Programme Specification 2025-26

1.	**Programme title**	MSc Robotics with Professional Placement (24 months) (London only)
2.	**Awarding institution**	Middlesex University
3a	**Teaching institution**	1 Middlesex University London
3b	**Language of study**	English

4a	**Valid intake dates and mode of study**

Mode of Study	Cohort	Delivery Location	Duration
Full-time (FT)	Semester 1	Hendon	24 Months

4c	**Delivery method**	

5. Professional/Statutory/Regulatory body (if applicable)
N/A

6.	**Apprenticeship Standard** (if applicable)	N/A

7. Final qualification(s) available
Target Award Title(s)
MSc MSc Robotics with Professional Placement (24 months)
Exit Award Title(s)
PGCert Robotics
PGCert Science and Technology
PGDip Robotics
PGDip Science and Technology

8. Academic year effective from	2025-26

9. Criteria for admission to the programme

An Honours degree normally classified 2.2 or above, or equivalent, in engineering, computer science or a related area, with evidence of previous programming experience in a high-level language such as C or Python. Applications from mature applicants with suitable skills and experiences are also welcomed, highlighting our flexible admission criteria. Recognition of Prior Learning (RPL) is permitted.

Successful applicants must have competence in English language. For international applicants whose first language is not English the requirement is that they have IELTS 6.5 (with minimum 6.0 in each component) or TOEFL internet based 87 (with at least 21 in listening & writing, 22 in speaking and 23 in reading).

Principle of fair admission

The University aims to ensure that its admissions processes are fair, open and transparent and aims to admit students who, regardless of their background, demonstrate potential to successfully complete their chosen programme of study where a suitable place exists and where entry criteria are met. The University values diversity and is committed to equality in education and students are selected on the basis of their individual merits, abilities and aptitudes. The University ensures that the operation of admissions processes and application of entry criteria are undertaken in compliance with the Equality Act. We take a personalised and fair approach to how we make offers. We feel it's important that our applicants continue to aspire to achieving great results and make offers which take into account the information provided to us on the application form.

This includes recognition of prior learning and experience. If you have been working, or you have other learning experience that is relevant to your programme, then we can count this towards your entry requirements and even certain modules once you start studying.

10. Aims of the programme

The programme aims to:

The programme aims to develop competent and highly sought after Robotics Engineers by equipping them with the cutting-edge technologies within the area of robotics, machine learning and autonomous robotics. It will achieve this by consolidating key technological knowledge and skills in designing and developing robotic and automation systems for a variety of industry applications and for a diverse range of employment sectors such as industrial automation, robotics, systems integration, mobile robotics.
The programme will also focus on equipping students with new skills and knowledge needed for implementing technologies such as Artificial Intelligence/Machine Learning for Robotic applications, Cyber Physical Systems, Digital Twins, Remote Monitoring and Data Analytics and other such technologies by working closely with industry partners leading the development of these technologies. The students will also be exposed to developing sustainable robotic solutions that address global challenges in areas like environmental monitoring, disaster management and ageing populations.

11. Programme learning outcomes

Programme - Knowledge and Understanding

On completion of this programme the successful student will have a knowledge and understanding of:
1. Apply a comprehensive knowledge of relevant subject principles (engineering, statistics, mathematics, management) to the solution of complex problems in robotics and automation. (AHEP4 M1)
2. Critically analyse hardware and software requirements of robotic systems and related sensing and control methods.
3. Design, develop and test control solutions for autonomous robotic systems, including machine learning.
4. Formulate and critically analyse complex robotic systems and to offer conclusions and further recommendations. (AHEP4 M2)
5. Develop a system hierarchy for robotic hardware and software integration solutions, including mode of communications and networking
6. Formulate and apply fundamental simulation techniques using a systems approach to real-world processes and systems.
7. Design solutions for complex problems that evidence some originality to address stakeholder needs (user, business, societal, environmental, cultural, diversity, inclusion, etc.), as well as complying with constraints such as commercial, legal, professional and industry standards. (AHEP4 M5)
Programme - Skills On completion of this programme the successful student will be able to:
8. Select and apply computational and analytical techniques to model complex problems related to robotic systems. (AHEP4 M3)
9. Build, test and optimise integrated robotic system solutions using appropriate tools and techniques.
10. Produce digital models with integrated data flow between physical and virtual systems and their behaviour.
11. Carry out technical literature reviews and critically evaluate these to solve complex problems related to the programme. (AHEP4 M4)
12. Design and implement AI/ML solutions for robotic systems and applications.
13. Evaluate the business, environmental and societal impact of solutions to complex problems and manage their impact by considering using Product Lifecycle Management approaches, including Product Data management and Application Lifecyle Management. (AHEP4 M7)
14. Work effectively as a reflective practitioner as a member of a team as well as an individual and assess own and team performance. (AHEP4 M16)
15. Communicate complex technical and academic content effectively in both oral and written forms to a technical and non-technical audience. (AHEP4 M17)

