

**SCHOOL OF ELECTRONIC ENGINEERING**

**AND COMPUTER SCIENCE**

**PROGRAMME DESCRIPTOR 2024-2025**

**MSci Computer Science (4 years): G401**

**Please note this programme has a compulsory first and second year module diet and Core Third and Final Year Projects**

**Year 1 Modules**

**Semester 1**

ECS401U Procedural Programming (15 credits) (pre requisite for ECS505U Software Engineering, ECS522U Graphical User Interfaces, ECS605U Image Processing, ECS610U Computer Graphics)

ECS404U Computer Systems and Networks (15 credits)

ECS407U Logic and Discrete Structures (15 credits)

ECS427U Professional and Research Practice (15 credits)

**Semester 2**

ECS414U Object Oriented Programming (15 credits) (pre requisite for ECS605U Image Processing, ECS639U Web Programming, ECS652U Compilers, ECS657U Multi-platform Game Development, ECS658U Further Object Oriented Programming)

ECS417U Fundamentals of Web Technology (15 credits)

ECS419U Information Systems Analysis (15 credits)

ECS421U Automata and Formal Languages (15 credits) (pre-requisite for ECS652U Compilers)

**Year 2 Modules**

**Semester 3**

ECS505U Software Engineering (15 credits) (pre requisite ECS401U) (pre requisite for ECS506U Software Engineering Project)

ECS509U Probability and Matrices (15 credits)

ECS519U Database Systems (15 credits) (pre-requisite for ECS671U Semi-Structured Data Engineering)

ECS529U Algorithms and Data Structures (15 credits)

**Semester 4**

ECS506U Software Engineering Project (15 credits) (pre requisite ECS505U)

ECS518U Operating Systems (15 credits) (pre-requisite for ECS642U Embedded Systems)

ECS522U Graphical User Interfaces (15 credits) (pre requisite ECS401U) (pre requisite for ECS661U User Experience Design)

ECS524U Internet Protocols and Applications (15 credits)

ECS620U Summer Internship (15 credits) (offered during second and third year) (replacing ECS7200U Summer Internship (15 credits) offered during penultimate and final year 24-25)

**Year 3 Modules**

**Semester 5**

ECS635U Project (30 credits) **Core**

**Plus three modules from:**

ECS607U Data Mining (15 credits)

ECS610U Computer Graphics (15 credits)

ECS638U Design for human Interaction (15 credits)\*

ECS639U Web Programming (15 credits) (pre-requisite ECS414U)

ECS640U Big Data Processing (15 credits)

ECS642U Embedded Systems (15 credits) (pre-requisite ECS518U)

ECS651U Computability, Complexity and Algorithms 15 credits)

ECS657U Multi-platform Games Development (15 credits) (pre requisite ECS414U)

ECS658U Further Object Oriented Programming (15 credits) (pre-requisite ECS414U

ECS671U Semi-Structured Data Engineering (15 credits) (pre –requisite ECS519U)

**Semester 6**

ECS635U Project (cont) (30 credits) **Core**

**Plus three modules from:**

ECS605U Image Processing (15 credits) (pre requisite ECS401U/ECS414U)

ECS622U Product Development (15 credits)\*

ECS637U Digital Media and Social Networks (15 credits)

ECS647U Bayesian Decision and Risk Analysis (15 credits)

ECS652U Compilers (15 credits)) (pre requisite ECS414U, ECS421U)

ECS655U Security Engineering (15 credits)

ECS656U Distributed Systems (15 credits)

ECS659U Neural Networks and Deep Learning (15 credits)

ECS661U User Experience Design (15 credits) (pre requisite ECS522U)

**Final Year Modules**

**Semester 7**

ECS7019U Advanced Group Project (30 credits) **Core**

**Plus three modules from:**

ECS708U Machine Learning (15 credits)

ECS709U Introduction to Computer Vision (15 credits)

ECS712U Design for Human Interaction (15 credits)\*\* **(if not taken as ECS638U)**

ECS713U Functional Programming (15 credits)

ECS763U Natural Language Processing (15 credits)

ECS7018U Logic in Computer Science (15 credits)

**Semester 8**

ECS7019U Advanced Group Project (30 credits cont’d) **Core**

**Plus three modules from:**

ECS726U Security Authentication (15 credits)

ECS733U Interactive Systems Design (15 credits)

ECS736U Information Retrieval (15 credits)

ECS784U Data Analytics (15 credits)

ECS797U Machine Learning for Visual Data Analytics (15 credits)

ECS7011U Quantum Programming (15 credits) **(not available 2024/2025)**

ECS7028U Data Semantics (15 credits)

**\*Students may only take 1 from either ECS638U Semester A or ECS622U Semester B maximum**

**\*\* Also may only take one from ECS638U or ECS712U**

**Elective modules are subject to timetabling constraints and module availability.**

**5 January 2024**