UNIVERSITY OF BIRMINGHAM | HUMAN RESOURCES

Job Description

Position Name	**Assistant Professor in Geotechnical Engineering**
College/Budget Centre	EPS/Engineering/Civil Engineering
Position Number (if Known)	106579
Proposed Grade	**Grade 8**

Background

This is an exciting time to join the University of Birmingham and advance your academic career. Following the creation of the School of Engineering in 2016, which brought together Civil Engineering, Mechanical Engineering, and Electronic, Electrical and Systems Engineering, we are now entering the next phase of our development.

The School has invested significantly in both people and infrastructure, including our new £65m signature engineering building, the world-leading £26m National Buried Infrastructure Facility, and the £28m UK Rail Research and Innovation Network (UKRRIN). These facilities have strengthened our research capabilities and reinforced Birmingham's position as a leading institution for engineering research and education.

Our strong culture of collaboration with industry ensures that pioneering research is translated rapidly into practice. This strength was recognised in the 2021 Research Excellence Framework (REF), where Engineering at Birmingham was ranked among the top ten institutions in the UK.

In line with these developments, we seek to appoint a highly research-active academic to join the Department of Civil Engineering. The Department of Civil Engineering undertakes research across geotechnical engineering; structures and fluids; resilient systems and climate action; and railway engineering, while working closely with other research groups across the School and the wider University.

For this recruitment we are particularly interested in candidates who demonstrate ambition, innovation and leadership, and who undertake research and teaching in geotechnical engineering with an emphasis on digital technologies, computational modelling, smart systems and artificial intelligence. This could cover but is not limited to, research ranging in:

- Computational geotechnics, including AI-supported modelling, data-driven soil–structure interaction, and the integration of field and laboratory data for geo-infrastructure design.
- Digital twins, automation and robotics in ground engineering, including AI-driven asset management, predictive maintenance, autonomous inspection, computer vision and sensing technologies.

The successful candidate will be expected to create and disseminate knowledge through initiating and conducting original research, through publication and through developing and delivering undergraduate, postgraduate and CPD programmes, as appropriate to the disciplinary area. In addition, the successful candidate will contribute to the Department and School through leadership, management and enterprise activities, as appropriate.

The successful candidate will hold a PhD (or equivalent qualification) in civil engineering, geotechnical engineering or a closely related discipline. Industrial experience, either through

working in or with industry would also be desirable. They will be expected to engage actively with external partners in academia, government and industry in the UK and internationally.

The School of Engineering is dedicated to upholding the principles of Equality, Diversity, and Inclusion (EDI) in all its endeavours, and we strongly encourage applications from individuals belonging to underrepresented groups.

Summary of Role

Assistant Professor

Contribute to research, teaching, and administration across the Department and School.

The role will involve initiating, conducting and disseminating original research. Research outputs will demonstrate measurable outcomes and contribute to the development of a growing national reputation and, over time, an emerging international reputation.

Teaching responsibilities will include a substantial contribution to:
(a) the management, development (including programme and module review), and delivery of teaching and assessment; and
(b) enhancing the student experience and student employability.

The role will also involve supporting and advising colleagues and students, including:
(a) providing expert academic advice to staff and students;
(b) supervising and examining PhD students; and
(c) contributing to the development of effective learning and teaching practices.

Management and administrative responsibilities will include contributions at Department and School level, and participation in relevant leadership or working groups within the University. This may include contributing to knowledge transfer, enterprise, business engagement, public engagement, widening participation, and schools' outreach activities within the Department, School, or wider University.

Main Duties / Responsibilities

Assistant Professor

Research

To plan and carry out research, using appropriate methodology and techniques. This may include, where appropriate to the discipline:

- Pursue personal research including developing research ideas and winning support, including financial support.
- Plan, publish and/or execute high quality research
- Project manage research activities, and/or supervise other research staff
- Present findings in high quality publications and conference proceedings
- Develop novel methodologies and techniques appropriate to the type of research being pursued
- Supervise and examine PhD students, both within the institution and externally
- Provide expert advice to staff and students within the discipline
- Apply knowledge in a way which develops new intellectual understanding
- Develop and make substantial contributions to knowledge transfer, and enterprise (including business engagement, public engagement) and similar activity that is of manifest benefit to the College and the University.