12. Teaching/learning methods

Students gain knowledge and understanding through a dynamic mix of teaching, learning, and assessment strategies, designed to actively engage them and enhance their comprehension. The educational context is enriched with staff-led interactive sessions, which delve into theoretical concepts in a multi-disciplinary context. These engaging sessions are complemented by hands-on laboratory activities, crucial for reinforcing theoretical knowledge through practice-led experiments and simulations, allowing students to apply their learning in tangible scenarios.

To broaden their understanding, students participate in a variety of interactive activities including workshops, group tutorials, and collaborative exercises. These are crafted to foster critical thinking, problem-solving, and the application of theory to practical, real-life societal challenges, with a particular focus on sustainable development and the UN Sustainable Development Goals (SDGs). Additionally, students undertake individual and group projects, encouraging research-informed exploration and synthesis of information, thereby deepening their subject mastery.

Guided and independent study is highly promoted, complementing formal instruction. This self-directed exploration is supported by comprehensive resources such as key concept videos provided in advance, enhancing digital learning, and offering opportunities for students to deepen their understanding, explore topics more extensively, and adopt a global perspective.
Students develop their skills within a stimulating and diverse teaching and learning framework, designed to nurture practical abilities, critical thinking, and teamwork. This dynamic setting encourages the acquisition of vital professional competencies through a blend of interactive sessions, guided learning, and academic advising.

Central to our approach are practice-led workshops that integrate multidisciplinary learning, encompassing engaging discussions, group tutorials, and hands-on laboratory work. These sessions offer an immersive experience, allowing students to apply theoretical concepts in real-world contexts, thereby enhancing their technical and analytical skills.

Seminars and laboratory exercises immerse students in experiential learning, emphasizing the application of knowledge to practical challenges and encouraging collaboration. This environment promotes active engagement and peer learning, deepening students' understanding of complex issues and fostering inclusive approaches to problem-solving.

Projects, undertaken both individually and in groups, are key to our pedagogy. They provide a platform for students to engage with comprehensive tasks that mirror industry problems, demanding creativity, critical evaluation, and strategic thinking. These projects often incorporate global and employer perspectives, highlighting the relevance of sustainable development and the application of research-informed strategies.

Utilising state-of-the-art simulation tools and engaging in testing activities, students gain insights into the practical aspects of their field, from conceptual design to tangible outcomes, preparing them for industry-specific tasks and decision-making.
With the aid of key concept videos provided in advance and a strong emphasis on digital learning, we offer a well-rounded educational experience. This approach not only ensures the acquisition of theoretical knowledge but also emphasizes the development of practical skills and competencies essential for success in the global marketplace. Through work-based learning opportunities and industry engagement, we prepare students for the realities of their future careers, all while maintaining a focus on health and well-being.

A unique feature of the programme is the inclusion of placements as a structured learning method. Placements provide students with an immersive experience, allowing them to apply theoretical knowledge in real-world industry settings. This hands-on approach enables students to develop professional skills, gain valuable insights into applying their skills and build confidence in tackling industry challenges. Placements also allow students to bridge the gap between academic learning and practical application, enhancing their employability and preparing them for leadership roles in the engineering sector.

