

Manufacturing Engineer

Department	Advanced Forming Research Centre, Department of Design, Manufacture and Engineering Management (www.strath.ac.uk/dmem/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	104571
Reports To	Head of Department via the Operations Director and Forming Team Leader	Grade:	7
Salary Range:	£31604 - £38833	Contract Type:	Fixed Term (24 months)
FTE:	1 (35 hours/week)	Closing Date	Sunday, 28 January 2018

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 a part of the University's strategic development the Advanced Forming Research Centre (AFRC) has been established at Inchinnan near Glasgow's International Airport in partnership with multi-national companies such as Rolls-Royce and The Boeing Company. The AFRC is the embodiment of over £30 million collaborative investment by Industrial, Academic and Government partners to establish a world leading research facility for forging and forming technologies. Since 2011 it has been a part of the High Value Manufacturing Catapult.

The AFRC is seeking to appoint a Manufacturing Engineer to support its research programmes, and the development of manufacturing capability both within the AFRC and its industrial partners. In particular, the Manufacturing Engineer will support the improvement of manufacturing processes through experimental research activity and by studying and enhancing manufacturing methods. The post holder will be expected to work between the AFRC and its industrial partners and there will be a strong emphasis on knowledge exchange.

We would like to see candidates with experience in one or more of a range of areas:

- **Hot and Cold Sheet Metal Forming;** with particular reference to processes like superplastic forming, hydroforming, incremental sheet forming, stretch forming, hot creep forming, press-brake forming, etc...
- **Engineering design** – component, tool and process design, including design for manufacture, CAD/CAM, and the development of design methodologies.
- **New technology development and data analysis** – the AFRC has a range of automation, control and instrumentation systems deployed both in-house and at customer facilities, and our engineers work to support experimental trials at the AFRC and off site to collate and analyse production data from a range of systems.
- **Numerical simulation** – we currently use a range of finite element modelling software including Abaqus and ESI PAM-STAMP to simulate sheet metal forming processes. We develop new simulation frameworks and constitutive models, in addition to physical validation and verification experiments.

With a first degree and PhD in appropriate disciplines, e.g. mechanical or materials engineering; or with a good first degree (minimum 2:1) and relevant work experience, you will have an established track record in providing engineering solutions in an industrial context, and experience in knowledge exchange. You will have knowledge of hot and cold metal forming processes and an understanding of knowledge exchange within the design and manufacturing field. 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 an ability to plan and organise your own workload, you will have excellent troubleshooting skills, including a methodical approach to solving complex problems, and an ability to work as part of a team. You will have excellent written and verbal communication skills, with an ability to interact with a range of stakeholders in both industry and academia and an ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

Whilst not essential for the role, candidates with practical experience of knowledge exchange within an academic or industrial context and with knowledge and experience in at least one of the following areas: manufacturing engineering, process development, computer and mathematical modelling, residual stress measurement or material testing are highly desired.

Job Description

Under the guidance of the Team Leader, the Manufacturing Engineer will support AFRC research programmes and the development and operation of AFRC manufacturing capability, including knowledge exchange with AFRC partners and customers. In particular, the post holder will be expected to lead and contribute to manufacturing engineering research programmes in the area of metals forming technologies with a specific focus on hot and cold forming processes (e.g. hydroforming, incremental sheet forming, flow forming, shear forming, rotary forging, stretch forming, superplastic forming, hot creep forming, etc.) and deliver solutions to the AFRC's industrial partners. To this purpose, the post holder will be also expected to collaborate with colleagues to ensure that knowledge exchange advances support AFRC advances; input as a team member to administrative activities; and assist where required with other relevant knowledge exchange activities.

