

**Academic Role Profile**

<b>Job Title:</b>	Professor in Energy Resilience
<b>Responsible to:</b>	Head of School
<b>Responsible for:</b>	Research staff employed on programmes and awards directed by the post holder. May have supervisory responsibility for other staff.

**Job Summary and Purpose**

To develop and lead a significant portfolio of research in line with the School's research strategy, attracting and securing significant research funds.

To provide academic leadership in undergraduate and postgraduate courses within area of expertise, and to participate in School, Faculty and University administration.

**Main Responsibilities/Activities**

**To develop the research activities of the School and the University by:**

Leading a significant programme of research, sustaining an extensive track record of published research findings in appropriate, peer reviewed research journals and/or monographs to maintain and enhance expert reputation in own subject area. Leading major funding bids that develop and sustain research support for the specialist area and advance the reputation of the Faculty and the University.

Planning, co-ordinating and leading a significant programme of research in accordance with a specific project plan through a research team or a group of staff involved in research. Managing the financial and physical resources associated with the research activities. Supervising and guiding the work of staff and research and doctoral students on own specialist area. Monitoring progress on research projects and writing reports to relevant bodies about progress of research.

Leading innovative research proposals and submitting funding bids, winning support for them and planning the research to be undertaken, as a self-contained item or as part of a broader programme. Developing these bids is likely to involve national and international collaboration with members of other Higher Education Institutions and partners in the public sector, business and policy. Within the University seeking collaborative research opportunities with other members of Faculty staff and developing multidisciplinary research links with other parts of the University where appropriate. Obtaining and sustaining research, consultancy and other additional funding

Developing research activities which extend current thinking in the subject area, thereby enhancing the reputation of the School and the University.

Maintaining an expert reputation in own subject area and providing appropriate guidance to staff and students

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Engaging in external activities in accordance with the School's research strategy at a national and international level. Such activities will include membership of committees of academic and professional bodies, external examining, editing journals and contribution to professional networks, national and international meetings, societies and bodies (including governmental ones).

Engaging in external activities in accordance with the Faculty's research strategy at a national and international level. Such activities will include contribution to professional networks, national and international meetings, societies and bodies (including governmental ones).

Attending appropriate national and international conferences for the purpose of disseminating research results.

### **To develop the teaching activities of the School by:**

Providing academic leadership at undergraduate and/or postgraduate level, as appropriate, by leading the development of new teaching methods and contributing to the design of lecture series and/ or modules and taking responsibility for the quality of specific programme lecture series and or modules.

Taking an active role in teaching at undergraduate and postgraduate level; planning, delivering and critically reviewing a range of teaching and assessment activities including lectures.

Setting/marking programme work, practical sessions, supervisions, and examinations according to own area of subject specialism, and providing appropriate feedback to students.

Taking part in activities such as accreditation, validating and examining in relation to the University's associated institutions.

### **To engage in scholarship by:**

Continually updating knowledge and understanding in the field or specialism. Extending, transforming and applying knowledge acquired from scholarship to teaching, research and appropriate external activities.

### **To undertake pastoral care of students by:**

Acting as personal tutor for students, using listening, interpersonal and pastoral care skills to attend to sensitive issues and to undertake triage so as to direct students to appropriate University services.

### **To contribute to the efficient management and administration of the School, Faculty, the University and the wider academic community by:**

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Performing personal administrative duties throughout the School and the University as are recognised by the University as properly within the remit of role of professor, such as research group leader and roles associated with specific teaching programmes, as allocated by the Head of Department in liaison with the Head of School. Participates in relevant committees within the School/Faculty; as well as School/University committees where appropriate and/or where invited, contributing to the general life and work of the University.

Advising, supervising, mentoring and giving guidance to other staff. Taking overall responsibility for the welfare of staff drawing on specialist advice and support.

