LEEDS BECKETT UNIVERSITY

Course Specification

MSc Advanced Computer Science

Course Code: MADCS

2026/27

leedsbeckett.ac.uk

MSc Advanced Computer Science (MADCS)

Applicant Facing Course Specification for 2026/27 Postgraduate Entrants

Confirmed at

General Information

Award	Master of Science Advanced Computer Science
Contained Awards	Postgraduate Diploma Advanced Computer Science Postgraduate Certificate Advanced Computer Science
Awarding Body	Leeds Beckett University
Level of Qualification and Credits	Level 7 of the Framework for Higher Education Qualifications, with 180 credit points at Level 7 of the Higher Education Credit Framework for England.
Course Lengths and Standard Timescales	Start dates will be notified to students via their offer letter. The length and mode of delivery of the course is confirmed below: • 12 months (full time, campus based) September starts • 15 months (full time, campus based) January starts • 24 months (full time, with optional 30-week work placement) • 24 months (part time, campus based)
Part Time Study	PT delivery is usually at half the intensity of the FT equivalent course, although there may be flexibility to increase your pace of study to shorten the overall course duration. Some modules may be delivered in a different sequence to that defined within this information set but the modules offered within each level are consistent. Please note that the work placement option is not generally available to PT students.
Location(s) of Delivery	The majority of teaching will be at Headingley campus but on occasion may be at City campus.
Entry Requirements	Admissions criteria are confirmed in your offer letter. Details of how the University recognises prior learning and supports credit transfer are located here:

	https://www.leedsbeckett.ac.uk/student-information/course-information/recognition-of-prior-learning/ Admissions enquiries may be directed to: AdmissionsEnquiries@leedsbeckett.ac.uk.
Course Fees	Course fees are confirmed in your offer letter. A breakdown of any additional costs is included on the online prospectus entry for this course. Fees enquiries may be directed to Fees@leedsbeckett.ac.uk.

Policies, Standards and Regulations (https://www.leedsbeckett.ac.uk/our-university/public-information/academic-regulations/)

There are no additional or non-standard regulations which relate to your course.

Professional Accreditation or Recognition Associated with the Course

Professional Body

N/A

'In Year' Work Placement Information

Summary

The course contains a placement year.

Minimum 30 weeks, undertaken at the end of semester 2 after the completion of taught modules. On returning from placement students will be expected to complete their Dissertation. This is only available for FT students starting in September.

Placement Delivery

Leeds Beckett is dedicated to improving the employability of our students and one of the ways in which we do this is to support our students to gain valuable work experience through work based placements. Our Placements team have developed strong links with companies, many of whom repeatedly recruit our students into excellent placement roles. Our team is dedicated to supporting students through every stage of the placement process.

Location

Students are responsible for obtaining their own placement, with assistance from the University. The locations will vary, dependant on the opportunity.

Approval

Whilst students source their own placements, they will need to meet requirements which will be outlined before module enrolment.

Timetable Information

Timetables for Semester 1 will be made available to students during induction week via:

i) The Student Portal (MyBeckett)
ii) The Leeds Beckett app

Any difficulties relating to timetabled sessions may be discussed with your Course Administrator.

Key Contacts

Your Course Director	Dr Salena Lazarevski
Your Course Administrator	Jake Wrigglesworth - J.Wrigglesworth@leedsbeckett.ac.uk

Course Overview

Aims

The course aims to provide students with an advanced skill set in a range of current topics. It also places an emphasis on project management skills along with development of professional and technical attributes. The course prepares students to work with cutting-edge technologies in industry by blending theory and practice. The course addresses some themes of STEM (Science, Technology, Engineering, and Mathematics), and therefore aimed at contextualising knowledge to real-time scenarios and application to problems in industry. The course is designed to address the skills gap in industry and the heavy demand for Computer Science graduates.

The word “advanced” is used to describe the sophistication brought about by the skill set covered in the modules. The course covers some of the themes of the “fourth-industrial revolution” that is dependent on Cloud Computing, IoT, Smart Systems, Robotics etc. The course enhances the knowledge students already have from a related UG degree. It builds upon their existing knowledge in Software Engineering, Networking Systems, Communications, systems development, and AI. For example, students with an undergraduate degree in Computer Science would have learnt the foundations of AI. The MSc course explores this further and goes deeper in the Smart Systems module and Intelligent Systems and Robotics Module. Furthermore, dissertation is used to reinforce the advanced technical skills gained by the students. Rather than pursue a generic computing project, students will be directed and motivated to work on advanced concepts in computer science that are drawn from expertise within the school. It is worth mentioning that although Computer Science traditionally contains a lot of theory, our approach is also very applied. It encourages students to think about problem solving in industrial contexts.

The course provides a deep understanding of the theory and practice of the advanced areas in Computer Science and their application to industrial and research contexts. The course also provides a pathway for our students who have completed BSc (Hons) Computer Science, to pursue a Masters degree in advanced Computer Science.

On completion of the course, a student must be able to reflect upon technological advancements and apply expert knowledge to real-life complex computational problems.

Course Learning Outcomes

At the end of the course, students will be able to:

1	Use originality in the application of knowledge in a professional environment, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline of computer science.
2	Evaluate and critique methodologies, practices, and advancements within the field of computer science.
3	Demonstrate self-direction, originality and creativity in tackling and solving practical computer science related problems which have been planned and implemented within a global professional, legal, social, and ethical framework.
4	Exercise initiative and personal responsibility in dealing with complex and unpredictable situations, making sound judgements, communicating their conclusions clearly to specialist and non-specialist audiences.

