NMIS National Manufacturing Institute Scotland

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THE SUNDAY TIMES GOOD UNIVERSITY GUIDE 2020 SCOTTISH UNIVERSITY OF THE YEAR

University of Strathclyde Glasgow

Materials KE Associate

Centre	National Manufacturing Institute Scotland (NMIS) (https://www.nmis.scot/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	455269
Reports To	AFRC Team Lead	Grade:	7
Salary Range:	£33,309 - £40,927	Contract Type:	Fixed Term (3 years)
FTE	1	Closing Date	18/07/2022

Job Advert

Who we are

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 National Manufacturing Institute Scotland has been established.

The National Manufacturing Institute Scotland (NMIS) is a bold and ambitious industry-centred project to create an international centre of advanced manufacturing expertise and excellence where industry, academia and public-sector support agencies work together to transform skills, productivity and innovation, making Scotland and the UK a global leader in advanced manufacturing.

NMIS is delivered in partnership through Scottish Enterprise. NMIS is a truly collaborative project, with partners including the Scottish government, Scottish Enterprise, Highlands and Islands Enterprise, Skills Development Scotland, the Scottish Funding Council, Renfrewshire Council and the UK government through the High Value Manufacturing Catapult. The University of Strathclyde is the host University for NMIS, which will link to the wider academic communities in Scotland through the Scottish Research Partnership in Engineering and across the UK High Value Manufacturing Catapult network.

NMIS will encompass a dedicated facility that will house the Manufacturing Skills Academy (MSA), Digital Factory 2050 and the Innovation Collaboratory. Along with this dedicated new facility, existing and developing research centres will also be part of the broader NMIS Group including the Advanced Forming Research Centre (AFRC) and the Lightweight Manufacturing Centre (LMC). The posts advertised here will be based in one of these centres.

For more information, visit the National Manufacturing Institute Scotland (NMIS) Website: https://www.strath.ac.uk/workwithus/nationalmanufacturinginstitutescotland/ or email NMIS-recruitment@strath.ac.uk

The Opportunity

The AFRC is seeking to appoint an experienced Materials Knowledge Exchange (KE) Associate to support the delivery of high value research programmes focused on the characterisations, assessments and modelling of microstructure and mechanical properties in forged or formed components. Recently the Centre has invested significantly in advanced materials characterisations equipment and is rapidly developing a team which specialises in this area. You will be expected to support and contribute to high value industrial funding proposals in support of a range of projects across the Centre. You will be expected to work between the AFRC and its industrial partners and there will be a strong emphasis on knowledge exchange.

To be considered for this role, you will be educated to a minimum of PhD level in an appropriate discipline, i.e. Materials Science, Materials Engineering or Mechanical Engineering or you will be educated to a minimum of 2:1 Honors degree with significant relevant experience within a relevant industrial environment. You will have an established track record in providing engineering solutions in an industrial context as well as experience of supporting research and development of manufacturing processes.

You will have research and/or industrial experience in at least two of the following technical areas:

- A good basic knowledge of materials and the way that manufacturing processes can develop or modify material's microstructure to achieve desired mechanical properties.
- Techniques of materials characterisation e.g. SEM, EDX, WDS, EBSD, optical microscopy.
- Mechanical Testing (tensile testing, compression testing, fatigue testing, hardness testing, charpy impact test etc.)
- The use of finite element based software (e.g. ABAQUS, DEFORM, QForm or similar) for process simulation (e.g. forging, sheet forming, residual stress prediction), or microstructure modelling.

You will be able to work autonomously, planning and prioritising your own workload with minimal guidance from a team/project leader, and you will have the ability to deal with complex problems presented to you by colleagues. You will have excellent communication and interpersonal skills, with a proven ability to interact with a range of stakeholders from industry and/or academia. You will have excellent troubleshooting skills, including a methodical approach to solve complex problems and you will be able to work as part of a multi-disciplinary team.

