Directory of courses

Foundation courses

Course No	Course Title	Units
MCS DF401	Mathematical Foundations for Computing	3

Core courses

Course No	Course Title	Units
MCS DF402	Programming and Data Structures	3
MCS DF403	Operating Systems	3
MCS DF404	Computer Organisation and Architecture	3
MCS DF405	Object-Oriented Programming & Design	3
MCS DF406	Algorithm Design & Problem Solving	3
MCS DF407	Machine Learning	3
MCS DF408	Relational & Modern Databases	3
MCS DF409	Computer Networks	3
MCS DF410	Cloud Services and Platforms	3
MCS DF411	Secure Software Development Practices	3
MCS DF412	Generative AI Applications	3

Discipline electives

Course No	Course Title	Units
MCS DF415	Classical AI	3

MCS DF416	Multicore and GPGPU Programming	3
MCS DG501	Software Design Patterns	3
MCS DG504	Software Product Management	3
MCS DG505	Network and Client Server Programming	3
MCS DG536	Trustworthy AI	3

Note: *A course from any of the specialisation core or elective pools may also be taken as a discipline elective, provided its pre-requisites have been completed.*

Project courses

Course No	Course Title	Units
MCS DF480	Advanced Apex Project I	2
MCS DF481	Advanced Apex Project II	2
MCS DF482	Advanced Apex Project III	2
MCS DG590C	Capstone Project	12

LIST OF ELECTIVES

Full Stack Engineering with DevOps

Specialisation core

Course No	Course Title	Units
MCS DF420	Full Stack Application Development	3
MCS DG528	Secure DevOps	3
MCS DG522	Microservices Architecture	3

MCS DG529	Monitoring & Observability	3

Specialisation electives

Course No	Course Title	Units
MCS DF421	Portable Application Development	3
MCS DG530	AI-enabled Software Testing	3
MCS DG531	Release Engineering & Deployment Strategies	3
MCS DG532	IAM & Zero Trust	3
MCS DG524	Platform Engineering	3
MCS DG548	APIs Design & Integration	3

Machine Learning and Generative AI

Specialisation core

Course No	Course Title	Units
MCS DF423	Deep Neural Networks	3
MCS DF424	Reinforcement Learning	3
MCS DF425	Natural Language Processing & Understanding	3
MCS DF426	Large Language Models (LLMs)	3

Specialisation electives

Course No	Course Title	Units
MCS DG535	Model Inferencing and Optimisation	3
MCS DG536	Trustworthy AI	3
MCS DG537	Computer Vision	3

MCS DG507	AI Security	3
MCS DG542	Advanced LLMs	3
MCS DF427	Advanced Deep Learning	3
MCS DG543	MLOps	3

Cloud Technologies

Specialisation core

Course No	Course Title	Units
MCS DG515	Cloud Architecture & Design	3
MCS DG516	Containerization & Kubernetes	3
MCS DG517	Infrastructure as Code & Cloud Automation	3
MCS DG518	Distributed Systems and Reliability Engineering	3

Specialisation electives

Course No	Course Title	Units
MCS DG514	Cloud Security	3
MCS DG521	Advanced Cloud Networking	3
MCS DG522	Microservices Architecture	3
MCS DG523	AI in Cloud	3
MCS DG524	Platform Engineering	3
MCS DG525	FinOps & Cloud Economics	3

CyberSecurity

Specialisation core

Course No	Course Title	Units
MCS DF418	Network Security and Secure Communication	3
MCS DG506	Ethical Hacking & Penetration Testing	3
MCS DF419	Cryptography	3
MCS DG507	AI Security	3

Specialisation electives

Course No	Course Title	Units
MCS DG508	Threat Hunting	3
MCS DG509	IAM & DevSecOps	3
MCS DG510	Security Operations & Incident Response	3
MCS DG511	Digital Forensics	3
MCS DG512	Data Security	3
MCS DG514	Cloud Security	3