As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

**Centre for Sustainable Manufacturing and Recycling Technologies (SMART)**

The Centre for SMART was established in the Wolfson School of Mechanical and Manufacturing Engineering at Loughborough University to provide synergy for the growing teaching and research activities in sustainable design and manufacture (www.lboro.ac.uk/smart). The remit of the Centre is to develop strategies, methodologies and supporting technologies for the design, production, consumption and disposal of products, that meet consumer needs as well as legislation, environmental and ethical standards, whilst safe-guarding the future prosperity of manufacturing businesses.

Since its establishment in 2004, the Centre has attracted more than £6.5 million of national and European research funds to support its activities, and this has supported the successful completion of 12 PhD programmes and the publication of 40 refereed journal papers. The Centre members have a wide range of expertise and are currently involved in a number of national and European programmes researching the social, economic and environmental aspects of a variety of consumer products and industrial processes. The Centre provides core knowledge and expertise in life cycle analysis, sustainable design, resource efficient manufacturing, sensoring, monitoring and process control, sustainable business and consumption models, and end-of-life processing and recycling technologies.

**PROJECT DESCRIPTION**

Food Manufacturing is a valuable asset for the UK – both through a vital and holistic contribution to the nation’s well-being and through a valuable export contribution. Food and drink is the largest manufacturing sector in the UK with a turnover of £76.2bn, employing up to 400,000 people, with exports worth £10.8bn. The rapidly increasing world population (the UK population is predicted to grow by around 8% by 2020), changes in demand and dietary behaviours, and loss of arable land linked to climate change urgently demands a change in the way we grow, manufacture and consume our food products.
Improving distribution, increasing the productivity, and reducing waste though a range of initiatives such as enhancing food supply, better network planning of outlets and distribution to maximise efficiency and improved resilience, and novel processes to minimise water and energy requirements, are important considerations upon which the future of the food sector must be founded.

One of the most prominent challenges acknowledged by modern manufacturing industries is ‘how to produce more with less resources’. Nowhere is this more true than in the food sector. A common misconception is that ‘Global Food Security’ is about growing more crops. However, scarcity of key resources (ingredients, energy, and water), population growth, changing lifestyles and dietary requirements have introduced complex challenges for food manufacturers. The traditional approach to supply chain management has been based on the assumption of infinite resources. Can we assume that vital ingredients for many food products (milk, rice, potatoes, and oil) will continue to be available and accessible as and when required globally? This project therefore aims to develop new strategies, methods and tools for a ‘resource-constrained food supply chain’ in which the production volumes and schedules are dictated by the availability and access to various resources, and address a number of specific research questions such as:

- How do the predicted impacts of climate change influence existing global trends in the food supply chain?
- How do food manufacturers deal with the future shortage and price volatility of resources (ingredient, energy and water)?
- How does localisation of production and late customisation of food products impact the food supply chain?
- What are the future consumer demands and how do these impact global food security and supply?

This project will be both technology and systems focused and will allow the researcher assigned to this post to develop a knowledge base and skill set highly sought after by forward-thinking industries and academic research groups.

The project is as part of a national ‘EPSRC Centre in Innovative Food Manufacturing’, which is a £5M multi-disciplinary research programme that commenced in October 2013. Nottingham, Birmingham and Loughborough Universities form the academic core of this national Centre, which also has the support a number of large food manufacturing companies and retailers including AB Sugar, Cargill, Mars, McCain Foods, PepsiCo, Premier Foods, Nestle, Unilever, Marks and Spencer, and J Sainsbury.

The Research Assistant in this project will work as part of a multidisciplinary team within the Centre for SMART, as well as with the other academic and industrial partners within the EPSRC Centre for Innovative Food Manufacturing. Successful applicants are offered an opportunity to register at the start of the project for a PhD programme.
JOB DESCRIPTION

Job Grade: Research Grade 5

Job Purpose:

To assist academic and research staff within the Centre for SMART with research to develop novel strategies to manage future resource-constrained food supply chains.

