Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Assistant Professor in Environmental Engineering

www.tcd.ie/E3

Balanced Solutions for a Better World
The E3 Vision

Trinity College Dublin is embarking on an ambitious project to expand education and research activities across three of its Schools: Computer Science & Statistics, Engineering, and Natural Sciences. Recognising the importance for humanity of addressing the challenge of sustainable technological development, the expansion of the three Schools is being executed as a single strategic activity - the E3 initiative.

The E3 initiative is premised on the realisation that:

- human inquisitiveness is unquenchable and the need and desire for advanced technologies is a positive characteristic of the human spirit; and
- the natural capital of the planet is finite and should be used to provide flows of goods and services sustainably and equitably.

With the E3 initiative, Trinity promotes the vision of a society where the interdependence between technological innovation and our natural capital is advanced by world-leading research, education and entrepreneurship.

The E3 initiative will position Ireland at the forefront of research in Science, Technology, Engineering, and Mathematics (the STEM disciplines), that are crucial for future economic competitiveness. It will educate engineers and scientists for employment in existing and new technology sectors, equip them with the skills and attributes to lead in the creation of new businesses, and place Ireland in a leadership role globally for the quality of graduates in the STEM disciplines.
Inherently curious and creative, humanity will always seek to both understand the world around us and to create tools, systems and processes that enhance our quality of life. As our understanding of our world grows, we now know better the effects, both positive and negative, that our way of living has on the world around us. These effects lead to challenges that are inherently global, multidisciplinary and complex in nature. The E3 initiative will be among the first internationally to integrate engineering, technology and scientific expertise at scale in addressing some of the biggest challenges facing Ireland and the world – challenges such as climate change, renewable energy, personalised data, water, connectivity, and sustainable manufacturing, among many others.

The span of E3 research has been defined using six Research Themes:

- **Environment** E3 will undertake research for discovery, sustainable use, restoration, renewal and investment in our natural capital for the benefit of society, the economy and biodiversity.
- **Resources** A pro-active interdisciplinary approach to harnessing, distributing and developing new resources offers a way towards greater sustainability ensuring the future liveability of our planet.
- **Production** E3 will address the challenge of resource efficiency, nature inspired data-driven production solutions, networked production and the creation of new value models based on data and service.
- **Data** The ability to discover knowledge and to realise intelligent decision-making systems from underlying data resources is crucial to support sustainability and the health of life on the planet.
- **Well-being** Emerging biomedical technologies have the potential to make a transformative impact on our quality of life, E3 will assist to change the dynamics of healthcare and enhance the well-being of future generations.
- **Cities** An interdisciplinary approach is needed to address enduring and emerging urban societal challenges, stimulate sustainable urban transitions, build the dynamics of urban resilience and enhance the liveability of all cities globally.
E3 Education

The role of specialists in understanding and shaping developments in these areas will continue to be as important, or more important, than it has been to date. Increasingly, however, humanity will require specialists who can contextualise their knowledge in broader circles and who can efficiently and effectively work with experts from other disciplines. The E3 Schools will develop their educational provision in such a way that their graduates will have a strong understanding of these global challenges, as well as the disciplinary skills to address them.

New undergraduate and postgraduate courses will be created in the areas of the six E3 Research Themes listed above. This will be achieved by enabling all students in the E3 Schools, including all its constituent Disciplines, to have an experience of learning and working in a multidisciplinary environment, being educated by world leading experts in areas of their specialisation and benefiting from best-in-class pedagogy. The resulting graduates will be flexible, adaptable and creative individuals who bring deep disciplinary knowledge and problem-solving expertise to any problem with which they are presented.

They will be highly sought after by indigenous and multinational companies in Ireland and will be equipped and ready to work in an international context if that is their chosen route. During their studies, E3 students will have opportunities to follow their passions, both inside and outside their chosen disciplines, supported by a flexible and responsible academic support system that allows the abilities of each student to flourish.

