



Digital Manufacturing Engineer – Connectivity Theme

Department	National Manufacturing Institute Scotland (NMIS) (www.nmis.scot/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	674471
Reports To	NMIS Connectivity Theme Lead	Grade	7
Salary Range	£36924 - £45163	Contract Type	Fixed Term (24 months)
FTE	1 (35 hours/week)	Closing Date	28/02/2025
Working Arrangements	Hybrid. The standard requirement across the University is that at least three days per week (based on IFTE) will be spent working on-site (with flexibility as appropriate).	On Site Facilities	Car parking, on-site shower facilities, reflection room.
Holidays	31 days + 11 statutory days Option to purchase additional holidays.		
Pensions	Contributory pension scheme available to all staff including generous employer contribution.		
Training	Professional Development with Organisational and Staff Development Unit (OSDU) plus external training if required.		
Family Friendly Benefits	Generous parental leave provision, on-campus nursery and options for flexible working.		
Health and Wellbeing	University Sport centre, Occupational Health service, access to health and wellbeing events, cycle to work scheme, Employee Assistance Programme, agile working and established carers support network and carer friendly policies.		

Job Advert

The University of Strathclyde is a leading international technological institution and has a long history of working with industry to deliver strong business growth from access to research and innovation expertise. The latest major initiative continuing to deliver on this track record is through the National Manufacturing Institute Scotland (NMIS).

As a magnet for innovation in advanced manufacturing, the National Manufacturing Institute Scotland (NMIS) group of specialist R&D centres, supports manufacturing, engineering and associated tech businesses of all sizes, to thrive domestically and internationally through accelerating productivity, embracing new digital technologies and achieving net-zero targets.

We turn smart ideas into reality and deliver ground-breaking research.

Coming from diverse backgrounds and disciplines, our passionate team works alongside industry, academia, and the public sector to solve problems, train the workforce of the future and generate the creative ideas that will transform manufacturing.

Ultimately, we are growing the economy, developing a vibrant and skilled talent pool and helping create prosperous, sustainable communities.

In the age of the fourth industrial revolution, manufacturing organisations (large and small) are actively seeking to understand how they can transform their business through digital technologies. However, as manufacturing processes and systems can be unique to the product that is being produced, challenges still exist and solutions need to be found. To support industry in addressing these challenges, NMIS are looking to appoint a Digital Manufacturing Engineer specialising in connectivity solutions to understand and develop solutions that can provide data acquisition and networking solutions of manufacturing processes.

The Digital Manufacturing Engineer will require knowledge and technical expertise in the following areas;

- Knowledge and experience with manufacturing systems engineering.
- Data acquisition from a variety of sources including machine programming logic controllers (PLC'S), sensors, embedded sensors and edge devices.
- Knowledge and working understanding of networking and integration of data acquisition solutions for manufacturing facilities both wired and wireless i.e 5G / 4G / LoRaWAN, NB-IoT etc.
- Analytical skills in manufacturing data sources for manufacturing and operations management.
- Creation of dashboards and other visualization toolsets for visualization of manufacturing datasets.
- Cyber-Security processes, best practice and implementation.

The Digital Manufacturing Engineer will be expected to work between NMIS, University of Strathclyde and Industry partners to develop strong knowledge exchange activities including collaborative research and development. The Digital Manufacturing Engineer will require the knowledge, skills and experience normally associated with a first degree and/or PhD in Computer Science, Electrical and/or Mechanical Engineering, or Manufacturing Engineering. The Digital Manufacturing Engineer will support research and development programmes on intelligent manufacturing, smart factory systems, digital transformation of industrial enterprises, and will be involved in academic research into one or more of these processes. The postholder shall have knowledge and experience in the following technology areas; Industrial Programming Logic Controllers (PLC's), Communication and Data Exchange Protocols (OPC-UA, Modbus, etc.), Sensor Technologies, Data Storage, Systems Integration, Network Infrastructure and Cyber-Security.