### Person Specification

#### The post holder must be able to demonstrate:

A higher professional qualification, normally a doctoral degree or equivalent

Outstanding qualities and achievements in scholarship and research at a national and international level which have made a significant contribution to the advancement of their subject

Significant academic publication record

Evidence of leadership in research, including postgraduate research supervision

Teaching on and developing academic modules/units

Evidence of securing a significant amount of sustained research funding

Proven management and leadership qualities at a senior level

Proven administrative ability at a senior level

Evidence of contributions to conferences, professional meetings and societies at an international level and evidence of achievements in other external activities at an international level.

Evidence of high quality teaching at undergraduate and postgraduate level

### Relationships and Contacts

Professors are expected to accept invitations to serve on national and international bodies, including governmental bodies. They will also be expected to contribute to the University by taking on roles that enable the University to meet its administrative needs.

To attract research funding, a Professor will be expected to liaise, develop and sustain relationships with potential sponsors.

Teaching and administrative duties will be allocated by the Head of Department in consultation with the Head of School within the context of the teaching programmes agreed by the Faculty Teaching and Learning Committee and the Faculty Teaching and Learning strategy and the University governance frameworks.

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<b>Special Requirements</b>
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The post holder is expected to work outside normal office hours as necessary.
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**All staff are expected to:**

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
  - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
  - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

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### Addendum

This document provides additional information relating to both specific aspects of the post/Faculty and any post specific person specification criteria. The information contained within this document should always be read in conjunction with the accompanying generic Job Purpose.

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### Background Information/Relationships

#### **Faculty:**

The University of Surrey is organised into three Faculties. The Faculty of Engineering and Physical Sciences (FEPS) comprises the Schools Chemistry & Chemical and Process Engineering, Civil and Environmental Engineering, Computer Science, Electronic and Electrical Engineering, Mathematics and Physics, and Mechanical Engineering Sciences. The Faculty is built on the core engineering disciplines of aeronautical engineering, biomedical engineering, civil engineering, chemical engineering, electronic engineering and mechanical engineering, together with the core scientific disciplines of computing, materials, mathematics and physics. Within these fields we enjoy a reputation for excellence in research and teaching, allied to a strong enterprise culture and an unrivalled record of graduate employment. Our members of academic staff are well respected, both nationally and internationally, amongst the many areas of academia and industry with which we interact. We believe strongly in the principle that a university should contribute to the cultural wealth of society by developing the basic sciences, whilst also developing the technology which will improve our overall quality of life.

#### **School of Mechanical Engineering Sciences (MES):**

MES currently has around 45 FTE academic staff and about 800 students who are studying on a range of programmes from BEng/MEng through MSc to EngD/PhD. We offer four strong professionally accredited undergraduate programmes in Mechanical Engineering, Automotive Engineering, Biomedical Engineering and Aerospace Engineering. The programmes are supported by a range of well-equipped laboratories and computer suites, including a new Engineering Design Centre, incorporating our very successful Formula Student activity. The Department, and its degree programmes, are rated in the top 10 in the UK league tables and top 100 in the Shanghai Global Ranking of Academic Subjects.

The overarching research drivers are centred around resilience, green living and living well with its highly rated research carried out in four Centres: Aerodynamics & Environmental Flow (A&EF), Automotive Engineering, Biomedical Engineering and Engineering Materials.

Aerodynamics and Environment Flow has interests in aeronautical and environmental aerodynamics, turbulent flows, turbo-machinery, wind power. The group includes the Rolls-Royce supported Thermo-Fluid Systems University Technology Centre, which specialises in advanced computer modelling of turbomachinery for aeroengine and power generation, and the Environmental Flow Research Centre (EnFlo), which is an NERC National Centre for Atmospheric Science Facility. EnFlo houses two major large-scale facilities that, together with four other wind tunnels, provide a nationally unique resource for studying (i) a wide range of environmentally important flow and dispersion problems, (ii) wind power and associated meteorology. Research is funded by EPSRC, NERC, InnovateUK, Rolls Royce, Airbus and other public- and private-sector sources.

