Loughborough University

[ABOUT LOUGHBOROUGH UNIVERSITY]

[CIVIL AND BUILDING ENGINEERING]

RESEARCH ASSOCIATE
HOT WATER DEMAND MODELLING
(FIXED-TERM FOR 18 MONTHS)

REQ15226 **MARCH 2015**

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Project Description:

The HOTHOUSE project is carried out in partneship with Bentley, BRE, EON, Energy Savings Trust, Eti, Forum for the Future, PS sustsinability and three of the End Use Energy Demand Centres iSTUTE, CEE and DEMAND.

The project is lead by Dr Richard Buswell working with Dr. Christina Hopfe, Dr. Val Mitchell and Prof. Kevin Lomas. The project team will comprise 3 Research Associates of which this is one post. This post will provide the team with the user behavior modelling and data analysis skills required and will need to work closely with the other reseachers and industrial collaborators.

The HOTHOUSE project takes a detailed look at the provision of hot water in UK homes to understand more about the consumption, production and storage requirements and the potential to help demand shifting under an increasing all electric future. What is novel to the project will be the mapping of likely future senarios of family life and delivery systems to understand where the 'stressses' on the families requirements for hot water may lie.

JOB DESCRIPTION

Job Grade: Research Grade 6

Job Purpose:

To take responsibility for the development of user behaviour models to develop the monte-carlo based method to drive the inputs to Building Simulation Software.

Duties and Responsibilities:

- Undertake maintenance and management of project database.
- Carry out day to day monitoring of data and error checking (New data set).
- Conduct data post-processing and establish documented datasets.
- Develop stochastic behaviour models to model homes.
- To work with the Building simulation modeller to develop a monte carlo based simulation approach.
- To work with the Futures Research Associate to develop future led models of homes and systems and behaviours.
- Develop models of future systems and behaviours scenarios.
- Write reports for Advisory panel meetings.
- Conduct state-of-the art reviews of hot water consumption and other relevant studies.
- Prepare project meeting minutes and maintaining monitoring records.
- Develop publications and reports.
- Engage in training programmes in the University (e.g. through Staff Development) which are consistent with your needs and aspirations and those of the School.
- Undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Other

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

CIVIL AND BUILDIING ENGINEERING

PERSON SPECIFICATION

Job Title: Research Associate

Job Grade: Research Grade 6

	Essential	**Desirable**	**Stage to be Assessed**
Experience	Data handling	Domestic building modelling	1,2,3
	Time series data processing and analysis	Energy modelling and/or building simulation and modelling	1,2,3
	Data based modelling methods		1,3
	Programming and methods such as Monte Carlo, and Markov chain	A working knowledge of building fabric and systems and their impact on energy consumption and building performance	1,2,3
	Experience of carrying out state-of-the-art reviews		1,3
	Technical computing environments (such as Matlab) for data analysis	Handling and analysing real building data	1,3 1,3
Skills and abilities	Use of matlab or similar environments	The ability to develop research ideas and proposals for funding	1,3
	Microsoft Office applications (Word/PowerPoint)		1,3
	Excellent interpersonal and communication		1,3
	Excellent writing		1,3
	Highly motivated		1,3

	Ability to manage own work and to work to strict deadlines and with minimal supervision Ability to prepare technical papers and reports Ability to present work at project meetings and external conferences Ability to publish in international journals		1,3 1,3 1,3 1,3
Training	Demonstrate evidence of having undertaken further training		1,3
Education and Qualifications	A good honours degree in a relevant area such as building energy, ICT, engineering, physics or mathematics Higher degree, preferably PhD, in building energy modelling or other relevant area (computer science, data modelling, for example) or equivalent experience	PhD/Higher degree in relevant areas such as: Monte-carlo based modelling approaches, Marcov chain modelling, sensitivity analysis; or equivalent experience	1 1,2,3
Equality and Diversity	Evidence a good working knowledge of equal opportunities and understanding of diversity in the workplace		1,3

Stages in assessment:

1= application form at short listing,
2= selection test – i.e. presentation, in-tray exercise, data analysis
3= interview

Conditions of Service

This is a full-time post but part time employment may be considered depending on the candidate and will be fixed-term post for 18 months. The starting salary for the post will be within Research Grade 6 (£28,695 - £37,394 per annum, pro rata if applicable) at a starting salary commensurate with experience and qualifications.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff, details of which can be found at:

http://www.lboro.ac.uk/media/wwwlboroacuk/content/humanresources/downloads/acadrelatedcos_v1.pdf

Applications

Informal enquiries are welcomed and should be directed to Dr Richard Buswell, School of Civil and Building Engineering, Tel: 01509 223783, email R.A.Buswell@lboro.ac.uk, or Dr Christina Hopfe, Tel: 01509 226917, email C.J.Hopfe@lboro.ac.uk

See also the Schools websites at: http://www.lboro.ac.uk/eng/research, http://www.lboro.ac.uk/departments/cv/

We have a commitment to gender equality and support the Athena SWAN charter. We encourage women to apply for this position as they are under-represented. All appointments will be made on merit.

Application

The closing date for receipt of applications is **6 May 2015**.