

Programme Specification



| | |
|--|------------------------------------|
| 1. Programme title | MComp Computer Science |
| 2. Awarding institution | Middlesex University |
| 3. Teaching institution | Middlesex University |
| 4. Details of accreditation by professional/statutory/regulatory body | N/A |
| 5. Final qualification | MComp, BSc, DipHE and CertHE |
| 6. Year of validation | 2018/19 |
| Year of amendment | |
| 7. Language of study | English |
| 8. Mode of study | Full Time/Part Time/Thick Sandwich |

9. Criteria for admission to the programme

Entry requirements are in accordance with the University regulations. We accept students from a range of backgrounds. Most students educated in the UK will have studied A-levels, AVCEs or an accredited Access Course. To enter a degree programme you would be expected to have achieved a specified number of UCAS tariff points, agreed annually and made available via the University Admissions web site or on application.

All candidates should normally possess at least grade C in GCSE maths and English Language, or equivalent. Mature applicants with relevant work experience are also welcome to apply.

International students who have not been taught in English must show evidence of proven ability in English such as TOEFL grade 550 or IELTS grade 6.0. The University provides pre-sessional English language courses throughout the year for candidates who do not meet the English requirements. For further information, visit the learning resources website at: <https://unihub.mdx.ac.uk/student-life/your-voice/your-middlesex-your-impact/library-and-learning-resources>

University policies supporting students with disabilities apply, as described in the University Regulations, 'Information for students with disabilities'.

10. Aims of the programme

This is a four-year Master of Computing (MComp) programme which combines our BSc (Hons) Computer Science degree with a collection of Master's level modules.

The programme aims to:

- Provide students with a thorough grounding in the practical and theoretical fundamentals of Computer Science.
- Develop knowledge and skills that are relevant to current requirements of industry.
- Provide students with extended experience of both team-based and individual project work.

This programme removes the need for applying for further funding to study a Master's level degree. On completion, the graduates will place themselves in a better position to compete in the graduate jobs market.

| 11. Programme outcomes* | |
|--|--|
| <p>A. Knowledge and understanding On completion of this programme the successful student will have knowledge and understanding of, as well as ability to critically reflect, evaluate and apply:</p> <ol style="list-style-type: none"> 1. A range of underlying advanced theories relevant to computer science. 2. The process of systems development. 3. The interaction between technology and society, and the role of computer professionals within this. 4. A range of advanced specialised topics within Computer Science. | <p>Teaching/learning methods Students gain knowledge and understanding through</p> <ul style="list-style-type: none"> • Lectures and tutorials. • Guided research. • Supervised lab work. • Case studies. <p>Assessment methods Students' knowledge and understanding is assessed by</p> <ul style="list-style-type: none"> • Practical demonstrations. • Reports and essays. • Presentations. • Individual and group work. • On-line quizzes. • Unseen examinations. <p style="color: red;">Due to COVID-19 face to face sessions are going to be conducted online during the 2020/21 academic year.</p> <p style="color: red;">All sessions will be recorded. The recorded sessions will be available for students who are unable to attend.</p> |
| <p>B. Skills On completion of this programme the successful student will be able to:</p> | <p>Teaching/learning methods Students learn cognitive skills through</p> <ul style="list-style-type: none"> • Lectures and tutorials. • Guided research. • Supervised lab work. • Case studies. |

| | |
|---|---|
| <ol style="list-style-type: none"> 1. Apply sound principles to the construction and maintenance of computer-related artefacts. 2. Verify and critically validate computer-based systems. 3. Apply appropriate theories to the design and evaluation of systems. 4. Adapt and critically apply their knowledge and skills to mastering new technical areas. 5. Demonstrate understanding of advanced scientific principles and mathematical and logical theories in computing. | <p>Assessment methods Students' cognitive skills are assessed by</p> <ul style="list-style-type: none"> • Practical demonstrations. • Reports and essays. • Presentations. • Individual and group work. • On-line quizzes. • Unseen examinations <p>Due to COVID-19 face to face sessions are going to be conducted online during the 2020/21 academic year.</p> <p>All sessions will be recorded. The recorded sessions will be available for students who are unable to attend.</p> <p>Given the current situation (Covid -19), a robot emulator has been developed to support students to learn and demonstrate the physical computing part of this course.</p> |
|---|---|

