

JOIN THE UNIVERSITY OF SURREY

▶▶▶ PROFESSOR OF ◀◀◀

NET ZERO CARBON ENERGY SYSTEMS



APPLICANT INFORMATION PACK



RESEARCH

THAT CONNECTS

THE UNIVERSITY OF SURREY HAS A PROUD HISTORY OF COLLABORATION. THE CONNECTIONS WE MAKE ACROSS DISCIPLINES AND DEPARTMENTS, AND WITH OTHER INSTITUTIONS AND INDUSTRY, ENABLE US TO ACHIEVE RESEARCH BREAKTHROUGHS THAT MAKE A DIFFERENCE TO SOCIETY.

We live at a time of great change and uncertainty, when challenge and complexity are juxtaposed with opportunity. Many contemporary research challenges require approaches coming from different angles, disciplines, perspectives and cultures.

This kind of diversity of approach is second nature at Surrey. We have a strong focus on inter-disciplinarity and a natural predisposition to openness and cooperation. Academics from across the fields of science, engineering, business, social sciences and the humanities regularly work together with exceptional outcomes.

At Surrey our focus is on exploring global challenges with cross-cutting themes, such as sustainability. This is led by our internationally-acclaimed [Centre for Environment and Sustainability](#).

Research excellence is also at the heart of what we offer at Surrey in terms of teaching, adding real-world relevance and unique content to our undergraduate and masters courses, and enabling our PhD students to benefit from a world class research environment.





JOIN US

WE ARE LOOKING FOR A VISIONARY INDIVIDUAL WITH A STRONG INTERDISCIPLINARY ETHOS, AND A PASSION FOR COLLABORATION.



PROFESSOR OF



NET ZERO CARBON ENERGY SYSTEMS

The Role

The Centre for Environment and Sustainability (CES) at the University of Surrey seeks to appoint a professor who takes a holistic, systems analysis/modelling approach to the challenge of developing net zero carbon energy systems. The new role has been created as part of the University's plans for an Institute for Sustainability.

The appointee will be expected to lead a substantial and sustained portfolio of research, collaboration and successful project grant applications related to holistic, systems analysis/modelling for developing net zero carbon energy systems. The appointee will also teach postgraduate courses run by CES, contribute to teaching across other departments as appropriate, and contribute to developing a new undergraduate degree in sustainability.





Background & Relationships

Energy is the focus of substantial research interest at the University, and while Surrey is internationally renowned for its work, it is also active within the local area, being part of the Surrey Energy Partnership. This collaboration was formed to deliver projects and action linking to national and regional strategies, while building on local and county-wide strengths. It grew out of the University's Living Lab, and now includes representatives from Surrey County Council, Enterprise M3LEP, SSE Enterprise, ThamesWey Group.

The University of Surrey is organised into three Faculties: the Faculty Arts and Social Sciences (FASS), the Faculty of Health and Medical Sciences (FHMS), and the Faculty of Engineering and Physical Sciences (FEPS).

CES, which is located within FEPS, is an internationally-acclaimed interdisciplinary centre of excellence on sustainable development, which enjoys an outstanding reputation for the quality of its research, teaching and strong links with industry. Being highly interdisciplinary, CES enjoys strong links across all faculties. It is envisaged that the appointee may develop links with colleagues in, for example, the Advanced Technology Institute concerning materials science for clean hydrogen, energy storage and novel nano-scale materials; Chemical & Process Engineering (CPE) in carbon dioxide reuse in product synthesis; Chemistry and Material Science in

characterisation techniques for biomass to enable development of integrated biomass strategies and energy storage systems; Department of Civil & Environmental Engineering in air quality and health; and FASS in psychology and behaviour (end use energy demand). Collaboration is also anticipated with groups working on relevant modelling methods, for example in the departments of Mathematics, Computer Science and CPE.

Within the wider University CES leads the University's strategic Research Theme on Sustainability and is closely engaged with its Urban Living Theme. CES's research uses inter-disciplinary approaches to the analysis of complex systems, integrating the engineering and science-based disciplines with insights from the economic and social sciences, and from this develop action-oriented, policy relevant responses to long-term environmental and social issues. These activities inform our teaching (undergraduate, Masters, Doctoral and CPD) to enable our graduates to develop the leading-edge knowledge and skills needed for successful careers in all aspects of sustainability. CES provides a friendly, collegiate and supportive environment in which innovative thought and creativity are strongly encouraged and in which our internationally and culturally diverse group of students and staff can flourish.

