



# Streamline Your Path to Career Success

Master's  
Routes

# MSC IN SOFTWARE ENGINEERING

## Overview

The MSc in Software Engineering is crafted to equip you with the advanced skills and knowledge essential for advancing your career in this thriving global sector. This specialised programme is tailored for individuals with a background in computing and programming, offering advanced training in software methodologies along with practical experience through realistic industry scenarios. The course is designed to enhance creative thinking, problem-solving, and decision-making abilities while preparing students to meet the challenges of the software engineering field, including ethical and environmental considerations.

The MSc in Software Engineering provides an in-depth understanding of advanced software methodologies. It encourages creative thinking and sharpens problem-solving and decision-making techniques. The programme equips students with professional skills and prepares them to address ethical and environmental issues in their future careers.



# Course Content

## MODULE 1: CONTEMPORARY SOFTWARE ENGINEERING PRACTICES

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This module covers agile development, project management, and testing strategies for software engineers. It emphasises practical group projects, fostering critical and creative thinking. It builds on prior software engineering knowledge and aligns with the GAME+ attributes: Professional Identity and Skills Mastery. 30 Credits.

## MODULE 2: ADVANCED SOFTWARE DEVELOPMENT

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Object-oriented analysis, design, and programming integrate data and functions. Design patterns identify recurring sets of classes and objects, enabling consistent reuse. This module covers 23 design patterns, enhancing software construction for students with foundational knowledge, promoting critical creativity and skills mastery. 30 Credits.

## MODULE 3: DEVOPS

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DevOps imparts cloud-based development and deployment skills, fostering agility. The module integrates development, delivery, and security, enhancing Software Engineering techniques in the Cloud and promoting critical self-management and professional identity via GAME+ attributes. 30 Credits.

## MODULE 4: RESEARCH METHODS

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This module enhances research skills and creativity, covering critical evaluation of research, literature search strategies, research design, and aim formulation. It builds on prior learning and prepares students for the capstone project and dissertation, emphasising Influence, Impact, Critical Creativity, and Innovation. 30 Credits

## MODULE 5: MASTER'S PROJECT

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This module focuses on research skills, project approval, academic standards, dissertation writing, and a viva voce presentation. Attributes covered include Influence and Impact, Critical Self-Management, Creativity and Innovation, Professional Identity, and Skills Mastery. 60 Credits

# CAREER PATH



The MSc in Software Engineering targets computer science graduates and experienced professional programmers, exploring complex software systems, methodologies, measures, and tools used in the software engineering process. As a software engineer, responsibilities may include producing project requirements, writing algorithms, coding, testing, deployment, or maintenance.

As a graduate of this programme, you will possess a wide range of technical skills such as software reuse, agile development, design patterns, and software architecture. You will also demonstrate various transferable skills, including advanced IT skills, analytical abilities, communication, creativity and innovation, independence, logic, numeracy, project management, and organisation.

# MSC DATA ANALYTICS AND TECHNOLOGIES

## Overview

The MSc Data Analytics and Technologies is an innovative and dynamic programme designed to equip students with the necessary skills and expertise in data analytics. Students will learn to analyse and interpret data, uncover valuable insights, and effectively communicate their discoveries. This programme combines specialised study in data analytics with essential training in high-level transferable skills.

The MSc Data Analytics and Technologies programme offers a comprehensive curriculum that equips students with the technical skills and analytical capabilities required to excel in the field of data analytics. Graduates will be well-prepared for successful careers in this rapidly growing field, as they will have the ability to make sense of complex data and effectively communicate their findings. By enrolling in this programme, students can master their own career development, armed with the knowledge and skills to thrive in data analytics.



# Course Content

## MODULE 1: DATA SCIENCE

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This module strengthens data analysis and visualisation skills in a lab setting, using real-world data and industry tools. It builds on prior knowledge and applies it to other programme modules and the capstone project, emphasising critical thinking, creativity, innovation, and skills mastery. 30 Credits.

## MODULE 2: BIG DATA TECHNOLOGIES

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This module focuses on Big Data frameworks, Cloud technologies, and data analysis. Students learn core concepts, tools like Hadoop and Spark, data structuring, and analysis. It builds on previous knowledge, integrates into other modules and the capstone project, and covers attributes such as Influence, Impact, Critical Creativity, and Innovation. 30 Credits.