The educational environment in Trinity College Dublin, plus the specific learning opportunities offered by the E3 initiative will create graduates that:

- have strong technical competence in their chosen discipline;
- will be comfortable and experienced working in teams, including with specialists from other disciplines;
- will be comfortable working on poorly-defined and multidisciplinary challenges;
- will be able to make informed and ethical decisions that balance technical, social and environmental considerations;
- will be skilled communicators across a range of platforms and to varying audiences;
- will have an ability to think at multiple levels of detail and abstraction;
- will be comfortable in both practical and theoretical contexts; and
- will be able to confront the limitations of their own knowledge and to address these limitations through collaboration and life-long learning.
Ireland’s population of school-leavers will increase every year to 2028, a rate greater than almost any other country in the developed world. The growing attractiveness of environmental, engineering and technology careers to Irish young people is an amazing success story and Trinity is planning the construction of a new building—the E3 Foundry—to house the first phase of the initiative.
Post Specification

Post Title: Assistant Professor in Environmental Engineering

Post Status: Tenure Track

School: Discipline of Civil, Structural and Environmental Engineering, School of Engineering, Faculty of Engineering, Mathematics and Science

Location: Aras An Phiarsaigh, Trinity College Dublin, the University of Dublin, College Green, Dublin 2, Ireland

Reports To: Head of School

Salary: Appointment is expected to be made on the Assistant Professor (Lecturer) scale (€33,875 - €48,091) at a point as per Irish government pay policy

Closing Date: 12 Noon (GMT), Friday 10th August 2018

This position is tenable from 1st October 2018.

The successful candidate will be expected to take up the post by 1st October 2018 or as soon as possible thereafter.

Please note that Garda (Police) vetting will be sought in respect of the successful candidate for the post.
Post Summary

The School of Engineering seeks to make the appointment of an Assistant Professor in Environmental Engineering/Hydrogeology to complement the existing staff in the Discipline of Civil, Structural and Environmental Engineering.

The focus area for this appointment is in the area of environmental engineering. Applicants should have a strong research background in aspects of catchment hydrology/hydrogeology, vadose zone hydrology, contaminant transport and attenuation, ecohydrology, water resources, etc.

The candidates' specialism should be complementary to existing strengths of academic staff in the School and Discipline. Particularly of interest is how their research background complements the Environmental Engineering research group's existing strengths in areas such as diffuse pollution hydrogeology, contaminant hydrology, ecohydrology, water and sanitation in developing countries and numerical modelling. The research activities of the Environmental Engineering group are inherently multi-disciplinary in nature, often involving large collaborative projects. The new position in Environmental Engineering will complement this research which sits centrally within Trinity’s E3 strategic initiative and the College research themes of Smart and Sustainable Planet and International Development.

The successful candidate will contribute to the delivery of undergraduate and postgraduate courses within the Discipline of Civil, Structural and Environmental Engineering, including (but not limited to) the teaching of hydrology, hydrogeology and other aspects of catchment science. They will have the opportunity to design and deliver their own module in an area of their specialism at MSc/MAI level that complements existing teaching programmes in Environmental Engineering.
Standard Duties and Responsibilities of the Post

The successful candidate will:

- teach in the area of civil and environmental engineering at undergraduate and postgraduate levels;

- develop learning environments that are consistent with modern teaching and learning practices and that are flexible, student-centred and accessible, utilising appropriate technology;

- build an active individual and collaborative international research record, including PhD supervision, publication and the generation of external research income;

- participate with colleagues in developing and maintaining links and partnerships with industry and the wider community both nationally and internationally;

- undertake appropriate administrative/managerial activities and tasks that support the Discipline of Civil, Structural and Environmental Engineering and the School of Engineering as well as the wider Trinity community.
Person Specification

Qualifications

- An undergraduate degree in Civil/Environmental or a related discipline [Essential]
- A PhD in Civil/Environmental Engineering or a related discipline [Essential]

Knowledge and Experience

The candidate will have:

- An excellent record of research in the field of Environmental Engineering or a related discipline, an ability to attract funding as a Principal Investigator (PI) and be productive in research output [Essential];
- The ability to work collaboratively with colleagues in the School of Engineering and other schools in the University [Essential];
- A track record of publishing high quality refereed articles in hydrogeological journals and/or conference proceedings, or related subject areas [Desirable];
- Evidence of interaction with industry, the engineering profession or government [Desirable];
- The potential for attracting research funding from European and Irish research agencies [Essential];
- Experience participating in multi-partner and international projects [Desirable].

