subject to approval by the academic committee)

Pending Local or London A/L Results

Students will receive a conditional offer subject to the following:
Students must submit their archived A/L results documentation to the IIT registry department within 5 working days of the official release of the A/L results.

Students who do not meet the entry requirements for the undergraduate programme will be transferred to the IIT Foundation Certificate in Higher Education Immediately.

Foundation Certificate in Higher Education

Obtain a minimum of 6 passes in the Local GCE Ordinary Level examination, including at least three credit passes (with credit passes in English and Mathematics).
Or
Obtain a minimum of 5 passes in the London GCE Ordinary Level examination, including at least three credit passes (with credit passes in English and Mathematics).

Intakes & Admission Process

The BEng (Hons) Software Engineering degree offers intakes in January, and September, providing students with flexibility to begin their studies at a convenient time.

Local students (Sri Lankan nationals) interested in IIT's programmes can contact the marketing department at the hotline +94 766 760 760. Please note that an interview with prospective students is mandatory as part of the admission process.

International students (including resident foreign nationals) currently residing or visiting Sri Lanka should contact the IIT marketing department at +94 766 760 760. If applying from their home country, please email info@iit.ac.lk for assistance during the registration process. After submitting the application with the required documents (listed below), candidates will be interviewed via Skype.

Upon acceptance, a Conditional Offer Letter will be issued for visa processing.

Please note, that the visa letter will only be provided after receiving the Registration Fee and the Year 1 Course Fee.

Documents Required

1. Completed application form
2. Relevant educational certificates (O/L and A/L) - Originals or certified copies
3. Birth certificate - Original or certified copy
4. NIC/Passport - Original and copy (International students must provide a valid passport for the duration of the programme)
5. Parent/Guardian NIC/Passport - Original and copy
6. One reference letter with a signature (Referee's letter must be on letterhead or have a seal)

Awarded University

UNIVERSITY OF WESTMINSTER

Scholarships Available

bcs Accredited Degree

UGC Recognized