This post has been created as part of the University's plans to create an Institute for Sustainability.





KEY RESPONSIBILITIES



- Make a significant contribution to the University's strong research profile and to appropriate teaching programmes.
 - Develop, lead and sustain a substantial research portfolio of projects in the area energy systems. This will include managing associated financial/physical resources and recruiting/supervising/guiding/mentoring the work of staff and postgraduate students in own specialist subject area.
 - Lead/contribute to leading, planning and coordinating large multi-disciplinary or multi-Faculty bids involving collaborative groups.
 - Sustain an excellent track-record of publication of high-quality research findings in appropriate peer-reviewed journals and international conferences
 - Enhance reputation in own subject area by engaging in external activities at national and international level such as contributions to professional networks, meetings, conferences, societies, professional and/or government bodies, editing/refereeing journals and papers.
 - Perform administrative duties throughout the Department/Faculty/University as are recognised by the University in roles commensurate with the remit of a professor and which contribute to the general life and work of the University.
- N.B. The above list is not exhaustive.*





The essential requirements for this role are:

- A higher research degree (PhD)
- World class research performance (including an exceptional and continuing publication record, and a proven and continuing strong track record of external research grant income generation)
- Outstanding publication record with a sustained track record of publishing in leading international journals and international conferences in the relevant field(s).
- Outstanding track-record of sustained successful grant and funding applications and research leadership
- A proven track record in academic leadership
- A proven track record of high level industry engagement
- A proven track record in successfully supervising PhD students
- Evidence of high quality teaching
- Evidence of leading scholarly contributions to conferences, professional meetings and societies at an international level, and evidence of achievements in other external activities at an international level
- Excellent communication, inter-personal and networking skills

HOW TO APPLY

Please apply online: <https://jobs.surrey.ac.uk/vacancy.aspx?ref=024021-R>

- Closing date: 31 October 2021
- Formal interviews will take place on Friday 19 November 2021

For informal enquiries please contact Prof. Angela Druckman, Director of the Centre for Environment and Sustainability, a.druckman@surrey.ac.uk



EQUALITY, DIVERSITY ▶▶▶ AND INCLUSION ◀◀◀

AT SURREY, WE ARE VERY PROUD OF THE DIVERSITY WITHIN OUR COMMUNITY AND ARE COMMITTED TO PROVIDING AN INCLUSIVE ENVIRONMENT THAT OFFERS EQUITABLE OPPORTUNITIES FOR ALL.

We strive for Surrey to be a place where everyone feels welcomed, valued and safe. Our vision to be a leading global university relies on our proven ability to attract the best people from the UK and internationally to work and study here; this can only be achieved when we work together to create a truly inclusive culture.

Our Equality, Diversity and Inclusion (EDI) Plan 2020-2025 lays out our aims to develop our inclusive and supportive culture, eliminate discrimination, harassment and victimisation, and advance equality of opportunities. Across the University of Surrey, we are working actively towards fulfilling our EDI Plan targets and encourage everyone to engage with and participate in its progress. To achieve culture change,

we are working to embed EDI in all teaching and learning, research and partnerships, as well as supporting our professional services colleagues. This will enable a self-sustaining process that will support EDI in becoming 'second nature' for our community.

We are proud members of the Race Equality Charter and the Athena SWAN Charter for gender equality (holding University and departmental awards). We are also a Stonewall Diversity Champion and a committed Disability Confident employer. Our AccessAble app provides accessibility support to people who need it around our campus and we have thriving staff networks and equality groups that support our work in all our areas of equality (gender, race/ethnicity, LGBTQI+, disability and faith).

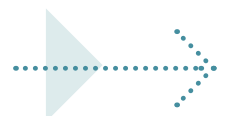




FACULTY OF ENGINEERING AND PHYSICAL SCIENCES

THE FACULTY OF ENGINEERING AND PHYSICAL SCIENCES (FEPS) COVERS THE CORE ENGINEERING DISCIPLINES OF AERONAUTICAL ENGINEERING, CIVIL ENGINEERING, CHEMICAL ENGINEERING, ELECTRICAL AND ELECTRONIC ENGINEERING AND MECHANICAL ENGINEERING, ALONGSIDE THE SPECIFIC DISCIPLINES OF CHEMISTRY, COMPUTER SCIENCE, MATHEMATICS AND PHYSICS. IT ALSO HOSTS THE CENTRE FOR ENVIRONMENT AND SUSTAINABILITY.