Preference will be given to candidates whose research interests and expertise are complementary to that of the Discipline’s current PIs working in the field of environmental engineering including contaminant hydrology, catchment science / modeling and ecohydrology.
Teaching
The successful candidate will be expected to:

- teach on the undergraduate Engineering programmes, contributing to the Civil, Structural and Environmental Engineering degrees of the Engineering course. This will include (but is not limited to) the teaching of environmental engineering, hydrology and hydrogeology. In addition, the candidate will be expected to teach on the Masters in Engineering (M.A.I.) / MSc Environmental Engineering programme. Therefore preference will be given to candidates demonstrating evidence of teaching of Environmental Engineering at an undergraduate and/or postgraduate level. Examples include co-supervision, teaching assistantship, laboratory demonstration or instructor roles [Essential];
- have experience in the administration of courses related to Electronic and Electrical Engineering. This includes experience in the development and delivery of undergraduate and postgraduate laboratory-based classes in this field [Desirable].

Furthermore, the candidate will be expected to supervise MSc and/or PhD students, therefore experience in supervision of MSc and/or PhD students is desirable.

Experience in Engagement with Discipline/Society
The successful candidate will be expected to demonstrate significant engagement with the Discipline/society and show strong contribution on outreach activities that may include any or all of the following [Desirable]:

- invited appearances before academic, industrial or public audiences;
- contributions to organisation of workshops, seminars, conferences or other collaborative intellectual activity;
- participation in industrial standards bodies;
- service to the development of the industry including a possible patent portfolio;
- some service to the intellectual infrastructure of the discipline or field of study (e.g. academic web site development, peer review of scholarly materials);
- contribution to academic and professional bodies;
- contribution to national and international bodies;
- pro bono consultancies resulting in publication;
- professional advice to government and public organisations;
- societal engagement relevant to the University’s mission statement.
The Discipline of Civil, Structural and Environmental Engineering is one of three disciplines in the School of Engineering at Trinity College Dublin. The overarching goal of the Discipline is to deliver the highest standards in the education of civil and environmental engineers and in the generation of high-impact research. The Discipline of Civil, Structural and Environmental Engineering contributes to teaching and research across the Engineering School including Mechanical, Electronic and Computer Engineering. There is an undergraduate complement of the order of 200 Engineering students in each year. The Discipline is particularly active in research, with over 50 postgraduate research students and with substantial funding being generated from research contracts. In addition, it hosts MSc programmes in transportational engineering, structural engineering, sustainable energy and environmental engineering and several diploma courses delivering continuous professional development opportunities. The Discipline has strong links with state agencies including the Environmental Protection Agency, the Office of Public Works, Geological Survey Ireland, Teagasc, etc. It is also a major participant in the iCRAG SFI research centre and has extensive collaborations with industry and universities worldwide. It has successful research groups in Environmental, Structural, Transportation, Geotechnical and Sustainable Energy Engineering.
The School of Engineering

The School of Engineering at Trinity was founded in 1841 and is one of the oldest Engineering Schools in the world. The School consists of three Departments: Civil, Structural and Environmental Engineering; Electronic and Electrical Engineering; and Mechanical and Manufacturing Engineering. It runs accredited five-year undergraduate programmes leading to masters’ degrees in engineering, together with taught postgraduate degree and diploma courses. All the departments offer doctoral research programmes.

At present, there are approximately 60 academic staff, 55 research fellows, 20 adjunct academic staff, 40 technical/support staff, 170 research students, 70 taught masters’ students, 140 diploma students and 900 undergraduates in the School spread over nine different sites on and off campus. Of a total annual School budget of around €20M, research income accounts for just over €8M. The School is the most successful Engineering School in Ireland, as recognised by its QS ranking in the world’s top 100 of Engineering and Technology Faculties.

