

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF ENGINEERING
DEPARTMENT OF MECHANICAL, AERO & CIVIL ENGINEERING
LECTURER / SENIOR LECTURER
VACANCY REF: SAE-022055

Salary: Grade 7/8 £ 44,414-£ 66,890 per annum, depending on relevant experience

Hours: Full Time

Duration: Permanent

Location: Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:

Manager: Professor Andrey Jivkov, Head of Department, Solids and Structures, School Of Engineering

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Background

Tackling climate change and adapting to its impacts are key global challenges. Whilst countries across the world are increasingly signing up to 'net zero' targets for 2050, it is action in the next 15 years that will set the path to avoid dangerous climate change and enable an equitable transition of economies, whilst building sufficient resilience into both physical and social infrastructure. The UK is seen as a leading player globally and has targets enshrined in law. UK regions are setting ambitious climate targets and plans, informed by researchers in our School of Engineering, and the University itself has set a target of cutting CO₂ to zero by 2038 as a priority in its research, teaching and operations, with a major "Sustainable Futures" platform launched in 2021. The net zero framing is increasingly a central part of all research funder priorities and underpins the strategic planning of many organisations and government bodies, yet with emissions on track currently to exceed what is needed to avoid the 1.5C temperature rise, adapting infrastructure to the increasing impacts of climate change must also form an integral part of any energy system transformation.

Ground Engineering for Sustainable Future

Achieving rapid transformations of energy systems and civil infrastructure involves significant research, industrial and societal investments. Our Engineering impact cases in REF 2021 were dominated by sustainability and decarbonisation, and informing a resilient energy transition across governments, business, NGOs and citizens is central to our School's research and impact strategy. We are well placed to support the ambitions of the Sustainable Futures platform which will help us to demonstrate, amplify and grow our world leading, interdisciplinary research and impact in this area.

An area of increasing importance for building a sustainable future is at the interface between infrastructure and natural environment. The School has a strong group in geo-environmental engineering and now seeks to appoint Lecturers and Senior Lecturers to develop capacity in ground engineering that will contribute significantly to achieving our ambitions. We expect world leading research and clear pathways to impact as well as substantial contribution to syllabus development at undergraduate and postgraduate level to train students who require new skills to deliver this grand societal transition globally. We expect successful candidates to bring understanding of relevant technical, economic and social aspects of their research. We are interested to hear from early and mid-career academics with interests in any of the following areas:

- **Computational geotechnical engineering**
- **Sensor technologies, digital twins, and AI in geotechnical projects**
- **Interactions of ground/underground structures with soil/rock**
- **Environmental protection by land decontamination and landfill design**
- **Hazard control of ground and underground structures for safe infrastructure**
- **Harvesting geothermal energy by ground source heat pumps**
- **Application of natural materials in green construction**

Successful candidates will be considered across broad areas of expertise in Civil and/or Environmental Engineering.

The University of Manchester

The University of Manchester (www.manchester.ac.uk) enjoys a global reputation for its research and its innovative approach to learning, with a £1 billion investment in facilities, staff and new engineering buildings that fully opened in 2022. This builds on our tradition of success that stretches back 200 years. The birth of the modern computer, the splitting of the atom, the founding principles of modern economics, the discovery of graphene, and the birthplace of chemical engineering – these and many more world changing innovations have their roots at our University. We are at the forefront of the search for solutions to some of the world's most pressing challenges, with strong collaborative links with industry and public services. These are exemplified through the University of Manchester Research Beacons including Energy and Advanced Materials and research platforms Sustainable Futures and Digital Futures.

The University actively fosters a culture of inclusion and diversity and seeks to achieve true equality of opportunity for all members of its community. The Faculty welcomes applications

from all sections of the community and are committed to having a representative workforce. Across the Schools we hold Bronze and Silver Athena SWAN Awards, which recognise our commitment to equality, diversity and inclusion and particularly the advancement of women's careers in STEM.

The University also holds a Bronze Race Charter Mark recognising our commitment to improving the representation, progression and success of minority ethnic staff and students within higher education. In addition, we are a Disability Confident Employer, guaranteeing an interview for any disabled applicant who meets the minimum requirements for a job.