Job Description

Brief Outline of Job:

With guidance from the Materials and Residual Stress Team Lead, to contribute to the delivery of engineering projects, taking responsibility for the delivery of research outcomes. Responsible for undertaking and supporting research and development relevant to the AFRC's core competencies: forming, forging, rotary processes, material modelling and tooling design/life, exploiting your expertise in materials characterisation. To contribute to the generation of proposals for creating research and commercial income that will enhance the AFRC's standing, capability and reputation. To deliver projects to time and within budget, and provide project updates as required for the relevant Team/Research Lead, senior or programme management teams and customers/stakeholders. To support business development activity at the AFRC by various means including sharing specialist/expert knowledge, hosting guests/tours and demonstrating AFRC capability.

Main Activities/Responsibilities:

1.	Carry out research in the area of Materials Characterisation, the effect of forging and forming processes on microstructure evolution, effects of heat treatment and subsequent process on mechanical properties.
2.	Enhance the AFRC manufacturing related capability by proposing improvements based on estimated future requirements and research needs.
3.	Undertake scientific research and engineering solutions on forging and forming related materials characterisations and development of appropriate methodology for part manufacturing.
4.	As part of a wider knowledge exchange/project group or programme, develop knowledge exchange objectives, identify and secure funding by develop proposals for knowledge exchange activities.
5	Develop and manage experimental trials using known experimental techniques (e.g. statistical process control (SPC)).
6.	Work as part of a knowledge exchange project team to deliver against specific requirements of research and knowledge exchange projects.
7.	Plan and manage own workload, with minimal guidance from Team/Project Lead as required.
8.	Conduct individual and/or collaborative engineering research activities, including determining appropriate research methods and contributing to the development of new research methods for industrial applications.
9.	Identify opportunities for strategic development of new projects by building contacts internally and externally, participating in networks for the exchange of information, form relationships with customers, suppliers and colleagues for future collaboration.
10.	Write up reports, individually or in collaboration with colleagues, for external organisations, and further write up findings for additional dissemination (e.g. professional publications or peer review journal publication) as appropriate.
11.	Assist in the training and development of staff and external clients in manufacturing engineering methods and processes.
12.	Contributing to collaborative decision making with colleagues on academic/engineering content in relevant areas of research.
13.	Contributing to the overall AFRC growth by working as an integral part of the AFRC team effort, inputting to the research programme and capability development, as necessary, to meet strategic objectives.

14.	Engage in continuous professional development.
15.	Peer review other researchers flow stress curves and determine any errors before publication of data to customer.

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 first degree (minimum class 2:1) in a relevant engineering discipline, e.g. Mechanical Engineering, Materials Science or Manufacturing, or equivalent relevant work experience.
E2	PhD in a relevant engineering discipline, or equivalent relevant work experience.
D1	Chartered Engineer/Scientist, Member of professional body in an appropriate discipline.
Experience	
E3	Knowledge of the influence of forming / forging processes on material behaviour with particular reference to material's microstructure evolution and mechanical properties and inter-connection between them
E4	Knowledge of experimental techniques for materials characterisations in terms of microstructure analyses or mechanical properties determinations, or modelling
E5	Knowledge of analytical and/or experimental validation and verification techniques and approaches, for example design of experiments.
Job Related Skills and Achievements	
E6	A broad knowledge of materials, including both ferrous and non-ferrous alloys – especially those relevant to the aerospace sector;
E7	Knowledge of a range of materials characterisation techniques including mechanical testing, optical microscopy, & SEM techniques.
E8	An understanding of the effect of processing on materials e.g. grain size, recrystallization, flow behaviours, residual stress evolution.
E9	An ability to plan and organise own workload effectively with general supervision from senior colleagues.
E10	Evidence of contribution to the successful planning and delivery of projects within an academic or industrial environment.
D2	Experience of knowledge exchange related activities.
Personal Attributes	
E11	Excellent written and verbal communication skills, with an ability to interact with a range of stakeholders in both industry and academia.
D3	An ability to disseminate results and to contribute to research and commercial proposals.
E12	An ability to work as part of a team, through participation in collaborative projects, and developing evidence of leadership.
Other Relevant Factors	
E13	An ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted 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 Mr Michael King, Materials Testing Theme Lead (michael.king@strath.ac.uk / 0141 574 5261).

Conditions of Employment

Conditions of employment relating to the Knowledge Exchange staff category can be found at: Conditions of Employment.

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.

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 gender equality in academia across all academic disciplines and professional and support functions.

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.