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

Job Description

Brief Outline of Job:

A Digital Manufacturing Engineer is sought to support research programmes and deliver projects for NMIS. The role sought will be focussed on the development and deployment of equipment for connectivity (Internet of Things (IoT)), embedded sensors and real-time data acquisition solutions, with a keen focus for these implementations to meet latest networking and cyber-security requirements. They will be required to identify potential projects and delivery projects in these areas.

In this role you will support the connectivity technology theme to help deliver data acquisition, and data transfer solutions in manufacturing applications through the development of embedded sensors, sensor solutions, communication protocols, networking and cyber-security. The post-holder will be required to work across NMIS and specialist centres to support research teams in this area and become part of relevant networks, for example Digital Manufacturing related forums and become integral to the development of capabilities within NMIS. The post-holder will also be required to develop relationships with key partners in the field of connectivity (IoT), embedded sensors and real-time data acquisition, data transfer solutions, networking and cyber-security. As a result of collaboration, you will be expected to generate engineering project proposals in this technology field for the creation of commercial and research income that will enhance NMIS standing, capability and reputation.

The Digital Manufacturing Engineer will also be expected to deliver projects to time and within budget and provide project updates as required for the relevant Connectivity Theme Lead, Digital and Metrology Team Lead, senior or programme management teams and customers/stakeholders. You will be expected to support business development activity at NMIS by various means including sharing specialist/expert knowledge, hosting guests/tours and demonstrating NMIS capability.

Main Activities/Responsibilities:

1.	Conduct research and knowledge exchange activities of data acquisition and networking of manufacturing facilities, manufacturing assets (legacy and new) in the creation of smart factories.
2.	Support the Connectivity theme to develop connected factories and manufacturing systems to improve operational performance and manufacturing sustainability.
3.	Lead on the development of embedded sensor and sensor solutions for complex manufacturing processes and external data acquisition solutions within a manufacturing environment.
4.	Propose and lead own research projects that support the remit of the Connectivity Theme.

5.	Plan and manage own workload, with minimal guidance from Theme/Team/Project Lead as required.
6.	Support our industrial members through collaborative research & development projects, workshops and other knowledge exchange activities.
7.	Prototype technology solutions to support internal NMIS teams, NMIS partners, and external stakeholders in manufacturing companies.
8.	Enhance NMIS manufacturing capability through greater collection of manufacturing data sets from manufacturing assets within NMIS and specialist centres thereby also demonstrating the efficiency of connected manufacturing systems and real time data acquisition solutions.
9.	Support NMIS in its cyber-security implementation for manufacturing, with continuous development in cyber-security sector. Ensure NMIS remains on the leading edge of cyber-security.
10.	Identify opportunities for strategic development of new projects by building contacts internally and externally, across academic, industrial and governmental bodies and clusters.
11.	Disseminate research outcomes through reports, papers and presentation to technical and non-technical audiences at workshops, conferences and other KE events.
12.	Assist in the training and development of staff and external clients in manufacturing data engineering methods and processes. Participate in running successful CPD events and consultancy activity.
13.	Contribute to overall NMIS growth by working as an integral part of the NMIS team effort, inputting to the research programme, KE activities and capability development, as necessary, to meet strategic objectives.
14.	Attend training and development for 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)	Essential/ Desirable	Assessment Method
E1 Good first degree (minimum class 2:1) and PhD or equivalent significant professional experience in a relevant industry setting in a relevant engineering discipline	Essential	Application/CV
D1 Incorporated / Chartered Engineer/Scientist, Member of professional body in an appropriate discipline	Desirable	Application/CV
Experience		
E2 Knowledge and experience of Connectivity/IoT, embedded sensors and real-time data acquisition, network architectures/technologies, data storage technologies and cyber-security best practices	Essential	App/CV/ Interview
E3 Professional experience of carrying out real time data acquisition solutions within a manufacturing engineering context either within an academic or industrial enterprise	Essential	App/CV/ Interview
E4 Significant professional experience developing and maintaining customer and supplier relationships	Essential	App/CV/ Interview
D2 Experience and knowledge of API's (REST etc.) to access and transfer datasets	Desirable	App/CV/ Interview
D3 Experience and knowledge of programming solutions such as Python, C++ for data collection, processing, analysis and system control	Desirable	App/CV/ Interview
D4 Knowledge and experience of working with networking and storage solutions for data acquisition in a manufacturing environment	Desirable	App/CV/ Interview
D5 Knowledge and experience of working with communication protocols such as MQTT, Modbus, OPC-UA, etc	Desirable	App/CV/ Interview
D6 Knowledge and experience of working to Cyber-Security standards (IEC 27001, NIST Cybersecurity Framework 2.0, Cyber Essentials, etc)	Desirable	App/CV/ Interview
D7 Knowledge and experience of working with the High Value Manufacturing Catapult or similar environment	Desirable	Interview
Job Related Skills and Achievements		