Approx. number of timetabled hours per week (at each level of study, as appropriate), including on-campus and online hours FT - 12, PT - 6

Approx. number of hours of independent study per week (at each level of study, as appropriate) FT - 28, PT - 14

Approx. number of hours on placement (including placement, work-based learning or year abroad, as appropriate). 3 months (15 months programme) or 36-48 weeks (24 months programme)

13. Employability

13a Development of graduate competencies

13b Employability development

Graduates from the programme will be well-positioned to enter employment in roles requiring high-level expertise in robotics, automation, and robotic system design. With highly specialised practical skills in areas such as automated solutions, embedded systems, digital twins, and machine learning, graduates will meet the demands of a rapidly evolving global job market.
This expertise will open doors to careers in diverse sectors, including but not limited to:
•Manufacturing and Industry 4.0: Designing and implementing advanced robotics for smart factories, improving efficiency and productivity through automation and integration.
•Healthcare and MedTech: Developing surgical robots, rehabilitation devices, and autonomous systems for elder care, which are transforming the healthcare landscape.
•Autonomous Systems and Transportation: Innovating in autonomous vehicles, drones, and transport systems, leveraging AI and sensor technologies to drive the future of mobility.
•Research and Development: Pushing the boundaries of robotics through advanced research in artificial intelligence, human-robot interaction, and swarm robotics at universities, labs, or private companies.
•Energy and Environmental Solutions: Designing robotics for sustainable energy management, environmental monitoring, or hazardous material handling, which are vital for a greener future.
Graduates will also have the potential to progress to senior engineering and leadership positions as their careers evolve, managing multidisciplinary teams and overseeing large-scale projects. Alternatively, the skills acquired will prepare them for entrepreneurial ventures, enabling them to develop innovative robotics startups or consultancy firms that address emerging global challenges.
For those seeking continued academic development, the programme will serve as an excellent foundation for pursuing a PhD or engaging in cutting-edge research in robotics and intelligent systems, contributing to scientific discovery and technological advancement.
By equipping graduates with a blend of theoretical knowledge, hands-on technical proficiency, and practical problem-solving capabilities, the programme ensures readiness for impactful careers in a robotics-driven world.

13c Placement and work experience opportunities (if applicable)
Compulsory
13d Future careers / progression
Graduates from the programme will be well-positioned to enter employment in roles requiring high-level expertise in robotics, automation, and robotic system design. With highly specialised practical skills in areas such as automated solutions, embedded systems, digital twins, and machine learning, graduates will meet the demands of a rapidly evolving global job market. This expertise will open doors to careers in diverse sectors, including but not limited to: •Manufacturing and Industry 4.0: Designing and implementing advanced robotics for smart factories, improving efficiency and productivity through automation and integration. •Healthcare and MedTech: Developing surgical robots, rehabilitation devices, and autonomous systems for elder care, which are transforming the healthcare landscape. •Autonomous Systems and Transportation: Innovating in autonomous vehicles, drones, and transport systems, leveraging AI and sensor technologies to drive the future of mobility. •Research and Development: Pushing the boundaries of robotics through advanced research in artificial intelligence, human-robot interaction, and swarm robotics at universities, labs, or private companies. •Energy and Environmental Solutions: Designing robotics for sustainable energy management, environmental monitoring, or hazardous material handling, which are vital for a greener future. Graduates will also have the potential to progress to senior engineering and leadership positions as their careers evolve, managing multidisciplinary teams and overseeing large-scale projects. Alternatively, the skills acquired will prepare them for entrepreneurial ventures, enabling them to develop innovative robotics startups or consultancy firms that address emerging global challenges. For those seeking continued academic development, the programme will serve as an excellent foundation for pursuing a PhD or engaging in cutting-edge research in robotics and intelligent systems, contributing to scientific discovery and technological advancement. By equipping graduates with a blend of theoretical knowledge, hands-on technical proficiency, and practical problem-solving capabilities, the programme ensures readiness for impactful careers in a robotics-driven world.

14. Assessment methods
Students' knowledge and understanding is assessed by a combination of individual and team coursework, project work, reports and presentations. Students' skills are assessed by a combination of individual and collaborative lab and other coursework, project work, including both software and hardware development, reports and presentations.

15. Programme Structure (level of study, modules, credits and progression requirements)
Structure is indicative for Part-time routes.

Students must take all of the compulsory modules and choose following programme requirements from the optional modules. Non-compensatable modules are noted below.