The Faculty has strong partnerships with industry, and an excellent track record of research which leads to successful commercialisation. Through consistent investment stemming from a deep commitment to develop world-class, sustainable research programmes, the Faculty has built up an impressive infrastructure to support all its activities. The interdisciplinary nature of much of the work provides opportunities to cross boundaries and enables students to access exceptional facilities.



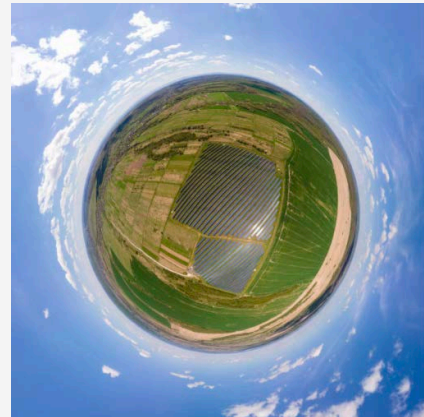
The **Centre for Environment and Sustainability** is an internationally-acclaimed centre on sustainable development. It applies inter-disciplinary approaches to the analysis of complex systems, integrating expertise from engineering and the physical and social sciences to develop action-oriented, policy relevant responses to long-term environmental and social issues.

The **School of Computer Science and Electronic Engineering** comprises the **Department of Computer Science** which undertakes highly regarded research in cybersecurity and nature-inspired computing, and the **Department of Electrical and Electronic Engineering** ranked one of the best in the UK and home to leading research centres including the Advanced Technology Institute, the Institute for Communication Systems, the Surrey Space Centre and the Centre for Vision Speech and Signal Processing (Number one for Computer Vision research in the UK).

The **Department of Chemistry** enjoys an outstanding reputation for the quality of its teaching, student employability and research. Its core research covers areas such as materials chemistry and energy, medicinal chemistry and molecular engineering.

The **Department of Chemical and Process Engineering** is the longest standing continuing provider of chemical engineering programmes in England, and today offers cutting-edge courses which benefit from a fully operational process plant. Research covers digital and process innovation, energy and materials, and food and water processing technology.

The **School of Mechanical Engineering Sciences** offers industry-standard facilities including a state-of-the-art Design Centre and environmental wind tunnel. It encompasses mechanical, automotive, aerospace and biomedical engineering, and researches topics ranging from fluid dynamics to functional nanomaterials.



The **Department of Civil and Environmental Engineering** brings together internationally leading staff, exceptional students and modern facilities. Its research focuses on the delivery of sustainable infrastructure in the widest of contexts, ranging from optimising the management of large-scale complex networks to monitoring air and water quality.

The **Department of Physics** works across the disciplines and connects pure science with technology. It undertakes world-leading research in five key areas: astrophysics, nuclear physics, photonics and quantum sciences, radiation and medical physics, and soft matter.

The **Department of Mathematics** is home to one of the largest research groups on nonlinear mathematics. Focused on both pure and applied areas of mathematics, its research covers topics such as quantum field theory, string theory, fluid dynamics and mathematical biology.





FACULTY OF HEALTH AND MEDICAL SCIENCES

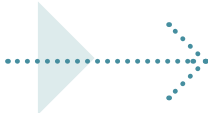
THE FACULTY OF HEALTH AND MEDICAL SCIENCES (FHMS) IS HOME TO TALENTED STAFF AND ALMOST 4,700 STUDENTS ACROSS ITS SCHOOLS OF BIOSCIENCES AND MEDICINE, HEALTH SCIENCES, PSYCHOLOGY AND VETERINARY MEDICINE.

Focused in a 'One Health, One Medicine' vision, the Faculty's research aims to improve the health and wellbeing of humans and animals and their environments through new knowledge and its application to the design, development and delivery of responsible innovation and impact. The Faculty's research is driven by an understanding of the importance of collaboration and co-creation both with colleagues and with external groups and organisations: through this knowledge exchange and interaction, it fosters innovation for the widest possible translational benefit. Tackling the Global Grand Challenge of Lifelong Health, the Faculty's research focus encompasses:

- Nutrition and Food Security
- Chronobiology and Sleep
- Infection and Immunity
- Healthy Ageing and Supporting Long Term Conditions
- Understanding Relationships with Social and Physical Environments
- Digital Health and Data Science

The Faculty hosts the **Food Consumer Behaviour & Health Research Centre**. This Centre brings together researchers to address issues concerned with: food-related behaviour and policy interventions (such as labelling, health claims) to achieve sustainable and healthy lifestyles; social, policy and ethical issues relevant to the grand societal challenges such as sustainability and obesity; study of food systems from the perspective of significant actors and stakeholders within the system; and methodologically advancing the field of food consumer science through exploring novel sources of data and methods of data linking.

