



Position Name	Associate Professor in Digital Manufacturing	
College/Budget Centre	EPS/Engineering/ Mechanical	
Position Number (if Known)		
Proposed Grade	Grade 9 – Research and Education	
Reason for grading request	X	New role: - If comparator role exists, please give post title / number:
		Re-grade for existing post-holder
Background		
This is an exceptional time to join the University of Birmingham's School of Engineering. Established in 2016, amalgamating the disciplines of Civil, Mechanical, and Electrical and Electronic Engineering, the School has invested heavily in infrastructure and people; with a new £65M flagship building, a £28M UK Rail Research and Innovation Network (UKRRIN) Centre, and a £26M National Buried Infrastructure Facility. The School of Engineering has also recently secured over £1M in funding for practical robotics teaching. Our School is renowned for world-class research and strong ties with industry, ensuring rapid practical application of our innovations. We continue to strategically grow our research portfolio and we are now recruiting an Assistant or Associate Professor in Digital Manufacturing to help tackle the engineering challenges of applying artificial intelligence and digital technologies across modern manufacturing and robotics. Digitalisation and artificial intelligence are reshaping how products are designed, made, maintained and given a second life. The School of Engineering hosts strong activity in digital, advanced and sustainable manufacturing and robotics, with close links to the Manufacturing Technology Centre and the University's Institute for Robotics. The successful candidate will also have the opportunity to engage with and contribute to our national research hubs – the Co-AIMS Hub (Collaborative AI for Manufacturing Sustainability) and the RESCu-M2 Hub (robotics- and smart-machine-enabled circular manufacturing). We are seeking a researcher in the engineering of artificial intelligence for manufacturing and robotics – spanning challenges such as trustworthy and data-efficient machine learning, autonomous and collaborative robotic systems, digital twins, and physics-informed or hybrid AI models. The role supports growth across sectors including automotive, aerospace, clean energy, medical devices and circular ('Re-X') supply chains, and contributes to succession planning in manufacturing leadership. The successful candidate will be expected to create and disseminate knowledge through initiating and conducting original research, and publication in the above-mentioned areas. They will develop and deliver undergraduate, postgraduate and CPD programmes relevant to digital manufacturing and robotics. In addition, they will contribute to the department, and wider school, through management/leadership and enterprise activities, as appropriate. The successful candidate will have a PhD, or equivalent qualification, in engineering related to digital manufacturing. They will be expected to secure support from government, industry, and international organisations to conduct high-quality research, generate high-quality publications in internationally recognised journals, and contribute to the development and delivery of		

undergraduate, postgraduate, and CPD programmes as appropriate to the disciplinary area. Industrial experience, whether through direct employment or through collaboration, is highly desirable, as is the ability to engage effectively with academic, government, and industrial partners in the UK and internationally.

The School of Engineering is committed to upholding the principles of Equality, Diversity, and Inclusion (EDI) in all our pursuits, and we actively encourage applications from underrepresented groups. We welcome applications from people of all backgrounds and genders, will consider part-time, job-share and flexible-working arrangements, and may appoint at either Assistant or Associate Professor level according to experience.

For further information and informal inquiries, please get in touch with Dr Carl Anthony, email: c.j.anthony@bham.ac.uk

Summary of Role

As an associate professor, you will contribute at a senior level to teaching, research, and administration. In addition, you will be expected to contribute to academic citizenship, likely to be demonstrated through generous, mutually respectful and supportive working relationships with all staff and students.

Teaching is likely to include: (a) development and leadership of major teaching programmes or equivalent; and (b) enhancement of the student experience or employability.

Research is likely to involve an established national and international reputation through significant original research work and a clear record of impact.

Management and administration is likely to include Departmental/School leadership and management activity with University wide involvement – for example through sustained high value research, knowledge transfer, enterprise, business engagement, and public engagement or similar activities.

Main Duties / Responsibilities

Education

You will contribute across the range of teaching and learning activities:

- making a significant contribution to the pedagogical knowledge base of the subject that advances teaching through the enhancement of practice, the development of teaching resources and/or through practice-based research;
- leading on the management and the development of approaches to teaching and learning, including designing innovative approaches to digital resources/environments and supporting colleagues to use them that are innovative to the subject area or institution;
- leading on curriculum design at module and programme level to ensure it is contemporary, inclusive, engaging and academically challenging;
- actively engaging students in curriculum design and sharing evidence of “what works”;
- making an impactful, high-quality contribution to debates about education policy, methods and practices through internal and external publications, subject societies and conference activity;
- developing an external profile evidenced through engaging in external quality assurance activities related to teaching, e.g. external examining and engaging with/supporting education in other institutions;
- playing an important and sustained role in the recruitment and admission of students;
- co-supervising doctoral students to completion;
- leading the development of teaching, learning and assessment policies and strategies;

- acting as an education mentor to colleagues in the School/Department/College or more widely;
- leading the development of new and appropriate approaches to learning and teaching. This may be underpinned by research and evaluation of teaching methods and systems
- leading sustained high value impact in knowledge transfer and enterprise (including business engagement, public engagement) that enhances the student experience and/or or employability, and is of manifest benefit to learning and teaching in the College and the University;
- undertaking own teaching, which will include teaching and examining courses at a range of levels, planning and reviewing own teaching approaches, developing programme proposals, supervision, marking and examining. You will ensure that your teaching practice is informed by discipline based research, through participating in the research culture of the School.