Available Pathways
Not Applicable

Year 1

Year 1 Level 7 FT

Year 1 Level 7 FT			
Code	**Type**	**Module Title**	**Credits at FHEQ Level**
PDE4430	Compulsory	Mobile Robotics 2025-26	15 at Level 7
PDE4431	Compulsory	Robot Manipulation 2025-26	15 at Level 7
PDE4446	Compulsory	Sensing and Motion Control 2025-26	30 at Level 7
PDE4260	Compulsory	Preparing for the Professional Placement 2025-26	0 at Level 7
PDE4444	Compulsory	Machine Learning for Engineers 2025-26	15 at Level 7
PDE4443	Compulsory	Engineering Sustainability 2025-26	15 at Level 7
PDE4435	Compulsory	Robotic Systems Integration 2025-26	30 at Level 7
PDE4445	Compulsory	Individual Project 2025-26	60 at Level 7

Year 2

Year 2 Level 7 FT

Code	**Type**	**Module Title**	**Credits at FHEQ Level**
PDE4262	Compulsory	Postgraduate Professional Placement (extended) 2026-27	0 at Level 7

PDE4261	Compulsory	Postgraduate Professional Placement 2026-27	0 at Level 7

*Please refer to your programme page on the website re availability of option modules

16. Programme-specific support for learning
Meeting the learning outcomes of this programme requires active participation in the subject and the development of autonomous practice in meeting objectives. Supporting this level of active participation and autonomous practice is achieved via regular weekly drop-in sessions organised by the module tutors, productive and informed support from technical staff and the use of online, resource-based learning materials where appropriate. The subject provides extensive facilities where students can engage with their coursework assignments in a supported and productive environment.

17. HECos code(s)	100170: Mechatronics and Robotics

18. Relevant QAA subject benchmark(s)	

19. University Regulations
This programme will run in line with general University Regulations: Policies | Middlesex University This programme will run in line with general University Regulations: Policies | Middlesex University

20. Reference points

21. Other information *(if applicable)*

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 they take full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

Curriculum map for MSc Robotics / MSc Robotics with Professional Placement (15 months) / MSc Robotics with Professional Placement (24 months)

Programme learning outcomes

Knowledge and understanding

A 1	Apply a comprehensive knowledge of relevant subject principles (engineering, statistics, mathematics, management) to the solution of complex problems in robotics and automation.
A 2	Critically analyse hardware and software requirements of robotic systems and related sensing and control methods.
A 3	Design, develop and test control solutions for autonomous robotic systems, including machine learning.
A 4	Formulate and critically analyse complex robotic systems and to offer conclusions and further recommendations.
A 5	Develop a system hierarchy for robotic hardware and software integration solutions, including mode of communications and networking.
A 6	Formulate and apply fundamental simulation techniques using a systems approach to real-world processes and systems
A 7	Design solutions for complex problems that evidence some originality to address stakeholder needs (user, business, societal, environmental, cultural, diversity, inclusion, etc.), as well as complying with constraints such as commercial, legal, professional and industry standards

Skills

B1	Select and apply computational and analytical techniques to model complex problems related to robotic systems.
B2	Build, test and optimise integrated robotic system solutions using appropriate tools and techniques.
B3	Produce digital models with integrated data flow between physical and virtual systems and their behaviour.
B4	Carry out technical literature reviews and critically evaluate these to solve complex problems related to the programme.
B5	Design and implement AI/ML solutions for robotic systems and applications.
B6	Evaluate the business, environmental and societal impact of solutions to complex problems and manage their impact by considering using Product Lifecycle Management approaches, including Product Data management and Application Lifecyle Management.
B7	Work effectively as a reflective practitioner as a member of a team as well as an individual and assess own and team performance.

B8	Communicate complex technical and academic content effectively in both oral and written forms to a technical and non-technical audience.

Programme learning outcomes - Highest level achieved by graduates

A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7	B8
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Mapping by level of study and module

Module Title	**Module Code by Level of study**	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7	B8
Mobile Robotics	PDE4430		X	X			X		X	X	X				X	X
Robot Manipulation	PDE4431	X			X	X	X									X
Sensing and Motion Control	PDE4446	X	X	X	X	X			X	X		X		X		X
Machine Learning for Engineers	PDE4444			X			X	X	X		X		X			X
Engineering Sustainability	PDE4443	X						X				X		X	X	X
Robotic Systems Integration	PDE4435		X	X		X		X		X	X	X	X		X	X