Lecturer in Applied Mathematics

Aston University
BIRMINGHAM UK

Reference: 0175-25

Grade: 8/9, depending on experience

Salary: £40,497 to £55,755, per annum, depending on experience

Contract Type: Permanent

Basis: Full Time

Job description

Job Purpose

Aston University's 2030 strategy is ***Inclusive***, ***Entrepreneurial*** and ***Transformational***. We are building a new model of university for a changing world. Our vision is to be a leading university of science, technology and enterprise, measured by the positive transformational impact we achieve for our people, students, businesses and the communities we serve.

The ideal candidate will have the ability to contribute to, develop and enhance the research, scholarship and teaching activities of the Department of Mechatronics and Biomedical Engineering, as part of the College of Engineering and Physical Sciences, either independently or as part of a team, through professional practice and expertise. In addition, to develop external links with regional, UK and international bodies such as government agencies, schools, colleges, professional bodies, business and industry as appropriate to the subject discipline, College and/or University strategy.

The majority of academic staff will undertake a balance of research and teaching and learning activities. Whilst ability and effectiveness should be demonstrated in all areas, individuals may be more specifically focussed on research, teaching and learning or external engagement. This balance will be discussed and agreed with individuals annually in the Professional Development Review (PDR) meeting in line with operational needs, College and University strategy and with consideration of the individual's career goals and development plans.

Within the College as a whole, we have strong experience in artificial intelligence, bioenergy, biomedical engineering, chemical engineering, chemistry, civil engineering, computer science, construction management, data analytics, design engineering, electrical and electronic engineering, mathematics, mechanical engineering, photonics, product design, and supply chain management. This new post is seen as vital in allowing us to achieve our goals in the growing area of applied mathematics to mechatronics systems. Broad research subject areas of interest include robotics, artificial intelligence (AI), machine learning, data science, control theory, digital healthcare, fluid and solid mechanics, continuum and statistical mechanics, computational and numerical analysis, probability and statistics. The candidate will benefit from an expanding infrastructure of mechatronics systems, high-performance computing, and a collaborative environment that brings together mathematicians, mechanical engineers, electrical and electronic engineers and biomedical engineers to provide impactful research and quality teaching.

Research streams of specific interest to the Department are:

- Robotics and autonomous systems
- Sustainable energy and transport
- Smart manufacturing and materials
- Biomedical and healthcare engineering
- Fluid dynamics
- Financial mathematics

We particularly welcome candidates with research expertise in data-driven mathematical modelling of control, navigation, remote sensing and multi-vehicle mission planning of drones and unmanned aerial vehicles (UAVs), energy, transport, manufacturing, fluid dynamics and biomedical mechatronic systems, or financial mathematics. We especially encourage female applicants.

Together with industrial opportunities, further growth is also anticipated in teaching related activities, especially at Master's degree level and in non-traditional programmes and delivery modes. The Department currently runs the following taught degrees:

- BEng/MEng Biomedical Engineering
- BEng Design Engineering
- BEng/MEng Electrical and Electronic Engineering

- BEng/MEng Electronic Engineering and Computer Science
- BEng/MEng Mechanical Engineering
- BSc Mathematics
- BSc Mathematics with Economics
- MSc Future Vehicle Technologies
- MSc Mechanical Engineering
- MSc Robotics and Autonomous Systems
- MSc Smart Manufacturing

The Department is highly active in developing innovation in teaching and it is expected that the successful candidate will have an empathic and progressive student-centred focus to her/his teaching interests. The Department is very much at the forefront of developing new ways of looking at engineering education and a leading player within the International CDIO (Conceive Design Implement Operate) initiative focussed on delivering integrated and practical forms of engineering education (www.cdio.org).

Aston prides itself on an active and engaging learning approach for its students. The role demands the applicant is effective in working with a lively student community, helping the students to learn and develop through real world teaching, e.g., including engaging classes, insightful reviews, industry relevant lectures, tutorials, and workshop projects. We are looking for general and specialised teaching and require teaching expertise in probability, statistics, linear mathematics, network science, numerical algorithm and programming.

Main Duties/Responsibilities

Research, Innovation and Impact

- To develop research objectives, projects and proposals for personal/joint research programmes consistent with the College's research priorities. We particularly welcome candidates with a distinctive research background in robotics, artificial intelligence, machine learning, data science and control theory. Consideration will also be given to digital healthcare, fluid and solid mechanics, continuum and statistical mechanics, computational and numerical analysis, probability and statistics.
- To write up or contribute to the write up of research work for publication.
- To identify sources of funding, develop and submit funding applications, securing external research funding.
- Where appropriate to College/University strategy and subject discipline, to participate in and develop external networks.
- To supervise and manage research projects.
- To supervise postgraduate students at Masters and doctoral levels. To foster an environment which encourages research among students at postgraduate level.
- To collaborate in research initiatives with colleagues in and beyond the College as appropriate.