The School of Engineering accommodates a wide range of research interests, with much of the activity spanning its three departments. The research conducted within the School is diverse and includes mathematical modelling and experimental measurement-based work. Much of the work is collaborative with other Schools in College and with national and international partners. Several research groups are recognised as international leaders in their fields; these groups are active in areas such as bioengineering; digital media; energy, transport, the environment; and telecommunications. There are currently three research centres located within the School, the Trinity Centre for BioEngineering (TCBE), the Centre for Transport Research and Innovation (TRIP) and TrinityHaus. A number of PIs are Investigators in the SFI centre AMBER, CONNECT, iCRAG.

External funding for research is obtained from a wide range of sources, including the EU framework programmes, Science Foundation Ireland, HEA, Health Research Board, Enterprise Ireland, Irish Research Council and the Environmental Protection Agency. Collectively, staff have published over 1,000 academic research papers over the last five years, shared between international, peer-reviewed journals and conference proceedings. A number of academic staff act as editors or on the editorial boards of international, peer-reviewed journals and several contribute to the organisation of international conferences or to the assessment of research in other academic institutions and of research grant applications.

Useful Websites

School of Engineering  https://www.tcd.ie/Engineering/

Discipline of Electronic and Electrical Engineering  https://www.tcd.ie/eleceng/

Trinity College Dublin  http://www.tcd.ie

Human Resources  http://www.tcd.ie/hr
Trinity College Dublin, the University of Dublin

Trinity is Ireland’s premier university, with a proud tradition of excellence stretching back to its foundation in 1592. The oldest university in Ireland, and one of the oldest in Europe, today Trinity sits at the intersection of the past and the future, and is ideally positioned as a major university in the European Union. Our 47-acre campus is located in the heart of Dublin city centre and is home to historic buildings dating from the University’s establishment, as well as some of the most cutting-edge teaching and research facilities in Ireland. Students at Trinity benefit from a unique educational experience across a range of disciplines in our three faculties – Arts, Humanities, and Social Sciences; Engineering, Mathematics and Science; and Health Sciences. The pursuit of excellence through research and scholarship is at the heart of a Trinity education, and our researchers have an outstanding publication record and strong record of grant success.

Trinity has developed 18 broad-based multidisciplinary research themes that cut across disciplines and facilitate world-leading research and collaboration within the University and with colleagues around the world. These internationally recognised themes include such diverse areas as Cancer, Immunology, Telecoms, Identities in Transformation, Nanoscience, Neuroscience, and Making Ireland. Researchers from across the University work together in innovative ways to develop new and exciting approaches to their research and explore the frontiers of knowledge in the 21st century. In creating these dedicated research themes, Trinity’s researchers are able to become a more powerful force on the global stage, successfully competing for large-scale grants and attracting top students and faculty to the University.

Trinity is home to Ireland’s first purpose-built Nanoscience research institute, CRANN, which opened in January 2008. This state-of-the-art facility houses 150 scientists, technicians, and graduate students in specialised laboratories, fostering creative innovations that have seen Trinity’s researchers make significant breakthroughs.
The Trinity Long Room Hub for Arts and Humanities Research Institute is the University’s flagship institute for research in the Arts and Humanities, providing a world-class environment for cross-disciplinary collaborative projects. The Long Room Hub provides a central location through which the University’s internationally respected Arts and Humanities research can become more visible, demonstrating its relevance for contemporary and future societies. Researchers from across the University regularly participate in debates on topical issues facing the world today. As well as operating an International Visiting Research Fellowship programme, the Long Room Hub also hosts major EU-funded Digital Humanities projects.

One of the most instantly recognised parts of Trinity’s campus is the famous Old Library, home to the historic Book of Kells as well as other internationally significant holdings in manuscripts, maps, and early printed material. Trinity’s Library is the largest research library in Ireland and is an invaluable resource to Trinity’s students and research community. Built up over the four centuries of the University’s existence, the Library’s collections have benefitted from its status as a Legal Deposit library for the past 200 years, granting Trinity the right to claim a copy of every book published in Ireland and the UK. At present, the Library’s holdings span approximately 4.25 million books, 22,000 printed periodical titles, and access to 60,000 e-journals and 250,000 e-books.