E5 Evidence of contribution to the successful planning and delivery of projects within an academic or industrial environment	Essential	App/CV/ Interview
E6 Demonstrate critical thinking and creative approaches to solving challenges found when acquiring data or networking systems in a manufacturing environment	Essential	App/CV/ Interview
E7 Experience and knowledge exchange related activities, an ability to disseminate results and to contribute to research and commercial proposals	Essential	App/CV/ Interview
E8 Ability to work and collaborate in multi-disciplinary teams with diverse backgrounds to identify manufacturing challenges that can be addressed through data acquisition and networking	Essential	App/CV/ Interview
D8 Ability to take ownership of technical elements of projects and to engage with different stakeholders	Desirable	App/CV/ Interview
Personal Attributes		
E9 Excellent verbal and written communication skills, with an ability to interact with a range of stakeholders in both industry and academia	Essential	App/CV/ Interview
E10 Have an inquisitive nature and desire to understand the value industry 4.0 can provide to manufacturing industry	Essential	App/CV/ Interview
E11 An ability to work independently and as part of a team, through participation in collaborative projects, and developing evidence of leadership	Essential	App/CV/ Interview
Other Relevant Factors		
D9 Interest in the latest developments in smart factory systems, manufacturing systems, digital manufacturing, cyber-security and the underpinning of these concepts	Desirable	App/CV/ Interview

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 John Reilly, Connectivity Theme Lead (John.Reilly@strath.ac.uk)

Conditions of Employment

Conditions of employment relating to Knowledge Exchange Staff can be found here: [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.

Interviews

Formal interviews for this post will be held on a date to be confirmed.

Equality and Diversity

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

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.



Conditions of Employment

Knowledge Exchange Staff

1. GENERAL CONDITIONS

Members of staff are subject to the Charter and Statutes and the Ordinances and Regulations of the University, published in the Calendar, and to any amendments or additions thereto approved by the University Court and, in the case of the Charter and Statutes, the Privy Council. Staff are also expected to familiarise themselves with, and adhere to, general University policies and procedures, as published on University web pages.

The University Court recognises Strathclyde Universities and College Union (SUCU) as the sole body with which it will negotiate and consult on all collective issues concerned with the terms and conditions of employment of Knowledge Exchange Staff. Such terms and conditions may be varied by the University Court after negotiation and consultation with SUCU.

Each member of staff is responsible for the proper performance of allocated duties to the person or persons specified in the member of staff's letter of appointment and any accompanying papers.

The University is committed to ensuring that its business is conducted in an open and transparent manner and will take all appropriate steps to address risks of bribery or corruption. Members of staff are required at all times to act honestly and with integrity and to safeguard the resources for which they are responsible. The University has in place a robust Public Interest Disclosure (Whistleblowing) Policy to enable concerns to be brought to its attention. This is available at www.strath.ac.uk/publicinterestdisclosure. Other relevant policies, e.g. Fraud Prevention and Conflicts of Interests, can also be found on the University's website.

Any member of staff may at any time be exposed to commercially sensitive information, information related to potentially valuable intellectual property or information which may otherwise be of a confidential nature. This information, which could be found anywhere in the University, may be written or disclosed orally, can include information of a commercial or technical nature, and may be owned by the University or by third parties. The University requires all employees to keep any such information confidential in the first instance and not disclose, publish or otherwise disseminate it without prior consent of the University. Such confidentiality obligations are commonplace and in the commercial interests of the University. When in doubt advice should always be sought from Research and Knowledge Exchange Services prior to disclosure.