Main Activities/Responsibilities:

1.	Evaluate and develop manufacturing processes by: designing and conducting programs of study; applying knowledge of product requirements, product design, and manufacture; designing, modifying, and testing manufacturing methods and equipment; conferring with AFRC industrial partners and equipment vendors; and soliciting observations from operators.
2.	Enhance the AFRC manufacturing related capability by proposing improvements based on estimated future requirements and research needs.
3.	Conduct individual and/or collaborative project activities relating to the AFRC research programmes and commercially funded projects by working individually and as a part of collaborative teams.
4.	Lead on the adoption, development and use of research methodologies and techniques appropriate to the AFRC research programme within the forming processes area.
5.	Develop and manage experimental trials using known experimental techniques (e.g. Taguchi methods, statistical process control (SPC), factorial experimentation), recording and reporting results and methodology.
6.	Plan and manage own workload, with guidance from the Team Lead or Project Lead as required.
7.	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.
8.	Disseminate project results through conference attendance, presentations and reports to academic and industrial audiences and organisation of specialist seminars.
9.	Build contacts internally and externally, and participate in networks for the exchange of information, form relationships with customers, suppliers and colleagues for future collaboration.
10.	Respond to industrial enquiries for assistance in support of manufacturing engineering challenges and assisting the preparation of statements of work, quotations and funding applications.
11.	Engage with industrial clients, developing ideas for generating project income, promoting the research area and the application of research outcomes; leading and contributing to the development of research and commercial project proposals as appropriate.
12.	Develop knowledge exchange proposals for own or joint knowledge exchange activities and play a lead role in relation to a specific project/s or part of a broader project, with guidance from senior colleagues as required.
13.	Assisting in the training and development of staff and external clients in manufacturing engineering methods and processes.
14.	Contribute to collaborative decision making with colleagues on academic/engineering content in areas of research and knowledge exchange.
15.	Contributing to the overall AFRC growth by working as an integral part of the AFRC team effort, inputting to the research programme, capability development and departmental administrative activities, as necessary, to meet strategic objectives.
16.	Engage in continuous professional development.

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)

- E.1 Good first degree (minimum class 2:1 in a relevant engineering discipline i.e. mechanical engineering, engineering design, materials or manufacturing engineering, or with equivalent experience.
- E.2 PhD in relevant engineering discipline, or equivalent relevant work experience.
- D.1 Chartered Engineer/Scientist, member of professional body in an appropriate discipline.

Experience

- E.3 Knowledge and experience of industrial manufacturing processes, ideally within the metal forming industry (e.g. hydroforming, incremental sheet forming, stretch forming, press brake forming, superplastic forming, hot creep forming).
- E.4 Professional experience of problem solving and addressing manufacturing process challenges within an academic or industrial environment, ideally within the metal forming sector.
- E.5 Knowledge and experience of engineering design applied to an industrial context and related methodologies (e.g. Design for Manufacturing) ideally within the metal forming industry.
- D.2 Knowledge of analytical and/or experimental validation and verification techniques and approaches (e.g. Design for Experiments).
- D.3 Knowledge and experience of material characterisation and material testing for forming processes and how material properties evolve through manufacturing processes.
- D.4 Experience of analysis of production data from an industrial context and knowledge and experience of appropriate data analysis and data mining methodologies.

Job Related Skills and Achievements

- E.6 Evidence of contribution to the successful planning and delivery of projects within an academic or industrial environment.
- E.7 An ability to plan and organise own workload effectively with general supervision from senior colleagues.
- E.8 An ability to disseminate results and to contribute to research and commercial proposals.
- D.5 Experience of knowledge exchange related activities

Personal Attributes

- E.9 Excellent verbal and written communication skills, with an ability to interact with a range of stakeholders in both industry and academia.
- E.10 An ability to work independently and as part of a team, through participation in collaborative projects, and developing evidence of leadership.
- E.11 Ability to plan and organise own work effectively with general supervision from senior colleagues
- E.12 An ability to disseminate results and to contribute to research and commercial proposals.

Other Relevant Factors

- E.13 Evidence of the ability to listen, engage, persuade, and 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 before interview without 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/workforum>).

Informal enquiries about the post can be directed to Nicola Zuelli, AFRC Forming Team Leader, n.zuelli@strath.ac.uk, 0044 (0) 141 534 5558.

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.

Interviews

Formal interviews for this post will be held in February 2018.

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.