In addition, at grade 9

- To write up research and publish the outcomes in good quality publications.

Education and Student Experience

- To teach students at different levels including foundation, undergraduate and postgraduate students, and to carry out the associated examining processes.
- To contribute to the design and content of specific areas of teaching and learning within the College's teaching Programmes, with guidance.
- To provide academic support and advice to foundation, undergraduate and postgraduate students.
- To cooperate with colleagues across disciplines in the continuous review and development of Programmes and the curriculum.

- To use and promote the use of a range of methods and techniques in teaching, learning and assessment including pursuing digital and modern methods of delivery.
- To engage in supporting and promoting quality assurance measures within the University e.g., by evaluation and development of modules for which the lecturer has responsibility, in terms of content, delivery and assessment as well as reviewing delivered modules, setting and receiving student feedback questionnaires.

In addition, at grade 9

- To be responsible for the design and content of specific areas of teaching and learning within the College's teaching Programmes with guidance
- To innovate in teaching, demonstrate continuous professional development and critical reflective practice, translating knowledge into the course of study.

Citizenship, Engagement and Services

- To carry out specific College roles and functions as may be reasonably required (e.g., Programme Co-ordinator, Personal Tutor, Admissions Tutor), these being equitably distributed across the academic staff.
- To provide pastoral care and support to students.
- To take part in and, if required, manage staff seminars, cross-departmental activities and events e.g., Open Days, Sixth Form Conferences etc.
- To display and promote Aston values through own actions and behaviour.
- To contribute to student placement schemes with companies and research institutions both in the UK and overseas.
- To contribute to plans to secure commercialisation, identifying and pursuing opportunities for engagement with industry.
- To enhance the University's reputation with professional/scholarly bodies e.g., by promoting understanding of the subject.
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

In addition, at grade 9

- To take part in and, on occasion, act as Chair of one or more of the College committees, these responsibilities being equitably distributed across the academic staff.
- To develop collaborations with industry partners to secure additional funding where appropriate to focus and subject discipline.

Additional responsibilities

- Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities.
- Ensure and promote the personal health, safety and wellbeing of staff and students.
- Carry out duties in a way which promotes fairness in all matters, and which engenders trust.
- Promote equality of opportunity and support diversity and inclusion as well as working to support the University's environmental sustainability agenda and practices.

Person specification

	Essential	Method of assessment
Education and qualifications	A recognised undergraduate degree in Mathematics or a relevant discipline. A doctorate in Mathematics, Mechatronics Engineering, Control Engineering, Mechanical Engineering, Electronic Engineering, Electrical Engineering or a relevant discipline. **In addition, at grade 9** A recognised teaching qualification / membership of Advance HE (formally known as the Higher Education Academy) at Fellow level.	Application form
Experience	Experience of teaching and assessing within a degree programme. Experience of initiating and conducting research up to doctoral level. Experience of writing up/ contributing to the writing up of research for high quality publications. **In addition, at grade 9** Experience of publishing research in high quality publications.	Application form and interview
Aptitude and skills	Excellent interpersonal, verbal and written communication skills to build external contacts that will support research and teaching activity. Ability to prioritise conflicting priorities and meet deadlines. Ability to work collaboratively as part of a team, contributing to outstanding team performance, as well as on own initiative. Ability to develop own teaching materials and contribute to course and programme development. Ability to provide tutorial and counselling advice to undergraduate and postgraduate students.	Application form and interview

	Essential	Method of assessment
	Ability to develop and maintain a research programme and to publish in international journals. Ability to secure research funds from external sources. Ability to harness IT as a research and teaching tool A willingness to undertake further training as appropriate and to adopt new procedures as and when required. Commitment to observing the University's Equal Opportunities Policy at all times. Ability to attend the University as and when required for scheduled teaching, relevant meetings and student support. **In addition, at grade 9** Ability to lead taught modules and programmes for undergraduate and postgraduate students Evidence of securing research income and of maintaining an ongoing pipeline.	