The University operates probationary periods for new staff, the duration of which will be specified in individual letters of appointment. The normal probation period for posts in this staff category is 9 months for those at grades 6 and 7, and 12 months for grades 8 and above. Further guidance on probationary procedures is published at <http://www.strath.ac.uk/staff/policies/hr/>.

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Further information on the terms and conditions specified in this document and other staffing policies and procedures can also be found at www.strath.ac.uk/hr.

2. SALARY

Appointments are made at an appropriate salary point on the University's grading structure, with initial placing determined according to qualifications and experience. Increments are paid to staff on the 12 month anniversary of their appointment. Where this is not the first of the month, the increment will be paid on the first of the month directly

after the 12 month anniversary. This allows 1 progression to the next point on the salary scale until the top guaranteed point of the scale is reached.

Salaries are paid directly to staff members nominated bank account, normally on the second last working day of the month.

3. HOURS OF WORK

Working time is that required to fulfil the duties of the post. The University Court recognises that Knowledge Exchange staff carry out their duties in a variety of ways appropriate to the nature of their role, but expects work to generally be performed during normal working hours on week days. There are exceptions to this pattern which may involve contact at other locations or in the evenings, or at weekends, but these arrangements will be made with the agreement of the member of staff concerned.

Duties may, by arrangement with Head of Department/School/Director, include some teaching associated with the post (up to a maximum of 40 hours per semester) for which no additional payment will be made.

Additional work which does not fall within the scope of that described above may by arrangement attract payment which must be authorised and processed through the payroll.

4. HOLIDAYS

Annual leave entitlement is 31 days per year to be taken by agreement with the line manager. For staff members working on a part-time basis, holidays will be calculated on a pro-rata basis.

In addition to annual leave there is an entitlement to eleven public holidays per year which should be taken on days that the University is closed for this purpose. The University presently closes for four additional days over the Christmas and New Year period. **These additional days count against the annual leave entitlement.**

For staff members working on a part-time basis, public holiday entitlement will be calculated on a pro-rata basis.

Annual leave and public holiday entitlements should be taken in the leave year to which they relate. Up to five days leave can be carried forward into the new leave year subject to line management agreement. In exceptional circumstances, Heads of Department/School/Director may approve carry forward of accrued annual leave in excess of five days.

The University's expectation is that staff take all accrued holidays prior to their termination date. If staff have exceeded their entitlement the University will deduct an equivalent number of days pay from final salary payments.

5. SICKNESS ABSENCE

During any period of absence through illness or injury provided the appropriate notification and certification procedures have been followed the University will pay a member of staff (having taken account of the aggregate of all periods of absence due to illness during the twelve months immediately preceding the first day of the current absence) as follows:

Period of Continuous Employment at start of absence from work	Full Pay	Half Pay
Less than 1 year	1 month	1 month
1 year but less than 2 years	2 months	2 months
2 years but less than 3 years	4 months	4 months
3 years but less than 5 years	5 months	5 months
5 years or more	6 months	6 months

In order to manage the University's sick pay scheme the University requires to maintain sickness absence records on individual members of staff. When making payments after the expiry of statutory sick pay the University will deduct an amount equivalent to any benefit normally payable by the Department of Work and Pensions. For full details on the general University policy in this area please refer to the Sickness Absence Management Policy at www.strath.ac.uk/staff/policies/hr.

6. PENSIONS

If you are under age 75 at the date your appointment commences you will automatically become a member of the pension scheme operated by the University — the Universities Superannuation Scheme (USS). You will be admitted to the career revalued benefits scheme called the USS Retirement Income Builder; the contribution rate that currently applies is 6.1% of pensionable salary. A threshold applies to the maximum salary that counts towards the USS Retirement Income Builder. The current threshold from 1 April 2024 is £70,296 per year. Contributions based on salary above the monthly equivalent rate of the threshold are paid to the defined contribution section of the scheme called the USS Investment Builder. Please use the following link to access information, including the USS Member Guide: <https://www.uss.co.uk/for-members/youre-a-new-joiner>. The scheme booklet is called 'Your Guide to the Universities Superannuation Scheme'.