The School of Engineering

Formed in 2019 the School of Engineering brings together academics and researchers from the Departments of Electrical and Electronic Engineering, Solids and Structures, Fluids and Environment, Engineering for Sustainability, Computer Science, Chemical Engineering, and Engineering Project Managements, to undertake leading Science-based engineering with Societal Impact. Through collaboration with the School of Natural Sciences, we support engineers and scientists who are technically strong, analytically innovative and creative. Key thematic priorities include Net Zero & Environmental Sustainability, Robotics, Autonomous Systems & AI, Digital Engineering, Advanced Manufacturing, Engineering for Health and Engineering Materials.

The School leads or has strong relationships with research centres and Institutes including the Dalton Nuclear Institute, Tyndall Centre for Climate Change Research, Rolls Royce UTC, National Grid Power Systems Research Centre, Thomas Ashton Institute, Manchester Environment Institute, Photon Science Institute and Sustainable Consumption Institute, Global Development Institute and the Modelling & Simulation Centre. Over the last year most of our engineering activities have relocated to new engineering buildings located on our main Campus. Unrivalled in scale in the UK, this investment in infrastructure combines Manchester's heritage as the birthplace of the industrial revolution with new purpose-built facilities that will deliver a step-change in our approach to solving some of the world's most pressing issues.

Key Responsibilities, Accountabilities or Duties:

Overall purpose of role

The role holder will develop research and teaching in research areas relating either to adapting ground infrastructure to increasing climate impacts and/or to developing solutions for ground engineering with low/zero environmental impact. This will entail collaboration with colleagues within the School and across the wider University, as well as more widely with industrial and international collaborators and stakeholders, to build cutting edge disciplinary or interdisciplinary research activity. The appointee will lead on the delivery and development of teaching on fundamental topics in geotechnics and surveying for either disciplinary or interdisciplinary programmes in the School with opportunities to also contribute to cross-University programmes.

Main responsibilities (Lecturer)

- Securing funding from research councils and other relevant sources such as industry and non-government bodies to support research activity and researchers.
- Development and delivery of internationally excellent research in the broad area of ground engineering for resilient infrastructure and cleaner environment.
- Supervision of postgraduate research students and researchers
- Publication of research in leading journals and presentation at international conferences and in other fora relevant to stakeholders and end-users of the research.
- Undertaking teaching duties (including but not limited to assessment, academic advising and project supervision) within the University on undergraduate and postgraduate courses. This may include topics core to the discipline or aligned with research activity or with wider inter-disciplinary scope.
- Contribution to relevant service duties, commensurate with the level of appointment, to support efficient operation of the organisation.
- Engagement with relevant committees within the School and the University.
- Embedding social responsibility and environmental sustainability within teaching and research practice.

Main responsibilities (Senior Lecturer)

- Leading the development of large funding grants from research councils and other relevant sources such as industry and non-government bodies to grow significant research activity and develop a team of researchers.
- Development and delivery of internationally excellent research in the broad area of ground engineering for resilient infrastructure and cleaner environment.
- Supervision of postgraduate research students and researchers
- Publication of research in world leading journals and presentation at international conferences and in other fora relevant to stakeholders and end-users of the research.
- Leading the development of innovative curriculum contributions within teaching and learning, both within and outside of the research of area of the applicant.
- Undertaking a full range of teaching duties within the University on undergraduate and postgraduate courses, some which may be outside their immediate research area.
- Contribution to relevant service duties, commensurate with the level of appointment, to support efficient operation of the organisation.

- Engagement with relevant committees within the School and the University.
- Embedding social responsibility and environmental sustainability within teaching and research practice.

PERSON SPECIFICATION (UNDERLINED REFER TO SENIOR LECTURER ONLY)

Essential Knowledge, skills and experience

- Educated to PhD level in Civil and/or Environmental Engineering.
- Strong and developing track record in internationally leading journal publications and other recognised forms of research output.
- Capability for, or evidence of developing and leading significant research bids and teams, establishing links with industry and other academic researchers, generating funding streams from research councils, European Commission and industry.
- Ability to or track record in developing and evidencing impact of research activities.
- Good communication skills and an ability to foster interdisciplinary collaboration.
- Good management and teamwork skills.
- Ability to lecture to large classes and supervise group and individual projects at Masters and undergraduate level.
- Established record of innovation in teaching and learning.
- Membership, or intention to become a Member, of an appropriate Professional Institution (e.g. ICE, BGA).
- Commitment to taking responsibility for the health and safety of others, including the development and implementation of risk assessments.
- Commitment to contributing improvements to advance our inclusive, equal and fair working environment.
- Understanding of what it means to conduct academic activities in a low-carbon manner.