

## **Job Description**

<b>Role Title:</b>	Research Scientist in Microsystems and Nanotechnology
<b>School / Dept:</b>	School of Science, Engineering and Environment
<b>Directorate:</b>	Northern Engineering and Robotics Innovation Centre (NERIC)
<b>Reference:</b>	MPF4147
<b>Grade:</b>	Grade 7
<b>Full or Part time:</b>	Full time – 12-month Fixed Term Contract
<b>Hours:</b>	1.0 FTE

## Overview

The Northern Engineering and Robotics Innovation Centre (NERIC) is seeking an outstanding Research Scientist in Microsystems and Nanotechnology. This is an exciting opportunity to join our team and work at the interface of academia and industry, supporting SMEs and research partners in Greater Manchester and beyond. Working in the broad areas of Advanced Materials and Advanced Manufacturing you will design, fabricate, and test micro/nanoscale device prototypes, assist SMEs and collaborate with leading academics and industrial innovators.

## Role Purpose

Working in response to the advanced manufacturing and advanced materials industry needs in the Greater Manchester area, especially small and medium sized enterprises (SMEs), this role will support industrial and academic research activities and projects in the areas of Precision Engineering, Semiconductor Materials, Microsystems and Nanotechnology.

This position will report to the Director of NERIC (Professor and Chair in Nanophotonics and Microsystems Engineering) and will also be expected to engage with the wider project team. The Research Scientist will be expected to deliver outputs for the Greater Manchester Combined Authority (GMCA) Industrial Strategy Zone elements of the project, in particular working with SMEs in the Greater Manchester area. In parallel, they will collaborate with academics in the School of Engineering in their research activities and assist in various industry and academic training activities.

We particularly welcome applicants with backgrounds in Microsystems, Microelectronics, Photonics, Semiconductor materials, Nanoengineering, and Solid-state Physics, with an interest in developing microsystems, microsensors and microactuators for applications in robotics, healthcare, navigation, and environmental sensing. Please contact NERIC Director, Prof. Maziar Nezhad ([m.p.nezhad@salford.ac.uk](mailto:m.p.nezhad@salford.ac.uk)) or NERIC microfabrication cleanroom manager Dr Joe Neilson ([j.neilson@salford.ac.uk](mailto:j.neilson@salford.ac.uk)) for informal queries about the post.

## Essential characteristics:

- A PhD in a relevant field (e.g. solid-state physics, electronics, photonics, semiconductor materials).

- Practical experience in microfabrication processes and working in a cleanroom environment.
- Expertise in the design, fabrication, and characterisation of microsystems and nanodevices.
- Strong track record of research outputs and/or industrial R&D contributions.
- Excellent problem-solving, analytical, and communication skills.

**Desirable characteristics:**

- Postdoctoral or industrial R&D experience.
- Experience working with SMEs or industry partners.
- Skills in programming, metrology systems, and hardware/software development for micro/nanoscale experimentation.
- Experience developing health & safety procedures in lab/cleanroom settings.

## **Principal Duties & Responsibilities**

- Conceive, plan, and deliver applied R&D projects that address industrial challenges, working with NERIC facilities such as cleanrooms, laboratories, and prototyping environments.
- Advise SMEs and industry collaborators on appropriate experimental methods, fabrication techniques, testing strategies, and routes to scale-up.
- Provide technical expertise, analytical insight, and research support to SMEs and industry partners, helping them develop new products and services in precision engineering, microsystems, nanotechnology, and advanced materials and manufacturing.
- Translate research findings into practical solutions, prototypes, and demonstrators that create measurable industry impact.
- Develop project objectives, milestones, and work plans in line with agreed timescales, funding requirements, and partner expectations.
- Ensure effective communication and reporting to SMEs, industry partners, and project stakeholders, including delivery of technical reports and presentations.
- Collaborate with the wider NERIC team to ensure successful delivery of industry-led projects.
- Deliver training sessions, workshops, and knowledge transfer activities to SMEs, industry collaborators and researchers in relevant technical areas.
- Undertake academic research, generating outputs for peer-reviewed journals and presenting at relevant conferences.
- Collect, process, and interpret experimental data in line with appropriate ethical, safety, and governance standards.
- Keep senior academics and project managers informed of progress, risks, and opportunities for further industry engagement.

## **Generic Duties**

- Perform any other duties appropriate to the grade as may be required by the NERIC director.

- Comply with the personal health and safety responsibilities specified in the University Health and Safety policy.
- To engage with the University's commitment to put our students first and deliver services which are customer orientated, represent value for money and contribute to the financial and environmental sustainability of the University when undertaking all duties and aspects of the role.
- Advance equality, support our work towards eliminating unlawful discrimination, foster an inclusive study and work environment for students, staff and visitors in accordance with our public sector equality duties and university policy.

This role detail is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your Contract of Employment.

Person specification follows on next page

## Person Specification

The successful candidate should demonstrate the following, which are 'Essential' (E) or 'Desirable' (D)

### Qualifications

1. A PhD in a relevant field such as Solid-State Physics, Electronics, Photonics, Semiconductor Materials or related areas (E)
2. Post-doctoral or equivalent industrial experience in the above areas (D)

### Background and Experience

3. Expertise in the design, fabrication, and characterisation of microsystems and nanodevices (E)
4. Practical experience in micro/nanofabrication and working in a cleanroom environment (E)
5. Experience with semiconductor device fabrication processes such as lithography, thin film deposition, etching, and packaging (E)
6. Experience using micro/nanoscale characterisation techniques (e.g. electrical, optical, structural, or surface analysis) (E)
7. Experience designing and conducting experimental research programmes, including prototype development and testing (D)
8. Experience operating and maintaining laboratory or cleanroom equipment and experimental systems (E)
9. Experience collaborating on multidisciplinary research projects involving academic and/or industrial partners (D)
10. Strong track record of research outputs and/or industrial R&D contributions (E)
11. Postdoctoral or industrial R&D experience in microsystems, nanotechnology, advanced materials, or a related field (D)
12. Experience working with SMEs or industry partners (D)
13. Experience developing health & safety procedures in lab/cleanroom settings (D)

14. Experience contributing to grant-funded research projects or externally funded innovation programmes (D)
15. Experience translating research outcomes into practical prototypes, demonstrators, or technology solutions (D)
16. Experience preparing technical reports, research publications, or documentation for academic or industrial audiences (E)

### **Knowledge**

17. Microsystems engineering, microelectronics, or nanoengineering principles (E)
18. Semiconductor materials, thin film technologies, and device physics (E)
19. Micro/nanofabrication techniques such as lithography, deposition, etching, and packaging (E)
20. Data analysis, interpretation, and scientific research methodologies relevant to applied experimental research (E)
21. Programming, metrology systems, and hardware/software development for micro/nanoscale experimentation (E)
22. Emerging applications of microsystems and nanotechnology in areas such as robotics, healthcare, sensing, or environmental monitoring (D)
23. Technology transfer, prototype development, and innovation processes within academia–industry collaborations (D)

### **Skills and Competencies**

24. Strong analytical, problem-solving, and stakeholder engagement skills, with a structured engineering approach (E)
25. Ability to analyse and interpret complex experimental datasets using appropriate software or computational tools (E)
26. Excellent oral and written communication skills, with the ability to explain complex technical concepts to specialist and non-specialist audiences (E)
27. Ability to develop professional networks and collaborate with external partners, suppliers, and stakeholders (D)

28. Ability to work collaboratively with multidisciplinary academic and industrial teams and build effective professional relationships (D)