



Programme Specification

Robotics {Joint Award}[Frenchay]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Robotics {Joint Award}[Frenchay]

Highest award: MSc Robotics

Awarding institution: University of Bristol

Affiliated institutions: UWE Bristol

Teaching institutions: University of Bristol, UWE Bristol

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

Department responsible for the programme: FET Dept of Engineering Design & Mathematics, Faculty of Environment & Technology

Contributing departments: Not applicable

Professional, statutory or regulatory bodies: Not applicable

Apprenticeship: Not applicable

Mode of delivery: Full-time

Entry requirements: For the current entry requirements see the UWE public website.

For implementation from: 01 September 2018

Programme code: H67B12

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The MSc Robotics is available through a partnership between UWE Bristol and the University of Bristol, and provides a comprehensive understanding of advanced robotics and automation systems. While providing an excellent background for a range of technology careers that require robotics and automation knowledge and skills, it also offers the specialisms to support doctorate-level studies and ongoing research careers.

Educational Aims: This MSc aims to provide the background and focus to prepare students to understand, design and implement robotic systems as well as comprehend the foundational methods and relevant theories. The structure allows students from a variety of backgrounds in Engineering, Mathematics, Physics and related disciplines to acquire the skills to become Robotics practitioners and researchers.

The programme is designed to expose students to three fundamental themes: Perception, Action and Cognition. We also promote a hands-on approach to develop intelligent actuating and sensing systems with the final dissertation based at the Bristol Robotics Laboratory, the most comprehensive Robotics Lab in the United Kingdom.

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following learning outcomes.

Knowledge and Understanding

- A1. The ability to understand design and implement robotic systems that link Action, Perception and Cognition.
- A2. Under the theme Action: the modelling and implementation of control strategies for multi-degree of freedom systems and their operation in space and in the proximity of human operators or collaborators.
- A3. Under the theme Perception: the algorithmic and operational principles of perception in time-critical systems with an emphasis on robot vision.

- A4. Under the theme Cognition: the foundational aspects of uncertainty modelling, decision making and learning in artificial and natural systems.
- A5. The integration of a wide variety of methods to include 3D animation principles, navigation, localisation, DSP design and robot programming.
- A6. The acquisition of skills to write, evaluate and conduct research in Robotics.
- A7. The implementation of a real robotic system that combines Action, Perception and Cognition.

Intellectual Skills

- B2. Ability to understand a complex robotic system.
- B2. Capability to identify the requirements and specifications of tasks which are appropriate to be solved using an acting and perceiving intelligent system.
- B3. Critically evaluate robotic systems and designs.
- B4. Conduct research in the area of Robotics.
- B5. Identify the relevant literature and sources to accomplish the above.

Transferable Skills and other attributes

- D1. Work effectively as part of a team demonstrating time management, team coordination and or leadership.
- D2. Access state of the art literature resources in Robotics and related areas.
- D3. Structure and communicate ideas effectively in writing and orally.
- D4. Plan and design projects in several stages.

Part B: Programme Structure

Year 1

Year 1 Compulsory Modules - UWE

The student must take 45 credits from Compulsory modules - UWE

Module Code	Module Title	Credit
UFMFHP-15-M	Human-Robot Interaction 2023-24	15
UFMFRR-15-M	Machine Vision 2023-24	15
UFMF4X-15-M	Robotic Fundamentals 2023-24	15

Year 1 Optional Modules - UWE

The student must take 15 credits from Optional Modules - UWE

Module Code	Module Title	Credit
UFME7F-15-M	Advanced Control and Dynamics 2023-24	15
UFMFSSR-15-M	Assistive Robotics 2023-24	15
UFME7R-15-M	Robot Learning and Teleoperation 2023-24	15

Part C: Higher Education Achievement Record (HEAR) Synopsis**Part D: External Reference Points and Benchmarks****Part E: Regulations**

Approved to University of Bristol Regulations and Procedures