Trinity attracts top students from Ireland and abroad and prides itself on the consistently high standard of student admitted to the University every year. These students are drawn to Trinity for the excellence of our research-led teaching and for the quality and prestige a degree from this University confers. Trinity has also pioneered accessibility to education in Ireland, becoming the first university in the country to reserve 15% of its undergraduate places for students from non-traditional learning groups. Trinity is the top-ranked European university for student entrepreneurship and Europe’s only representative in the world’s top-50 universities for student entrepreneurship.

Our alumni have gone on to shape the history of Ireland and of Western Europe in a wide range of fields. These include such notable figures as Jonathan Swift, Oscar Wilde, William Rowan Hamilton, Edmund Burke, William Stokes, Denis Burkitt, Louise Richardson, Lenny Abrahamson, and Anne Enright. Three of Trinity’s graduates have been awarded Nobel prizes: Ernest Walton for Physics in 1951; Samuel Beckett for Literature in 1968; and William Campbell for Physiology / Medicine in 2015. Trinity also counts the first female President of Ireland among its alumni in Mary Robinson, as well as other notable former Presidents Douglas Hyde and Mary McAleese. At Trinity, we are justifiably proud of our tradition, and we strive to uphold this excellence as we face the demands of the 21st century.
Ranking Facts

Trinity is the top ranked university in Ireland. Using the QS methodology we are ranked 88th in the world and using the Times Higher Education World University Rankings methodology we are 117th in the world.

Overall
- Trinity is Ireland’s No.1 University in the QS World University Ranking, THE World University Ranking and the Academic Ranking of World Universities (Shanghai).
- Trinity is ranked 88th in the World, and 29th in Europe, in the 2017/2018 QS World University Ranking.
- Trinity is ranked in the Top 100 for Graduate Employability in the QS 2017 Rankings.
- Trinity is in the Top 50 most innovative universities in Europe according to Reuters.
- Between 2010 and 2015, Trinity was ranked the top university in Europe for entrepreneurship according to Pitchbook’s independent analysis.

Internationalisation
- Trinity is ranked 52nd in the world in the THE World University Ranking for international outlook.

Research Performance
- Of the 981 institutions included in the THE World University Rankings for 2017, Trinity is in the top 15% internationally for research performance.
- Trinity is ranked in the top 15% internationally by QS for citations.

In the QS World University Rankings
- Trinity featured in the world's elite (Top 200) institutions in 25 of the 28 subjects in which it was evaluated by the QS World University Rankings by Subject in 2015. Of these, Trinity ranked in the top 100 in the world in 14 subjects and in the top 50 in the world in 6 subjects: English Language and Literature; Nursing; Politics and International Studies; History; Biological Sciences; and Modern Languages.
- In three out of the last four years, Trinity has been consistently ranked in the Top 50 worldwide for the following areas: English Language and Literature; Nursing; Modern Languages; and Politics and International Studies.
- In the QS Faculty rankings, Trinity has been consistently ranked in the Top 100 globally for Engineering and Technology and Arts and Humanities over the last four years.
The Selection Process in Trinity

The Selection Committee (Interview Panel) may include members of the Academic and Administrative community together with External Assessors who are expert in the area.

Applications will be acknowledged by email. If you do not receive confirmation of receipt within 1 day of submitting your application online, please contact the named Recruitment Partner immediately and prior to the closing date/time.

Given the degree of co-ordination and planning to have a Selection Committee available on the specified date, Trinity College Dublin regrets that it may not be in a position to offer alternate selection dates. Where applicants are unavailable, reserves may be drawn from a shortlist. Outcomes of interviews are notified in writing to applicants and are issued no later than 5 working days following the selection day.

In some instances, the Selection Committee may avail of telephone or video conferencing. Trinity College Dublin’s selection methods may consist of any or all of the following: Interviews, Presentations, Psychometric Testing, References and Situational Exercises.

It is the policy of the University to conduct pre-employment medical screening/full pre-employment medicals. Information supplied by applicants in their application (Cover Letter, CV, statements etc.) will be used to shortlist for interview.


- Non-EEA applicants should note that the onus is on them to secure a visa to travel to Ireland prior to interview.
- Non-EEA applicants should also be aware that even if successful at interview, an appointment to the post is contingent on the securing of an employment permit.