Supporting the next generation of researchers and innovators is an important part of the Faculty's role. Key doctoral training partnerships include the FoodBioSystems Doctoral Training Partnership, the Leverhulme Quantum Biology Doctoral Training Centre and the Applied Research Collaboration Kent, Surrey and Sussex and the Academic Health Sciences Network, along with strategic industrial-policy alliances with key translational biosystem-focused takeholders including NPL, NML and Waters.





THE FACULTY COMPRISES FOUR SCHOOLS:

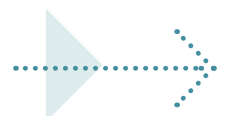
Our **School of Health Sciences'** vision is to be a world-class centre for healthcare research where dynamic academics and clinicians conduct ground-breaking research that addresses global health care priorities and generates evidence to underpin effective, compassionate and integrated health care. We undertake pure and applied research based around research themes of digital health, workforce organisation and wellbeing; and focused research clusters in cancer care, long-term conditions and ageing, and maternal, child and family health.

Consisting of the Department of Psychological Interventions and the Department of Psychological Sciences, the **School of Psychology** has a long-standing reputation for its vibrant and supportive research and teaching environment.

Psychology at Surrey has a strong track record of innovation in psychology and we are immensely proud of where we have come from; from the discovery of the McGurk effect, being a pioneer in environmental psychology, our Clinical Doctorates, the shaping of cross-European approaches to food labelling, to changing educational approaches to national identity.

In particular, the Environmental Psychology Research Group is an internationally renowned centre for teaching and research on environmental psychology. The group has as one of the longest-standing research groups in this field in the world, and since the 1970's has taught more than 400 MSc and 50 PhD students from across the world and has hosted many visiting researchers.

Looking forward, the future of psychology at Surrey is supported by ongoing investment across our people and infrastructure; we recently opened our 6-room extended reality (XRL) simulation space and two observation suites allowing eye-tracking, EEG, NIRS, non-invasive brain stimulation, and actigraphy.

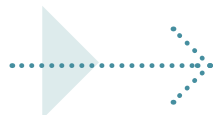




The **School of Veterinary Medicine** has created a vet school that is different. While embracing the traditional values of professionalism, scientific curiosity and clinical excellence, it has broad horizons. With a strong 'One Health' focus, our expertise in veterinary pathology and digital pathology, microbiology, parasitology, immunology, antimicrobial resistance, endocrinology, metagenomics, microbiomes, nutrition, neurobiology, oncology, neurology, musculoskeletal biology and physiology is complemented by epidemiology and the appropriate use of innovative technology through vHive (our Veterinary Health Innovation Engine - [vHive](#)). Veterinary researchers are also involved in the development of novel alternatives to antibiotics, understanding the pathogenesis and control of zoonotic diseases, vaccine development and improved practices through food production and management of biosecurity on farms. Close links with our veterinary partners and the Royal Surrey County Hospital, the Pirbright Institute, the APHA, the VMD, the BSPS and KSS AHSN also facilitate research and knowledge exchange to understand the pathogenesis of infectious diseases, diabetes, neoplastic disease and neurological diseases in animals and humans.

The **School of Biosciences and Medicine** aims to optimise human and animal health for the benefit of society in the face of global challenges such as ageing populations, disease burden, food security and climate change. Our expertise is focused in terms of critical mass of world leading experts working in four broad areas: biochemical sciences, microbial sciences, nutritional sciences, and clinical and experimental medicine.

Our research capability in areas including chronobiology, sleep, immunology and infection, virology, nutrition and cancer amongst others is supported by superb facilities and a centrally-funded skilled technical team. It extends from molecular analyses at the bench, through in vitro small animal studies, first in human clinical trials and 'second translation' research in the community.





FACULTY OF ARTS AND SOCIAL SCIENCES

THE FACULTY OF ARTS AND SOCIAL SCIENCES (FASS) BRINGS TOGETHER SCHOLARS AND STUDENTS FROM ACROSS AN EXTRAORDINARY RANGE OF ACADEMIC DISCIPLINES IN A LEARNING COMMUNITY THAT IS DEDICATED TO THE DISCOVERY AND ENRICHMENT OF THE ARTS, HUMANITIES AND SOCIAL SCIENCES. THE FACULTY IS A COMMUNITY OF ARTISTS, ENTREPRENEURS, SCHOLARS AND PRACTITIONERS WORKING ON THE PLEASURES AND CHALLENGES OF CURRENT TIMES.