## MODULE 3: SOLUTION DESIGN AND ETHICAL PRACTICE

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This module covers solution design, including problem identification, data collection, modelling, algorithm selection, and data visualisation. It emphasises ethics in data analytics, addressing data privacy, bias mitigation, compliance, and responsible AI. Students gain technical skills and ethical awareness for success in the field. 30 Credits.

## MODULE 4: RESEARCH METHODS

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This module enhances research skills, critical thinking, and creative problem-solving. It covers evaluating research papers, literature searching, choosing research methods, and setting research goals. It builds on prior learning and prepares students for the capstone project, addressing attributes such as Influence and Impact, as well as Critical Creativity and Innovation. 30 Credits

## MODULE 5: MASTER'S PROJECT

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This module focuses on research skills and advanced technical knowledge in a chosen subject. Students select a project theme, obtain approval from a supervisor, conduct research, and submit a dissertation. It covers attributes such as Influence and Impact, Critical Self-Management, Critical Creativity and Innovation, Professional Identity, and Skills Mastery. 60 Credits

# CAREER PATH

As a graduate of this master's degree, you will possess an impressive combination of skills and knowledge. In addition to a strong theoretical and practical understanding of data analytics and technologies, you will be able to demonstrate essential interpersonal skills such as collaboration, team working, negotiation, and persuasion. You will have a clear understanding of the contexts in which data analysts work, coupled with commercial awareness and business-relevant knowledge. You will also possess high-level academic skills in research, critical thinking, and curiosity. This will help you establish yourself early in your career and prime you to take on leadership roles. Moreover, you will have the lifelong learning, problem-solving, and decision-making skills needed to adapt to new challenges throughout your career.



# MSC IN CLOUD AND NETWORK SECURITY

## Overview

The MSc in Cloud and Network Security is a specialised postgraduate programme designed to prepare students for careers in computer management and data-dependent organisations. Developed in collaboration with industry partners, the programme equips students with professional skills and an understanding of ethical and environmental issues.

The MSc in Cloud and Network Security offers a comprehensive education to advance careers in cloud and network security. With a focus on both practical skills and theoretical knowledge, students learn to manage cloud infrastructure, employ state-of-the-art methodologies, and navigate computer systems, virtualisation, and networking. Supported by a dedicated team, students develop the adaptability needed to succeed in the evolving computer industry.





# Course Content

## MODULE 1: ADVANCED CLOUD PENETRATION TESTING & FORENSICS

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In this course, students gain practical experience in penetration testing and digital forensics through hands-on exercises, labs, projects, guest lectures, and real-world case studies. This module covers the GAME+ attributes of Critical Creativity, Innovation, and Skills Mastery. 30 Credits.

## MODULE 2: GLOBAL INFRASTRUCTURE

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This module explores global network architecture, cloud deployment, data centre management, network security, international regulations, and distributed system performance. Students acquire skills to ensure reliable, secure, and high-performing infrastructures in diverse regions. 30 Credits.

## MODULE 3: DEVOPS

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DevOps trains students in cloud-based development and deployment, fostering rapid application delivery. It integrates culture, practices, and tools for efficient product evolution and improved customer service. This module prepares students for advanced software engineering in the cloud, emphasising self-management and professional identity. 30 Credits.

## MODULE 4: RESEARCH METHODS

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This module enhances research skills, including paper evaluation, literature searching, and research design. It builds on prior learning and contributes to the preparation for the capstone project and dissertation. The module emphasises attributes such as Influence and Impact, as well as Critical Creativity and Innovation. 30 Credits

## MODULE 5: MASTER'S PROJECT

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This module focuses on research skills, ethics, and professionalism. Students select a project theme, conduct research, and present their findings, culminating in a dissertation submission and viva voce presentation. It covers GAME+ attributes: Influence, Critical Self-Management, Creativity, Professional Identity, and Skills Mastery. 60 Credits

# CAREER PATH

As a graduate of this master's degree, you could pursue a career in network and internet security, network development, or technical support. Other potential areas of employment include network engineering, management, telecommunications engineering, and crime and computer forensics.

This postgraduate course offers valuable skills that will support your career development. As a graduate, you will be well-equipped to seek more senior managerial roles in the IT sector or take advantage of a wide range of opportunities in the public, private, and not-for-profit sectors. You may also pursue further study in a specialist field or research at the doctoral level if you are interested in studying for a PhD.



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