

Senior 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	104419
Reports To	Head of Department via the Operations Director and Forming Team Leader	Grade:	8
Salary Range:	£39992 - £49149	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 part of the University's strategic development the Advanced Forming Research Centre (AFRC) has been established near Glasgow's International Airport. The AFRC is the embodiment of a £65 million collaborative investment by Industrial, Academic and Government partners seeking to establish a world-leading research facility for forging and forming technologies.

The AFRC is seeking to appoint an experienced and enthusiastic Senior Manufacturing Engineer to lead and manage delivery of high value research and knowledge exchange programmes, and develop AFRC manufacturing capability. This will involve the candidate anticipating the direction of manufacturing capability to develop and enhance manufacturing processes through experimental research activity. The candidate will also be able to lead on and contribute to high value industrial funding proposals. 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.

To achieve the above, the Senior Manufacturing Engineer will require significant research and/or industrial experience in at least one of the following technical areas:

- **Sheet Forming**, with particular reference to superplastic forming – the AFRC owns £14m of industrial-scale plant: including two superplastic forming presses, screw presses, servo presses, furnaces, CNC machining, flow forming, shear forming, rotary forging, press-brake forming etc.
- **Engineering design** – 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 software including Abaqus, Deform, Qform, PAM-STAMP and Ansys to simulate forming and forging processes and heat transfer problems. We develop new simulation frameworks and constitutive models, in addition to physical validation and verification experiments.

An awareness of more than one area of AFRC engineering capability is desirable for the role.

The post holder will require the knowledge, skills and experience normally associated with a first degree and PhD for example in mechanical/materials engineering or design engineering. We are also interested in candidates with equivalent industrial experience. The post holder will have an established track record in leading the delivery of engineering solutions in an industrial context, as well as experience of taking a leading role in research and development of manufacturing processes.

The post holder will have the ability to work autonomously, plan and prioritise own workload with minimal inputs from higher management, and deal with complex problems presented to them by colleagues. The post holder will also need significant experience of project planning and delivery, as well as excellent communication and interpersonal skills, with a proven ability

to interact with a range of stakeholders from industry and academia. Lastly, the post holder will be required to make a significant contribution to the administrative activities of the AFRC including the membership/chair of relevant committees and acting in senior departmental/school administrative positions.

Job Description

Brief Outline of Job:

With minimal guidance of the AFRC Forming Team Lead, the Senior Manufacturing Engineer will lead developments within the AFRC superplastic forming manufacturing capability and take responsibility for knowledge exchange with AFRC partners and customers. Duties will include:

- Lead engineering development programmes on AFRC forming equipment, and be involved in industrial or academic research into one or more manufacturing processes.
- Lead and direct tool and machine design activity, support industrial design reviews (e.g. DFMEA) and manage the integration of design in manufacturing process improvement.
- Manage the development of data acquisition systems and their implementation in AFRC and customer facilities.

Main Activities/Responsibilities:

1.	Lead on the development of manufacturing processes by: <ul style="list-style-type: none"> - applying knowledge of product requirements, product design, and manufacture; - designing, modifying, and testing manufacturing methods, tooling and equipment; - driving design review activities (e.g. via DFMEA) of dies, parts and machinery to accomplish manufacturing process optimisation; - developing data acquisition systems and implementing them at the AFRC and at client facilities; - designing, conducting and guiding experimental trials; - conferring with AFRC industrial partners and equipment vendors; - soliciting observations from operators.
2.	Enhance the AFRC manufacturing capability by anticipating future technical requirements and research needs, and providing direction in key technical area(s) including hot and cold sheet metal forming technologies and related processes.
3.	Develop knowledge exchange objectives and proposals for own 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 and to deliver against specific requirements of research.
4.	Plan and manage workload, with minimal guidance from the AFRC Forming Team Lead. Provide leadership by coordinating the work of others to ensure delivery of programmes.
5.	Lead individual and/or collaborative engineering research activities to determine appropriate research methods and contribute to the development of new research methods for industrial applications. Establish a distinctive development programme in relation to forming and generate interest through engagement with industry and professional bodies.
6.	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.
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.	Assisting in the training and development of staff and external clients in manufacturing engineering methods and processes.
9.	Lead on collaborative decision making with colleagues on academic/engineering content in areas of research.
10.	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.
11.	As Principle Investigator, secure funding for and successfully manage CPD events and consultancy activity.
12.	Identifying new applications/approaches/techniques or technologies and ensuring that any IP generated is recognised and managed appropriately.