Teaching and Learning Activities

Summary

Learning and teaching methods provide high quality learning opportunities that enable students to demonstrate achievement of the learning outcomes of the Course through the learning outcomes of those modules. By the end of the course, students will have developed high levels of personal responsibility, initiative, creativity, be able to demonstrate originality and critical awareness of current problems and new insights informed by the forefront of the computer science discipline. Progressive use of dealing with complex and later unpredictable situations in projects and problem-based learning will allow students to achieve this and take on greater self-direction of their learning.

The assessment strategy and design recognise the computer industry as a source of inspiration and seeks where possible to align academic work with professional practice. The teaching and assessments will ensure that students are able to demonstrate deeper learning, act independently, collaborate more effectively, deal with complex issues in a systematic way, think critically, use literature more effectively, synthesise and reflect critically.

The Course employs a wide range of learning opportunities and teaching methods including the use of lectures, tutorials, practical work, simulations, dissertation, etc. Advantage will be taken of both technology

and supportive activities to ensure that effective learning takes place. The VLE allows scope for students to access learning materials outside their contact hours, providing support for the remainder of the 200 notional learning hours for each 20-credit module. Students should feel that they are being challenged by the range and level of activities and assessments: students should also feel supported and know how to access that support.

The dissertation expects students to fulfil a project that addresses an advanced problem in Computer Science. It is driven in a manner that requires academics to contribute topics from their research area or a problem that is heavy on Computer Science.

Practical Focus

The course follows a very hands-on approach with practical elements to help students put theory and practice together. The tutorials are all in a lab environment where students work on practical tasks given to them on a weekly basis. We rely on specialist state-of-the-art resources like sandboxed labs, high-end PCs, Robotics lab, and our own cloud infrastructure to deliver a curriculum that is enhanced with practical learning elements. For example:

- Our Network Management module is taught using an Industry Standard Network Management tool on a live network. Students can perform analysis on live network traffic and diagnose problems based on the statistics.
- Robotics module is delivered in the dedicated robotics lab using a Staubli robot.
- Smart systems module teaches Software Engineering in context of Systems programming and IoT.
- In Cloud Computing module students will learn to deploy services on the Cloud. Software Engineering for Service Computing includes practical elements of developing Software Components for the cloud.
- Applied Data Analytics covers Intelligent Systems, Artificial Intelligence and Machine Learning. All these are taught using appropriate software tools.
- The Dissertation **must** be based on a technical product development and will involve many hours of practical development and/or empirical analysis.

Assessments in modules will test a student's technical knowledge by expecting them to demonstrate their practical knowledge even in their course work.

This course will feature a mix of blended learning, both online and in-person.

Your Modules

This information is correct for students progressing through the programme within standard timescales. Option modules listed are indicative of a typical year. There may be some variance in the availability of option modules. Students who are required to undertake repeat study may be taught alternate modules which meet the overall course learning outcomes. Details of module delivery will be provided in your timetable.

Full Time Delivery

Level 7
Compulsory modules

Module title	**Credits**	**Semester/ teaching period**

Smart Systems	20	S1
Research Practice	20	S1
Project Management	20	S2
Intelligent Systems and Robotics	20	S2
Dissertation	60	S2
Number of credits of compulsory modules	140	

Option modules

Module title	**Credits**	**Semester/ teaching period**
Network Management	20	S1
Cloud Computing Technologies	20	S1
Advanced Software Engineering	20	S1
Software and Systems	20	S2
Intelligent Systems and Machine Learning	20	S2
Software Engineering for Service Computing	20	S2
Number of credits of option modules a student should choose	40	

The option modules listed are indicative of a typical year. There may be some variance in the availability of option modules.

Elective modules are as follows (students pick one Elective module per semester, based on availability/offering for the semester):

- Cloud Computing Technologies (20 credits)
- Network Management (20 credits) - Students who have done BSc (Hons) Computer Science at Leeds Beckett University can ONLY do this module and NOT Cloud Computing
- Software Engineering for Service Computing (20 credits)
- Intelligent Systems and Machine Learning (ISML) (20 credits)
- Software and Systems (20 credits)
- Advanced Software Engineering (20 credits)

Part Time Delivery

Part time students will be supported by the course team to determine an appropriate selection of modules for each year of study.

Assessment Balance and Scheduled Learning and Teaching Activities

The assessment balance and overall workload associated with this course are calculated from core modules and typical option module choices undertaken by students on the course. They have been reviewed and confirmed as representative by the Course Director but applicants should note that the specific option choices students make may influence both assessment and workload balance.

A standard module equates to 200 notional learning hours, which may be comprised of teaching, learning and assessment, any embedded placement activities and independent study. Modules may have more than one component of assessment.

Assessment

On this course students will be assessed predominantly by coursework and practical assessments. There are some examinations, presentations, and phase tests. The 60 credit point Dissertation module will require students to develop a product (or based on an empirical study). This has to be a technical project and must suit the nature of Advanced Computer Science. Students are required to produce a thesis as a part of the dissertation assessment.

Workload

Overall Workload	
Teaching, Learning and Assessment	211 hours
Independent Study	1589