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The members of the Centre for Automotive Engineering work on hybrid vehicles, vehicle dynamics and control and terrestrial mobile and space robotics. The group has extensive and active research links in the form of major research grants and contracts with vehicle manufacturers such as Jaguar Land Rover, Skoda, Fiat, McLaren Automotive, Williams and Gordon Murray Design and original equipment manufacturers such as Lucas Varity and Oerlikon Graziano.

The Centre for Biomedical Engineering has an active interest in human movement and upper body movement, especially that originating from the shoulder, in a range of populations from dancers to the elderly. The second main theme of the group is microelectronics and signal processing, with work on dielectrophoresis and the processing of signals from, for example, electroencephalograms for the diagnosis of Alzheimer's disease.

Materials is one of the University's multi-disciplinary research themes and as such the Centre for Engineering Materials in MES contributes to the wider University research agenda. The group has particular strengths in interfacial studies (from fundamental adhesion studies through the joining of dissimilar materials to the modelling of complex joint configurations), composite materials (with a particular interest in developing nanocomposite materials for supercapacitors and incorporating sensors to produce smart structures) and advanced manufacturing techniques including additive manufacture and low energy sustainable manufacturing to produce bespoke functional and structural materials. These activities incorporate extensive advanced characterisation of both microstructures and properties; for example, the group hosts the MicroStructural Studies Unit (with scanning, transmission and scanning transmission electron microscopy and associated spectroscopies), the Surface Analysis Laboratory (with atomic force microscopy, X-ray photoelectron spectroscopy, time-of-flight secondary ion mass spectroscopy and Auger electron spectroscopy) and the Mechanical Testing Laboratory (with a suite of instruments enabling the quasi-static and fatigue loading of a range of sample sizes and configurations).

**Relationships:**

The appointee will report to the Head of School. S/he will establish working relationships with staff (including other academics, researchers, technicians and support staff) and students in the School in addition to staff in the wider Faculty and university, as appropriate. S/he will liaise with sponsors and external bodies informally and formally, as necessary.

**Person Specification**

This section describes the sum total of knowledge, experience & competence required by the post holder that is necessary for standard acceptable performance in carrying out this role. This is in addition to the criteria contained within the accompanying generic Job Purpose.

	Essential/ Desirable
A relevant higher research degree (PhD)	E
Expertise in appropriate area of research aligned to role	E

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Track record in securing of significant research income, including from UK accessible sources, through individual and collaborative grants (including the leading of collaborative bids)	E
Track record of leadership and collegiality in research as demonstrated by a strong publication record with a track record in publishing in higher quality (e.g. upper quartile) peer reviewed journals in role relevant fields	E
Track record in supervising postgraduate students at doctoral level to completion	E
Track record in shaping and delivering high quality teaching at degree and masters level in subjects aligned to the Schools programmes	E
Track record of collaboration with colleagues in delivery of research and teaching.	E
Excellent communication and inter-personal skills	E
Chartered engineer status	D
<p><b>Key Responsibilities</b></p> <p>This document is not designed to be a list of all tasks undertaken but an outline record of any faculty/post specific responsibilities (5 to 8 maximum). This should be read in conjunction with those contained within the accompanying generic Job Purpose.</p>	
<ol style="list-style-type: none"> <li>1. Undertake and lead high quality research, as evidenced by a strong publication record and other metrics associated with successful research outcomes, that compliments one or more of the existing activities within the School.</li> <li>2. Apply for funding to support research activities and research students, including leading collaborative grants with colleagues and others.</li> <li>3. Deliver high quality teaching and learning experience to students undertaking undergraduate and postgraduate activities, particularly, but not exclusively, with an emphasis Biomechanics and related areas of the curriculum.</li> <li>4. Supervise postgraduate students and postdoctoral researchers in their research and support of their wider development.</li> <li>5. Participate in a range of school and University administration activities, as required.</li> <li>6. Personally provide effective personal tutoring support to students</li> </ol> <p>N.B. The above list is not exhaustive.</p>	