13.	Provide expert guidance to research teams in area of expertise to ensure resource efficient solutions are developed in response to research challenges.
14.	Respond to industrial enquiries for assistance in support of challenges and preparation of statements of work, quotations and funding applications.
15	Lead project teams to deliver against specific requirements of research and knowledge exchange programmes.

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, e.g. mechanical engineering, materials or manufacturing, or equivalent relevant work experience.

E.2 PhD in a relevant engineering discipline, or significant relevant work experience.

D.1. Chartered Engineer/Scientist, Member of professional body in an appropriate discipline.

Experience

E.3 Significant professional experience of addressing manufacturing process challenges within an academic and/or industrial context ideally in the field of metal forming applied to various materials including e.g. nickel, aluminium, magnesium and titanium alloys.

E.4 Significant knowledge and experience of engineering design ideally applied to aspects related to the metal forming industry (e.g tool manufacture).

E.5 Evidence of successfully managing high value projects and contributing to process optimisation ideally within the metal forming industry in terms of e.g. cycle time reduction, tooling cost reduction, and formability improvements.

E.6 Experience of manufacturing processes in an academic or industrial context

E.7 Demonstrable track record in developing high quality proposals and playing a leading role in attracting funding for project initiatives (internally/externally).

E.8 Sufficient knowledge and skills to be able to establish and maintain a network of relevant contacts, and ensure credibility within external partnerships.

E.9 Significant experience of analytical and/or experimental validation and verification techniques and approaches, for example design of experiments.

D.2 Knowledge and experience of finite element modelling and related software packages (e.g. ABAQUS, PAMSTAMP) applied to metal forming industrial applications.

D.3 Knowledge and experience of manufacturing processes complementary to forming e.g nickel, aluminium, titanium, and magnesium alloys (e.g. welding, bonding, heat treatment, surface coatings and finishing).

D.5 Knowledge and experience of process design and process improvement methodologies (e.g. Design for Manufacturing, Design of Experiments) applied within the metal forming industry.

Job Related Skills and Achievements

E.10 Significant professional experience of problem solving and addressing manufacturing process challenges within an academic or industrial enterprise.

E.11 An ability to plan and organise your own workload and that of a project team, with general supervision from senior colleagues.

E.12 Ability to plan and organise programmes in an academic or industrial setting, and to pull together teams of academic professional staff and others as appropriate, to ensure project delivery for the client.

E.13 Established personal track record in carrying out knowledge exchange related activities.

Personal Attributes

E.14 Excellent written and verbal communication skills, with an ability to interact with a range of stakeholders in both industry and academia.

E.15 An ability to disseminate results and contribute to research and commercial proposals.

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- E.16 An ability to work as part of a team, through participation in collaborative projects, and developing evidence of leadership.
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- E.17 Ability to influence stakeholders, internally and externally, at varying levels and ability to convey compelling arguments with complex technical information.
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- E.18 Ability to develop new areas and manage associated ambiguity as new research themes emerge
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- Other Relevant Factors**
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- E.19 An ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences
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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/workforus>).

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](#).

Pre-employment health screening

An offer of appointment will be subject to a medical assessment by Occupational Health. An individual who accepts an offer of employment must complete a confidential medical questionnaire and forward it to the Occupational Health Nurse within 5 days of receipt. If further information is required the individual may be contacted by the OHN or a Medical Advisor and a personal appointment with the individual may be arranged. An unconditional contract of employment will not be issued until Human Resources receives confirmation that applicant is fit to undertake the duties of the post.

Probation

Where applicable, the successful applicant will be required to serve a 12 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 on Wednesday, 14 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.

