

Research & Development Engineer (Digital Substations)

Department	Power Networks Demonstration Centre (PNDC) (http://www.strath.ac.uk/research/powernetworksdemonstrationcentre/), Department of Electrical and Electronic Engineering (http://www.strath.ac.uk/engineering/electronicalelectricalengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	311777
Reports To	PNDC Programme Delivery Manager	Grade:	7
Salary Range:	£32817 - £40322	Contract Type:	Open Contract
FTE	1	Closing Date	20/08/2020

Job Advert

The University of Strathclyde in Glasgow possesses a large internationally rated Engineering Faculty with a proud history of successful joint ventures with industrial and enterprise partners. As part of the University's strategic development, the Power Networks Demonstration Centre (PNDC) has been established in Wardpark North near Cumbernauld. The PNDC is a world-class facility with dedicated staff that will accelerate the adoption of new, 'smart' technologies within advanced power grids, supporting the increased accommodation of renewable energy, electric vehicles and demand side management. The £12.5 million Centre - the first of its kind in Europe – has been founded by the University of Strathclyde and leading energy companies including Scottish Power Energy Networks and Scottish and Southern Energy Power Distribution, with support from Scottish Enterprise and the Scottish Funding Council. The Centre has expanded its membership since its founding and this growth is set to continue.

The PNDC provides: a purpose-built platform for showcasing state of the art electrical distribution, generation, storage,



digital monitoring, smart grids and demand side innovation; a rapid technology pipeline accelerating the proving and deployment of integrated smart grid solutions with commercial partners; a realistic and controllable test bed from primary plant to state-of-the-art control room for the development of emerging smart grid technologies that will support the realisation of a de-carbonised grid. The PNDC is formally linked to the University through the Institute for Energy and Environment within the Department of Electronic and Electrical Engineering.

The PNDC seeks to appoint a Research and Development Engineer with the ambition, talent and drive to develop and test new network technologies and smart grid solutions in its unique, world-class industry-

scale facility.

The successful candidate will work as part of a growing dynamic team on a wide range of technical projects with particular emphasis on experimental validation and testing. Opportunities for innovation are extensive, through the strong working relationship and routes to market afforded by the PNDC industry members, and commercial engagements. This will be supplemented with collaborative opportunities with other research and industry teams in the UK and abroad.

To be considered for the role, you should possess the knowledge, skills and experience normally associated with a PhD in a relevant field or you will be educated to Honours Degree level with relevant industrial experience. You will have advanced knowledge of electrical power systems and the protection and control systems used in distribution and transmission networks, and be capable of applying this knowledge in a highly practical environment. You will have experience of leading the delivery of research and development projects in collaboration with industry or in an industrial context and you will have good technical writing ability and strong communication skills. You must be a self-starter, and able to plan and conduct individual research and knowledge exchange activities with minimal supervision, as well as generate new ideas and concepts, with the capacity to work in a dynamically changing team environment.

Job Description

Brief Outline of Job:

You will undertake specific research and development projects under the guidance of the PNDC leadership team, providing regular updates and reports for industrial partners, and thus supporting the Centre objectives and targets. A strong engagement with industry colleagues, as well as with the PNDC and wider University team, will support the realisation of relevant and valuable results. You will work across assigned research areas in accordance with PNDC research programme objectives, as well as externally funded projects, and will develop project plans for consideration by industrial partners and clients as well as research proposals for geared funding. Through engaging in relevant professional and knowledge exchange activities you will support the PNDC's external profile and technical leadership. Working as part of a dynamic team you will further input to PNDC administrative and operational activities.

Main Activities/Responsibilities:

1	Conduct collaborative research, development and testing projects relevant to the PNDC research programme, determining and utilising appropriate research methods, with a focus on practical implementation and validation within the PNDC facilities.
2	Contribute to assigned PNDC core research themes in collaboration with theme leads, academics, and PNDC leadership to deliver the centre's growth ambitions. Maintain key relationships with industry partners and stakeholders.
3	Apply technical knowledge to industry issues to investigate and quantify problems experienced by PNDC members, and develop project proposals and specifications in response to these. Contribute to the development of geared funding proposals, as part of this.
4	Maintain appropriate engagement with industrial members and third party vendors to ensure relevance and accuracy of deliverables. Maintain professional awareness to ensure originality and exploitability of the research outputs.
5	Provide quality technical and progress reports of research, development and testing work for distribution to members and clients, adopting best practice in effective knowledge transfer to members, and supporting wider dissemination at conferences and in peer-reviewed journals.
6	As part of the dynamic team at PNDC, contribute to the Centre's safe operational running, effective administration, and knowledge exchange events and initiatives.
7	Plan and manage own workload, with guidance from colleagues as required, while adopting safe and appropriate working practices.
8	Provide mentoring, guidance and support to fellow researchers to ensure maximum value to the PNDC objectives and targets.
9	Engage in continuous professional development, participating in external networks and consultations to maintain current knowledge of relevant state of the art, patent positions, products and Technology Readiness Levels.
10	Run power system simulations using Real Time Digital Simulator (RTDS) and offline simulation software, e.g. MATLAB, IPSA, PSCAD, Power Factory, PSS/E.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good honours degree (minimum class 2:1) in Electronics, Electrical Engineering, or similar.

E2 Relevant Professional experience or PhD.

Experience

E3 An excellent problem-solver, with a track record of achievement in an R&D environment.

E4 Experience in configuration and testing of substation automation and SCADA systems.

E5 Experience of working with SCADA protocols (e.g. IEC 60870, DNP3) and RTU configuration

E6 Experience of working with IEC 61850 based and conventional protection relay configuration & testing.

Job Related Skills and Achievements

E7 A sound understanding of automation systems and communications applied in a smart grid context.

E8 Developing ability to conduct individual testing, data analysis, preparation of test programmes and reports and engaging with industrial clients.

E9 A high level of initiative with the ability to apply knowledge in a highly practical environment, and to generate new ideas.

E10 Knowledge of IEC 61850 standard configuration and system integration

E11 Knowledge of SCADA protocols (e.g. IEC 60870, DNP3) and RTU/DCS configuration

E12 Knowledge of time synchronisation including NTP and PTP

E13 Fluency in high level programming languages e.g. C++, Python, Java

D1 Experience in protection relay testing using real-time digital simulators (e.g. RTDS, OpalRT)

D2 Knowledge of AC electrical theory and practice and the electrical supply system/smart grid landscape

Personal Attributes

E14 Excellent interpersonal and communication skills (oral and written), with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

E15 The ability to work independently and conduct experiments, with minimum supervision, and as part of a small team.

E16 Enthusiastic self-starter and able to work to deadlines, with a customer focus.

Application Procedure

Applicants are required to complete an application form including the name of two referees who may be contacted before interview without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to Simon Hill, PNDC Delivery Program Manager (simon.hill@strath.ac.uk / +44 1236 617189).

Research specific enquiries about the post can be directed to Ibrahim Abdulhadi, PNDC Lead Research and Development Engineer (ibrahim.f.abdulahadi@strath.ac.uk / +44 1236 617176).

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

Conditions of Employment

Conditions of employment relating to the Knowledge Exchange staff category can be found at: [Conditions of Employment](#).

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. [Our Values](#) have been derived from how we act and how we expect to be treated as part of Strathclyde.