Research

To pursue sustained research activity through original research and scholarship, including other research-related contributions through conference papers and presentations and/or consultancy projects and advice, including (as appropriate):

- contributing to the management of research activities and/or supervising other research staff;
- leading successful funding bids;
- consistently publishing internationally excellent research, with some research regarded as world leading, that results in a sustained, highly respected reputation of international quality;
- supervising and examining PhD students, both within the institution and externally;
- providing expert advice internally and externally;
- peer reviewing articles for peer reviewed academic journals and grant applications by research councils and/or other major funding bodies;
- leading sustained impact activity including public engagement and makes a significant contribution to policy development at a national and international level;
- supervising and examine PhD students, both within the institution and externally;
- as appropriate, managing research activities and/or supervising other research staff;
- developing novel methodologies and techniques appropriate to the type of research being pursued.

Management/administration

Lead activities in the Department/ School and represent the School on College/ University committees or working groups. Where appropriate to the discipline, this is likely to include some, but not all of the responsibilities listed below:

- making an important contribution to the development and running of the Department or School, for example, leading activity on research and/or teaching assessment;
- leading a successful international engagement at School or College level;
- developing and managing staff and resources in support of major research and/or teaching activities;
- making important contributions to the development of the Department's research and/or learning and teaching strategy;
- contributing significantly to the development and delivery of knowledge transfer, enterprise, business engagement and public engagement activities with sustained high value impact of manifest benefit to the College and the University;
- promoting a culture (including policies and procedures) that embeds equality and values diversity and inclusion;
- leading, serving on and assisting the work of committees and task and finish groups beyond School/ Research Institute, e.g., Senate, Council, University Education or Research Committee etc.;

- leading external committees, e.g., those associated with public/professional bodies or delivery of activities for an external body at an appropriate level, e.g., chairing sub committees associated with large elements of work;
- leading/project managing a team to devise and implement a new and/or revised process (e.g. a new research initiative, or a recruitment drive);
- making a sustained contribution to widening participation, schools outreach and/or public understanding of the discipline;
- contributing to administrative activities within the University (e.g. appeals panels, working groups);
- Other relevant criteria from our [equality and diversity duties document](#).

Citizenship

- identifying wellbeing issues within the School/College/University and developing appropriate solutions to address these;
- taking collective ownership of challenges faced by the School or College and working with colleagues to develop solutions;
- mentoring and coaching of colleagues, particularly those in the early stages of their career.

Person Specification

- A first degree - We encourage applications from candidates with diverse educational backgrounds;
- A doctoral qualification in Engineering (or an allied subject) relevant to digital manufacturing;
- Industrial experience, either through working in or with industry would be desirable;
- Demonstrated excellence in at least Research, with competence in Learning and Teaching and Management and Administration.

Research requirements

An excellent national reputation and a developing international profile through significant original research work and a clear record of impact in the field of engineering of artificial intelligence for manufacturing and robotics, or a closely related area of digital manufacturing. Evidence of success under the following headings, as appropriate to the discipline:

- High level peer esteem as evidenced by
 - Excellent reputation in the UK and often internationally, reflected in sustained high-quality output, level of innovation, impact on subject and recognition;
 - An excellent and sustained record of peer reviewed research publications related to the field of digital manufacturing;
- Significant prior research experience in areas related to digital manufacturing and robotics;
- Substantial and sustained research income generation in the relevant areas, e.g., through research grants, contracts, research consultancy or other external funding;
- Successful and sustained supervision of doctoral students to completion;
- Prior research experience in one or more of the following areas: science and technology studies, qualitative and/or quantitative social research data collection, science communication/engagement, or responsible research and innovation;
- Sustained high value impact knowledge transfer and enterprise that is of manifest benefit to the College and University.

Learning and teaching requirements

An excellent teaching profile and performance in terms of both impact and quality. The teaching quality demonstrated to be informed by an appropriate level of scholarship. Evidence of success under the following headings:

- High national reputation for the development of teaching and learning excellence within the discipline with an emphasis on manufacturing;
- Successful and sustained use of a range of appropriate teaching methods, and assessment strategies that promote high-quality learning, including learning that is flexible, distinctive, and current and stimulates learners' natural curiosity;
- Significant and sustained contribution to one or more of the following: strategic development of new programmes; approaches to learning; the development of learning resources;
- High quality and sustained contributions to fostering excellence in teaching activities more widely, i.e., in the Department/School or College and/or externally;
- Track record of substantial and sustained high value impact on the enhancement of the student experience, and/or employability;
- Mentoring and expert advice which develops the skills of colleagues in teaching and in fostering learning.

Management and administration-related requirements

Demonstrated significant achievement in management and administration-related activities, which may include leadership of activities/initiatives. Evidence of success under the following headings

- Successful and sustained performance in significant administrative/managerial role (s) (e.g. exams officer);
- Significant and sustained high-quality innovative contributions to the management/administration of the Department/School/College or University;
- Successful and sustained contribution to the corporate life of the School/College/University, displaying willingness to contribute actively to committees, collaborative teaching and administrative tasks;
- Actively promotes equality and diversity to internal and external stakeholders;
- Able to use data to identify equality and diversity issues;
- Other relevant criteria from our [equality and diversity knowledge, skills and experience document](#).

The above information will form the Further Particulars for the role. The following should all have been addressed under the various sections.

- Who, and in what ways the post-holder is required to communicate with others
- The type of problems the post-holder will face, and the ways they will deal with these
- The ways in which the employee will be expected to organise themselves and others.
- The responsibilities the post-holder will possess.

It is likely that these will be reflected in the above sections. If any of these 4 areas are not reflected fully above and you feel that this would not be appropriate for them to appear in the Further Particulars for the role, please detail them here.