| |
|---|
| <p>12. Programme structure (levels, modules, credits and progression requirements)</p> |
| <p>12. 1 Overall structure of the programme</p> |

| MComp Computer Science | | | | |
|-------------------------------|--|--|---|---|
| Compulsory | | | | |
| Optional | | | | |
| Year 1 | CST1110 Programming 30 credits | CST1120 First Year Project 30 credits | CST1130 Foundations of Computer Science 30 credits | CST1140 Systems and Architecture 30 credits |
| Year 2 | CST2110 Object-Oriented Programming 30 credits | CST2120 Web Applications and Databases 30 credits | CST2550 Software Engineering Management and Development 30 credits | CST2555 Operating Systems and Computer Networks 30 credits |
| Year 3 | CST3990 UG Individual Project 30 credits | CST3562 Enterprise Networking and Automation 30 credits | CST3120 Teaching Computing in the Secondary School 30 credits | CST3130 Advanced Web Development with Big Data 30 credits |
| | PDE3413 Systems Engineering for Robotics 30 credits | CST3150 Computer Graphics 30 credits | CST3180 UX Design 30 credits | CST3140 Novel Interaction Technologies 30 credits |
| | CST3110 Testing and Verification 30 credits | CST3185 Open Source Software 30 credits | CST3170 Artificial Intelligence 30 credits | CST3160 Designing Secure Systems 30 credits |
| | | | | CST3145 Web- Based Mobile App Development 30 credits |
| Year 4 | CST4790 MEng-MComp Project Activity 60 credit Autumn | CST4010 Software Development Level 7 module 30 credit Autumn | OR | CST4025 Blockchain Development Level 7 module 15 credits Autumn |
| | | | | CST4035 Cyber and Information Security Level 7 module 15 credits Autumn |
| | | | CST4045 Cross- Platform Application Development Level 7 module 15 credits Winter | CST4055 Data Visualisation Level 7 module 15 credits Winter |

Level 7 Optional Modules

In Autumn term, students will need to select either CST4010 (30 credit module) or two 15 credit optional modules; CST4025 and CST4035

Thick Sandwich Mode

Students taking the TKSW mode will undertake CST2400 Industrial Placement Year (120 credits) after Year 2, thus extending their programme duration by one academic year

12.2 Levels and modules

Starting in academic year 2010/11 the University is changing the way it references modules to state the level of study in which these are delivered. This is to comply with the national Framework for Higher Education Qualifications. This implementation will be a gradual process whilst records are updated. Therefore the old coding is bracketed below.

Level 4 (1)

COMPULSORY

OPTIONAL

PROGRESSION
REQUIREMENTS

| | | |
|--|----------|--|
| <p>Students must take all of the following:</p> <p>CST1110 Programming CST1120 First Year Project CST1130 Foundations of Computer Science CST1140 Systems and Architecture</p> | | <p>Students are normally expected to achieve 120 credits at level 4 to progress to level 5</p> |
| Level 5 (2) | | |
| COMPULSORY | OPTIONAL | PROGRESSION REQUIREMENTS |
| <p>Students must take all of the following:</p> <p>CST2110 Object-Oriented Programming CST2120 Web Applications and Databases CST2550 Software Engineering Management and Development CST2555 Operating Systems and Computer Networks</p> | | <p>Students are normally expected to achieve 240 credits at levels 4 & 5 to progress to level 6.</p> |
| Level 6 (3) | | |
| COMPULSORY | OPTIONAL | PROGRESSION REQUIREMENTS |