The University operates a salary exchange arrangement, Pensions Plus, for members of the USS. Pensions Plus enables pension contributions to be made in a manner so that both employees and the University can benefit from available National Insurance Contribution savings. You will be automatically included in Pensions Plus, provided it does not adversely affect your take-home pay or your ability to claim certain state benefits. If your earnings fall below the Pension Plus pay protection limit you will be opted out of Pension Plus. This will not affect your membership of the USS.

New members of staff may opt out of USS within three months of taking up appointment and will then be treated as if they had never been a member of the scheme. After three months members of staff who wish to withdraw from USS during their employment will be required to give a minimum of 28 days' notice in writing to the University. Any member of staff who wishes to opt out should contact the Pensions Section, Finance, in the first instance (pensions@strath.ac.uk). Please note that if you are a member of Pensions Plus and withdraw from USS with less than two years of membership, or cease employment with the University and have less than two years of USS membership, the option of a refund of pension contributions will not be available to you. Instead, USS must provide you with a pension benefit that is payable from your Normal Pension Age. Regardless of whether you participate in Pensions Plus, if you are a member of the pension scheme for two years or more you are not entitled to a refund of pension contributions on leaving the scheme, you will be entitled to a pension benefit.

The University reserves the right to alter or withdraw Pensions Plus as it sees fit or as required to comply with legislative changes. Withdrawal or amendment of Pensions Plus will not affect your membership of USS. If you do not wish to participate in Pensions Plus but wish to remain in

the pension scheme please contact the Pensions Team who will provide you with a non-participation form.

Information regarding pension scheme membership can be found on the Pensions pages of the University's website. Full information regarding USS can be found on the USS website – www.uss.co.uk

7. PLACE OF WORK AND RESIDENCE

Members of staff will be based on the John Anderson Campus, unless otherwise stated in the letter of appointment. The Department/School in which the post is initially placed will be specified in the letter of appointment although there will be an expectation to work at such other places as required in the course of employment.

If the need arises for members of staff to work outside the UK for a period (or periods) of more than one month then such arrangements will be subject to mutual agreement. Members of staff would then be provided with a statement in advance setting out the terms covering such periods of employment.

The University does not normally place specific restrictions upon the place of residence of members of staff. All staff are, however, expected to reside in a location which is compatible with the satisfactory fulfilment of all the duties associated with their appointment.

8. CONSULTANCY/FURTHER ACTIVITIES

To support the strategic objectives of the University and to facilitate individual professional development, the University encourages staff to engage in professional activities with outside bodies related to their field of work. In many cases, such activity will be approved on the basis that it represents University knowledge exchange activity and should therefore be treated as part of the individual's overall workload and managed through the University's systems. It is also recognised that there will be some cases where an activity is entirely separate from the University and should thus be notified/approved as a personal business activity. For further information please refer to the "University Procedure in relation to Work for Outside Bodies including Consultancies", which forms part of the employment contract and can be accessed at <http://www.strath.ac.uk/hr>.

9. DISCIPLINARY AND GRIEVANCE PROCEDURES

Further information on the University's disciplinary and grievance procedure can also be found at www.strath.ac.uk/policies/hr or on request from Human Resources.

10. NOTICE AND TERMINATION

The employment of a member of staff is terminable by at least three months notice in writing, on either side; except during probationary period when the notice period is one month. If notice is being given by a member of staff earlier release may be granted if this can be arranged without detriment to the work of the department or area. If the appointment is for a fixed term it will expire at the end of the period without the necessity for notice. Fixed term contracts may be terminated by either party short of the expiry date by the serving of one months' notice in writing. The University is not obliged to continue a fixed term appointment beyond the employment period.

Revised April 2024