The Faculty provides internationally recognised undergraduate and postgraduate degrees and, each year, welcomes more than 7,000 bright, dedicated students onto its degree programmes. It delivers an exceptional student experience and quality teaching, as demonstrated in its ongoing success in national league tables (ranking in the top 10 for five subject areas in the Complete University Guide 2021)

The Faculty has a vibrant and diverse research community, and academics and researchers work with a wide range of external organisations – from government bodies to international businesses. While each discipline has distinct methodological approaches, there is a shared passion for studying ideas and practices relating to all aspects of human life and experiences. Research aims to contribute

to the theoretical advancement in the state of knowledge in the arts, humanities and social sciences, while achieving real-world effects by focusing on current global societal challenges and the cultural and socio-economic aspects at the core of large-scale human problems.

The Faculty is leading research in fields such as morphology, the digital economy, sustainable tourism, translation, and social simulation. Recent research projects have focused on the legal, social and ethical implications of AI technologies such as driver-less cars; the development of spatial audio and psychoacoustic engineering in creative digital media; the effect of digital innovation on the arts, literature and education; and exploring what it means to work and live sustainably.



THE FACULTY IS MADE UP OF NINE SCHOOLS AND DEPARTMENTS AND IS ALSO HOME TO THE UNIVERSITY'S OVERSEAS CAMPUS IN DALIAN, CHINA, THE SURREY INTERNATIONAL INSTITUTE, WHICH OFFERS DUAL DEGREE PROGRAMMES WITH THE DONGBEI UNIVERSITY OF FINANCE AND ECONOMICS.

The **School of Hospitality and Tourism Management** is ranked 1st in the UK and 3rd in the world for hospitality and tourism management in the Academic Ranking of World Universities 2021. It offers stimulating, industry-relevant programmes in hospitality, tourism and events management. Its research activities are grouped into three groups: sustainability and wellbeing, competitiveness, and digital transformation.

Surrey Business School (SBS) delivers high-quality and relevant teaching and research that will have a positive and lasting impact in business and society. It specialises

in the study of digital advances, leadership, organisational behaviours and sustainable enterprise, and offers both

full-time and part-time MBAs. SBS proactively leverages its business connections to ensure that its research is relevant and supports economic growth and innovation.

The **School of Law** works on fundamental problems in law, justice and society across public, private and international law as well as law's application to healthcare, criminal justice, security, environment and many other areas. The School provides students with a strong legal education and the guidance to apply their legal understanding in a practical context, and produces research that will make a difference in the real world.

The **School of Economics** has a strong international reputation for research in macroeconomics, microeconomic theory, and other areas. This research excellence is embedded within the School's successful teaching programmes. Many academics within the School are economic advisers to world-renowned organisations.

The **School of Literature and Languages** combines the academic disciplines of English literature, creative writing, modern languages, linguistics, intercultural communications, and translation studies. The School is home to two internationally renowned research centres: The Surrey Morphology Group and the Centre for Translation Studies.

The **Department of Music and Media** is an industry and research-led department, focused on academic inquiry, business engagement and knowledge generation in music

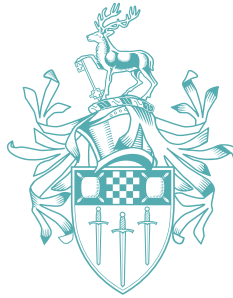
and contemporary media. It incorporates research and teaching programmes which include the world-renowned Tonmeister programme in Sound Recording.

The **Department of Sociology** covers the areas of sociology, criminology and media and communications. It is widely recognised for its field-defining and conceptually driven empirical research and its pioneering quantitative and qualitative methods work. It has extensive collaborations and a record of success in securing a diverse portfolio of research income.

The **Department of Politics** is a thriving space for study, research and public engagement with a strong focus on applied politics. Its research is organised around two research centres: the Centre for International Intervention and the Centre for Britain and Europe, which was awarded the prestigious Jean Monnet Centre of Excellence from the European Union for 2020-23.

Guildford School of Acting is a leading performing arts conservatoire, providing exceptional acting, musical theatre, and production conservatoire training.





UNIVERSITY OF SURREY

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