| | | |
|---|---|---|
| <p>Students must take all of the following:</p> <p>CST3990 UG Individual Project</p> | <p>Students must also choose 3 modules from the following:</p> <p>CST3110 Testing and Verification</p> <p>CST3120 Teaching Computing in the Secondary School</p> <p>CST3130 Advanced Web Development with Big Data</p> <p>CST3140 Novel Interaction Technologies</p> <p>CST3150 Computer Graphics</p> <p>CST3160 Designing Secure Systems</p> <p>CST3170 Artificial Intelligence</p> <p>CST3180 UX Design</p> <p>CST3185 Open Source Software</p> <p>PDE3413 Systems Engineering for Robotics</p> <p>CST3562 Enterprise Networking and Automation</p> <p>CST3145 Web-Based Mobile App Development</p> | <p>Students are normally expected to achieve 360 credits at levels 4, 5 and 6 to progress to level 7</p> <p>CST3120 requires students to attend a secondary school, due to Covid-19, this module is suspended.</p> |
| Level 7 (4) | | |
| COMPULSORY | OPTIONAL | PROGRESSION REQUIREMENTS |
| <p>Students must take all of the following:</p> <p>CST4790 MEng-MComp Project Activity</p> <p>CST4045 Cross Platform Application Development</p> <p>CST4055 Data Visualisation</p> | <p>Students must also choose either one 30 credit module or two 15 credit modules from the following:</p> <p>CST4010 Software development (30 credit)</p> <p>CST4025 Blockchain Development (15 credit)</p> <p>CST4035 Cyber and Information Security (15 credit)</p> | |

| 12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels) | |
|--|-----------------------------|
| Module level | Module code |
| CST3990 | UG Individual Project |
| CST4790 | MEng-MComp Project Activity |

13. Curriculum map

See attached.

14. Information about assessment regulations

Information on the University's formal assessment regulations, including details of how award classifications are determined, can be found in the University Regulations available online at <http://www.mdx.ac.uk/regulations/>.

Grades are awarded on the standard University scale of 1–20, with Grade 1 being the highest.

For additional information on assessment and how learning outcomes are assessed please refer to the individual module narratives for this programme.

15. Placement opportunities, requirements and support

Students will be encouraged to apply for placements in Year 3 of the programme. This is not compulsory, however they will be supported in terms of the searching for placements, generating CVs, interview technique. If they choose to take a placement year, this will extend the programme duration by one academic year. The Faculty of Science and Technology works with a number of employers to run specific information sessions describing the opportunities and application procedures.

Placements will be dependent on employer availability taking into account any Covid-19 related restrictions.

16. Future careers (if applicable)

Students who graduate with a MComp degree in Computer Science from Middlesex University will be well placed to follow a career path in a computer based industry or to go on to further study. Industrial careers include: IT consultancy and management; software engineering; software architecture; hardware and software designer; web-development; database management and Systems analysis and development.

17. Particular support for learning (if applicable)

Students will be supported throughout their programme of study in Computer Science by academic experts in the appropriate fields. In addition, students will be supported by a Learning Resource Centre that works closely with academics in order to offer the most up-to-date resources. All of the modules on Computer Science are supported by a team of Graduate Teaching Assistants and Technical Tutors who work with academic colleagues to ensure that labs are resourced, materials are available and feedback is provided. In the case of the First Year, the GTAs and TTs will be used to ensure that feedback is available throughout the lab sessions for all students without unreasonable delay.

| | |
|--|------|
| 18. JACS code (or other relevant coding system) | G400 |
|--|------|

19. Relevant QAA subject benchmark group(s)

Computing

20. Reference points

The following reference points were used in designing this programme:

- QAA Computing subject benchmark statements, Computing (February, 2016) (https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-computing-16.pdf?sfvrsn=26e1f781_12)
- QAA Quality Code for Higher Education (February, 2015) (<https://www.qaa.ac.uk/quality-code/the-existing-uk-quality-code>)
- BCS The Chartered Institute for IT guidelines on course accreditation (May, 2018) (<https://www.bcs.org/category/7066>)
- Standard for Chartered IT Professional (<https://www.bcs.org/upload/pdf/chartered-it-professional-standard.pdf>)
- Skills Framework for the Information Age (SFIA) (<https://www.sfia-online.org/en>)
- Association for Computing Machinery (ACM) and Association for Information Systems (AIS) Global Competency Model for Graduate Degree Programs in Information Systems (May, 2017) (<https://www.acm.org/binaries/content/assets/education/msis2016.pdf>)
- Descriptors defining levels in the European Qualifications Framework (EQF) (<https://ec.europa.eu/ploteus/en/content/descriptors-page>)
- European e-Competence Framework (<http://www.ecompetences.eu>)
- Middlesex University Regulations (2018/19) (<https://www.mdx.ac.uk/about-us/policies/university-regulations>)
- Middlesex University Learning and Quality Enhancement Handbook (section 3) (<https://www.mdx.ac.uk/about-us/policies/academic-quality/handbook/lqe-handbook-section-3>)
- Middlesex University Policies (<https://www.mdx.ac.uk/about-us/policies>)
- Middlesex University Public Policy Statements (<https://www.mdx.ac.uk/about-us/policies/public-policy-statements>)

21. Other information

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the student programme handbook and the University Regulations.