Learning and Teaching

To use a variety of methods in teaching and advising individuals and groups of undergraduates, postgraduates, or CPD students. Where appropriate to the discipline this may include:

- Teach and examine courses at a range of levels
- Plan and review own teaching approaches and act as a mentor to encourage others to do the same
- Develop programme proposals and make substantial contributions to the design of teaching programmes more widely in the Department or School, as appropriate
- Where appropriate, undertake and develop the full range of responsibilities in relation to supervision, marking and examining (including summative assessment, assessed work, contributing to the final award – as a mark or as credit – such as unseen examinations, essays, dissertations, or presentations.
- Use appropriate approaches to learning and teaching in their field
- Disseminate appropriate practices through suitable media
- Develop and advise others on learning and teaching tasks and methods
- Develop and make substantial contributions to knowledge transfer, enterprise, business engagement, public engagement activities or similar on own specialism that enhances the student experience or employability and is of manifest benefit to the College and University
- Devise and supervise projects, student dissertations and practical work

Management/Administration

To contribute to Departmental/School administration or have a high level of responsibility for others. This may include:

- Contribute to the administration/management of research and/or teaching across the Department/School
- Lead and manage a team to devise and implement a new and/or revised process (e.g., new programme or a recruitment drive)
- Advise on personal development of colleagues and students
- Make a major contribution to some administrative activities within the University (e.g., appeals panels, working groups)
- Manage enterprise, business development, and public engagement activities of manifest benefit to the College and University
- Develop and make substantial contributions to knowledge transfer, enterprise, business engagement, public engagement, widening participation, schools' outreach.

Citizenship

Contributing to an inclusive working environment:

- demonstrating a willingness to be involved in a variety of activities supporting University life (e.g., participation in graduation, Departmental/School committees);
- demonstrating support for colleagues, such as sharing resources, providing advice;
- willingness to volunteer for one-off duties (such as supporting School, Institute, and Departmental projects);
- positively engaging in School strategic initiatives;
- proactive support and involvement in activities specifically contributing to a positive and inclusive community spirit across the School/College/University.

Person Specification

Assistant Professor

- a first degree in Civil Engineering, or a closely allied subject.
- a relevant doctoral qualification
- industrial experience, either through working in or with industry would be desirable
- having CEng status or working towards/willingness to work towards CEng status.

Assistant Professor

Research

- Experience and achievement reflected in a growing reputation in your research area.
- Extensive experience and demonstrated success in planning, undertaking and project managing research to deliver high quality results.
- Extensive experience of applying and/or developing and devising successful models, techniques, and methods.
- Experience and achievement in knowledge transfer, enterprise, and similar activity.
- Prior research experience and peer reviewed journal publications in one or more of the following: geotechnical engineering, and/or Data Science and AI in geotechnical engineering.
- A demonstratable track record in working within multi-disciplinary research teams and contributions to team-based grant pursuit is also desirable.
- Demonstratable experience of developing/maintaining a national/international profile through platforms/methods such as social media.

Teaching

- Ability to design, deliver, assess, and revise teaching programmes at university level, to undergraduate or postgraduate cohorts, with emphasis in one or more of the following areas: building information modelling (BIM) in ground engineering, computational geotechnics, intelligent infrastructure systems, civil engineering design including their context in terms of sustainability, and resilience; as well as digital engineering skills and AI methods for engineering students.
- Demonstrated success in developing appropriate approaches to learning and teaching, creating an inclusive and supportive teaching and learning environment for students of all backgrounds.
- Experience and success in knowledge transfer, enterprise and similar activity that enhances the student experience or employability.

Management Administration

- Ability and willingness to contribute to School/Departmental management processes
- Ability to assess and organise resources effectively
- Understanding of and ability to contribute to broader management/administration processes