Equal Opportunities Policy

Trinity is an equal opportunities employer and is committed to employment policies, procedures and practices which do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community. On that basis we encourage and welcome talented people from all backgrounds to join our staff community. Trinity’s Diversity Statement can be viewed in full at [https://www.tcd.ie/diversity-inclusion/diversity-statement](https://www.tcd.ie/diversity-inclusion/diversity-statement).

Pension Entitlements

This is a pensionable position and the provisions of the Public Service Superannuation (Miscellaneous Provisions) Act 2004 will apply in relation to retirement age for pension purposes. Details of the relevant Pension Scheme will be provided to the successful applicant.

Applicants should note that they will be required to complete a Pre-Employment Declaration to confirm whether or not they have previously availed of an Irish Public Service Scheme of incentivised early retirement or enhanced redundancy payment. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Irish Public Service employment.
Applicants formerly employed by the Irish Public Service that may previously have availed of an Irish Public Service Scheme of incentivised early retirement or enhanced redundancy payment should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. Such queries should be directed to an applicant’s former Irish Public Service Employer in the first instance.

**GARDA Clearance**

Garda (Police) vetting will be sought in respect of the successful candidate for the post. PLEASE NOTE: The successful candidate for the post will be required to complete and return a Garda vetting form. This form will be forwarded to An Garda Síochána (Irish Police) for security checks on all Irish addresses at which they have resided. An Garda Síochána will make enquiries with the Police Service of Northern Ireland with respect to addresses in Northern Ireland. If an applicant is not successful in obtaining the post for whatever reason, this information will be destroyed. If an applicant, therefore, is subsequently offered another position, they will be required to supply this information again.

While applicants must complete information in relation to all addresses at which they have resided, the vetting is only done on addresses on the island of Ireland. If an applicant has resided / studied in countries outside of Ireland for a period of 6 months or more, it is mandatory for them to furnish a Police Criminal Records Check/ Police Certificate from those countries stating that they have no convictions recorded against them while residing there. Applicants will need to provide a separate Police Criminal Records Check/ Police Certificate for each country in which they have resided. The Police Criminal Records Check/ Police Certificate must be dated after the date the applicant left the relevant country. Applicants should provide documentation in the English and/or Irish language. Translations must be provided by a registered translation company/institute in the Republic of Ireland; all costs will be borne by the applicant. Only original version documents will be accepted.

It is the responsibility of the applicant to seek security clearances in a timely fashion as they can take some time. **No applicant will be appointed without this information being provided and being in order.**

The following websites may be of assistance in this regard:

- [www.disclosurescotland.co.uk](http://www.disclosurescotland.co.uk)
- [www.psni.police.uk](http://www.psni.police.uk)
  This website provides information on obtaining a national police clearance certificate for Australia
  This website provides information on obtaining police clearance in New Zealand.
- [www.courts.govt.nz](http://www.courts.govt.nz)

For other countries not listed above applicants may find it helpful to contact the relevant embassies who could provide information on seeking Police Clearance. Original Police Clearance documentation should be forwarded to Human Resources where it will be copied and the original returned to the applicant by post. **Any cost incurred in this process will be borne by the Applicant.**
Contact Information

Interested applicants may contact the following persons by e-mail, in the first instance, with informal enquiries:

- Professor Henry Rice, Head of the School of Engineering: hrice@tcd.ie
- Professor Laurence Gill, Hiring Lead: Laurence.Gill@tcd.ie

Application Information

Applications will only be accepted through e-recruitment (https://jobs.tcd.ie)

Applicants must provide the following information in applying for this position:

- cover letter;
- full curriculum vitae to include a list of publications and the names and contact details of 3 referees (email addresses if possible);
- research plan (summarising the candidate’s research accomplishments to date, and the research the candidate plans to conduct in the next five years, along with plans for securing competitive research funding – maximum of 2 pages);
- teaching statement (summarising teaching experience and approach – maximum of 2 pages).

Please Note

- Applicants who do not address the application requirements above will not be considered at the short list stage.
- Applicants should note that the interview process for this appointment may include the delivery of a presentation.
- If you have a query regarding e-recruitment, please contact: Ms. Lisa Hynes, Recruitment Partner, Human Resources, LIHYNES@tcd.ie