Curriculum map for *MComp Computer Science*

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

Programme learning outcomes

| | |
|---|---|
| Knowledge and understanding, as well as the ability to critically reflect, evaluate and apply | |
| A1 | A range of underlying advanced theories relevant to computer science. |
| A2 | The process of systems development. |
| A3 | The interaction between technology and society and the role of computer professionals within this. |
| A4 | A range of advanced specialised topics within computer science. |
| Skills | |
| B1 | Apply sound principles to the construction and maintenance of computer-related artifacts. |
| B2 | Verify and critically validate computer-based systems. |
| B3 | Apply appropriate theories to the design and evaluation of systems. |
| B4 | Adapt and critically apply their knowledge and skills to mastering new technical areas. |
| B5 | Demonstrate understanding of advanced scientific principles and mathematical and logical theories in computing. |

| Programme outcomes | | | | | | | | | | | | |
|---|----|----|----|--|--|----|----|----|----|----|--|--|
| A1 | A2 | A3 | A4 | | | B1 | B2 | B3 | B4 | B5 | | |
| Highest level achieved by all graduates | | | | | | | | | | | | |
| 7 | 7 | 7 | 7 | | | 7 | 7 | 7 | 7 | 7 | | |

| Module Title | Module Code by Level | | | | | | | | | | | | | | | | |
|---|-------------------------|----|----|----|----|--|--|--|--|----|----|----|----|----|--|--|--|
| | | A1 | A2 | A3 | A4 | | | | | B1 | B2 | B3 | B4 | B5 | | | |
| Programming | CST1110 | ✓ | | | ✓ | | | | | ✓ | | | ✓ | | | | |
| First Year Project | CST1120 | | ✓ | ✓ | | | | | | | ✓ | | | | | | |
| Foundations of Computer Science | CST1130 | ✓ | | | | | | | | | | ✓ | | | | | |
| Systems and Architecture | CST1140 | ✓ | | | | | | | | | | | ✓ | | | | |
| Object-Oriented Programming | CST2110 | | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | | | | |
| Web Applications and Databases | CST2120 | ✓ | | ✓ | ✓ | | | | | ✓ | | | ✓ | | | | |
| Software Engineering Management and Development | CST2550 | ✓ | ✓ | | ✓ | | | | | ✓ | | ✓ | ✓ | | | | |
| Operating Systems and Computer Networks | CST2555 | ✓ | ✓ | | | | | | | ✓ | | | ✓ | | | | |
| Industrial Placement | CST2400 | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Testing and Verification | CST3110 | ✓ | | | ✓ | | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Teaching Computing in the Secondary School | CST3120 | | | ✓ | | | | | | | | | ✓ | | | | |

| | | | | | | | | | | | | | | | | |
|--|---------|---|---|---|---|--|--|--|---|---|---|---|---|--|--|--|
| Advanced Web Development with Big Data | CST3130 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Novel Interaction Technologies | CST3140 | ✓ | | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Computer Graphics | CST3150 | ✓ | | | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Designing Secure Systems | CST3160 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | ✓ | ✓ | | | |
| Artificial Intelligence | CST3170 | ✓ | | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| UX Design | CST3180 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Open Source Software | CST3185 | ✓ | | ✓ | ✓ | | | | ✓ | | | ✓ | ✓ | | | |
| Systems Engineering for Robotics | PDE3413 | ✓ | | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Enterprise Networking and Automation | CST3562 | ✓ | | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Web-Based Mobile App Development | CST3145 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| UG Individual Project | CST3990 | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| MEng-MComp Project Activity | CST4790 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Software development | CST4010 | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Blockchain Development | CST4025 | ✓ | | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Cyber and Information Security | CST4035 | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Cross Platform Application Development | CST4045 | ✓ | | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Data Visualisation | CST4055 | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | | ✓ | | | |