	Desirable	Method of assessment
Education and qualifications	Membership of a relevant professional body. A Postgraduate Certificate in Professional Practice (PGCPP), or equivalent qualification. **In addition, at grade 9** A recognised teaching qualification / membership of Advance HE (formally known as the Higher Education Academy) at Fellow level	Application form

	Desirable	Method of assessment
Experience	Experience of working in a UK Higher Education Institution. Experience of using a virtual learning environment (VLE) as a tool, e.g., Blackboard	Application form and interview
Aptitude and Skills	Skills in robot control, machine learning and/or other AI fields.	Application form and interview

University values

All staff are expected to demonstrate/promote the University's values and expectations, which are an integral part of our strategy and underpin the culture of the University. In addition, our leaders are expected to be accountable, help to execute strategic visions of the University and share and set clear expectations that inspire those around them.

How to apply

You can apply for this role online via our website https://www2.aston.ac.uk/staff-public/hr/jobs.
Applications should be submitted by 23.59pm on the advertised closing date.
All applicants must complete an application form, along with your CV.
Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted.
If you require a manual application form, then please contact the Recruitment Team via recruitment@aston.ac.uk.

Contact information

Enquiries about the vacancy:

Name: Ricardo Sodré
Job Title: Head of Department of Mechatronics and Biomedical Engineering
Email: j.sodre@aston.ac.uk

Name: Jason Laurie
Job Title: Applied Mathematics Subject Group Leader
Email: j.laurie@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:
Recruitment Team via recruitment@aston.ac.uk or 0121 204 4500.

Additional information

Visit our website https://www2.aston.ac.uk/staff-public/hr for full details of our salary scales and benefits Aston University staff enjoy.

Salary scales: https://www2.aston.ac.uk/staff-public/hr/payroll-and-pensions/salary-scales/index

Benefits: Benefits and Rewards | Aston University

Working in Birmingham: https://www2.aston.ac.uk/birmingham

Employment of Ex-Offenders: Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

Eligibility to work in the UK: You should ensure that you meet the eligibility requirements, including meeting the English language standards. If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful. Please see UKVI guidance for further information on eligibility, knowledge of English requirements and approved test centres https://www.gov.uk/tier-2-general

With the end of free movement for EU/EEA/Swiss nationals from 1 January 2021, the UK's new immigration system applies to all non-UK/Irish nationals who require a visa.

Where an individual is subject to UK immigration control, they will require a visa to work in the UK.

The following individuals do not need a visa for the UK, but do still have to prove their right to work before employment can commence:

- **British Citizens or Irish Nationals**
- **EU/EEA/Swiss nationals with Settled or Pre-settled status under the EU Settlement Scheme**
- **Non-EEA nationals with Indefinite Leave to Remain/Settlement in the UK**

The main routes available for those who need a visa to work in the UK are **Skilled Worker**, **Global Talent** and the **Graduate Route**.

You can find further information about each of these visa routes on our candidate immigration page.

If you will conduct research in your role, you may need to apply for and obtain ATAS clearance before Aston can issue a Certificate of Sponsorship for your visa application. Please see below for further details.

Academic Technology Approval Scheme (ATAS):
If you will conduct research in your role and you apply for a Skilled Worker or Temporary

Worker GAE visa, you may need to apply for and obtain ATAS clearance before Aston can issue a Certificate of Sponsorship for your visa application.

This process can take at least 6 weeks to process, and Aston will consider this when confirming your expected start date. Processing times will increase between April and September and can longer to complete.

There is no fast-track option available. ATAS certificates will be processed in order of receipt.

You can find more information about ATAS on our candidate immigration page.

Before you start and Right to Work

90-day entry vignette

If you have applied for your visa outside of the UK, you will receive a vignette in your passport which is usually valid for 90 days. Please make sure to travel to the UK within the 'valid from' and 'valid to' dates on this visa. If you entered the UK before or after these dates, you would not 'activate' the visa and you would need to leave and re-enter the country.

You will also receive a decision letter confirming details about your immigration permission and where to collect your Biometric Residence Permit.

Cost of Living - Estate and Letting Agents

There are numerous Estate and Letting Agents in and around Birmingham that can help you find suitable accommodation. The Midland Landlord Accreditation Scheme provides a list of professional agencies and landlords who have applied with them for accreditation. Whilst accreditation is not a guarantee of quality, it provides some reassurance about the standard of the service they provide.

You can also use property search websites such as Rightmove or Zoopla.

Equal Opportunities

Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form. Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its

Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

Data Protection

Your personal data will be processed in compliance with the Data Protection Act 2018 and the General Data Protection Regulation ((EU) 2016/679) ("GDPR"). The University's Data Protection Policy and Privacy Notices, including the Job Applicant Privacy Notice can be found at https://www2.aston.ac.uk/data-protection. Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Full details of our terms and conditions of service and associated policies and procedures are available online at https://www2.aston.ac.uk/staff-public/hr/policies

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