Duties and Responsibilities:

Specific, technical
- To review the relevant literature, state-of-art practice and commercial solutions.
- To contribute to research activities in the area of sustainable food supply chain management.
- To apply gained knowledge and research findings to help develop software and hardware solutions for managing a food supply chain that is significantly influenced by availability of key resources (ingredients, energy and water).
- To participate in the research and development of appropriate tools and technologies for collecting and processing appropriate information and knowledge that will aid to establish a resilient food supply chain.
- To assist in the evaluation of the applicability of the research concepts through a number of industrial case studies.
- To support the Director of the Centre in the development of new research themes in the area of sustainable food manufacturing and to assist in the preparation of national and European proposals in this subject area.

General, technical
- To travel, when required, to national, European and international partners, manufacturers and equipment suppliers.
- To feed back to the project team on progress.
- To assist with recommendations for next steps and in the preparation of interim and final project reports.
- To work as part of a project and University team.
- Deputise for the project leader(s) when required.
- To assist in the generation of materials for presentations to industry and academia.
- Make presentations to industry and academia.
- To contribute to the generation of publications based on the outcomes of research in international journals and conferences.
- Pursue excellence and maintain high standards of safety in all activities.
- Where appropriate, to assist with tutorials and laboratory sessions for students.
- 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.
- To undertake other such duties as may be reasonably requested and that are commensurate with the nature and grade of the post.
• Work effectively with relevant administrative, technical and academic staff in the Department and across the University.
• Engage in training programmes in the University (e.g. through Staff Development) which are consistent with your needs and aspirations and those of the project team and the host department.

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.
WOLFSON SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

PERSON SPECIFICATION

**Job Title:** Research Assistant  
**Job Grade:** Research Grade 5

<table>
<thead>
<tr>
<th>Education and Qualifications</th>
<th>Essential</th>
<th>Desirable</th>
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<tbody>
<tr>
<td>A good honours degree in Engineering Management, Mechanical and Manufacturing Engineering or a relevant discipline</td>
<td>A higher degree (or equivalent experience)</td>
<td>Willingness to register for a PhD programme</td>
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<th>Experience</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Current or recent relevant work experience in an academic or industrial environment</td>
<td>Some experience of presenting technical projects in academic and industrial environment</td>
<td>Some experience in exploitation of research results</td>
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<td>Some practical experience of engineering management and/or process improvement</td>
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<td>Some experience of working in, or collaborating with industry</td>
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<th>Skills and Abilities</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Excellent written and oral communication skills</td>
<td>Knowledge of manufacturing planning</td>
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<td>Excellent interpersonal, and organisational skills</td>
<td>Knowledge of supply chain management technologies</td>
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<tr>
<td>Ability to work independently, plan own work and meet deadlines</td>
<td>Working knowledge of food manufacturing technologies and processes</td>
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<th>Training</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Demonstrate evidence of having undertaken further training</td>
<td>Working knowledge of programming languages or web development</td>
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Other

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<th>Evidence a good working knowledge of equal opportunities and understanding of diversity in the workplace (1)</th>
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<td>Willingness and ability to travel (1,3)</td>
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<tr>
<td>Commitment to maintaining confidentiality at all times (3)</td>
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<tr>
<td>Valid licence for driving in the UK (1)</td>
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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

The appointment will be based on a full time and fixed term contract for 36 months on Research Grade 5 (£23,386 – £27,864 per annum) 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 Research Grade 5 staff, details of which can be found at:

[http://www.lboro.ac.uk/media/wwwlboroacuk/content/humanresources/downloads/research gd5cos_v1.pdf](http://www.lboro.ac.uk/media/wwwlboroacuk/content/humanresources/downloads/research gd5cos_v1.pdf)

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.

Informal Enquiries

Informal enquiries should be made to Professor Shahin Rahimifard, Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, Loughborough, Leicestershire, LE11 3TU. Email: s.rahimifard@lboro.ac.uk or Tel: +44 (0)1509 227657.

Application

The closing date for receipt of applications is **5 October 2015**.

Interviews will be held on **14 October 2015**.