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Job Description

Post title: **Nanofabrication Technician**

Date last updated/evaluated: March 2025

Author: Georgia Mourkioti

School / Department: ORC

Faculty / Directorate: Faculty of Physical Sciences and Engineering

Job Family: Technical and Experimental (TAE)

Grade: Level 4

ERE Pathway (if applicable): Not applicable

Post reporting to: Technical Manager

Post line report(s): N/A

Post base location: Campus **:** Office-based/Non Office-based (see job hazard analysis)

Job purpose: Use specialist knowledge to manage tasks and provide fabrication support for project activities within the Silicon Photonics Group, including developing and characterising processes that can be used for several photonics platforms. To provide specialist technical support and advice to all users of the Southampton Nanofabrication Cleanroom (SNC) and its external customers. To provide additional support to cleanroom technical staff.

## Key accountabilities and indicative time allocation:

1. **25%**

Apply a full understanding of nanofabrication processing to manage and deliver fabrication tasks as required within the cleanroom. This will include but not limited to etching, cleaning, material deposition and annealing processes. Logging/recording day-to-day process notes and key results.

1. **25%**

Manage and deliver research and customer projects. Improve processes on specialist cleanroom equipment for various customer bespoke and research projects. This will include the development of processes such as material deposition and etching, substrate polishing, annealing processes and material characterisation. Responsibilities include literature review, critical evaluation and interpretation, fault finding and design of experiments and change programmes as part of a wider project team.

1. **10%**

Manage and deliver fabrication process flows. Plan, define and monitor process flows and progress of projects. Plan and disseminate key equipment calibration changes; for example, clamp changes on etching tools. Identify bottle-necks in process flows and establish new working methods to resolve delays. Carry out administrative tasks associated with the projects, for example, risk assessment of research activities, participation in project meetings and documentation. Define, develop, review and refine working practices to meet service and/or quality standards and objectives.

1. **10%**

Use 10% of your time to pursue personal and career development opportunities in line with the C-PIC EDI policy.

1. **5%**

Provide specialist technical advice, guidance and recommendations on fabrication/device issues and application of new and existing specialist techniques, equipment and/or procedures. Characterise devices and provide feedback from process development activities.

1. **5%**

Analyse, evaluate and interpret complex test results and other specialised information, data or concepts. Identify gaps in understanding, and methods of addressing these. Identify themes, consider implications and propose or develop solutions as appropriate.

1. **5%**

Attend internal and external meetings to ensure the work unit issues are represented. Proactively work with and influence peers and other colleagues to help achieve objectives and coordinate technical activities across different parts of the University.

1. **5%**

Liaise with project partners to ensure compatibility of processes between partners. Monitor and maintain appropriate records and reports to meet internal and external requirements (e.g., audit and compliance reports, service level agreements, health and safety records).

1. **5%**

Train and assist staff, students and external visitors in the safe use of a range of nanofabrication equipment.

1. **5%**

Any other duties as allocated by the line manager following consultation with the post holder.

Internal and external relationships:

Other members of the department/University staff.

External customers

Relevant suppliers and external contacts

Special requirements:

Work in Class 100 and 1000 cleanrooms

Willingness to undertake Health and Safety training specific to role

Late work from 5pm to 9pm on two days a week

# Person Specification – Skills and Competencies

All essential and desirable criteria outlined in this Person Specification will be assessed through a combination of recruitment application and CV, and where applicable numerical or written assessment.

**Knowledge, Experience and Qualifications**

Essential

* Substantial and authoritative practical knowledge and experience in the required operational discipline, supported by general theoretical understanding. Experience in a laboratory environment, with proven experience of successfully planning and progressing work activities
* The required level of knowledge and understanding will normally have been gained through some or all of the following:
	+ Considerable work experience
	+ Vocational training
	+ Formal qualification(s) equivalent to Level 5 or 6 of the [Regulated Qualifications Framework](https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels) e.g. foundation degree or degree with honours, or Level 5 or 6 award, certificate, diploma, NVQ.
* Knowledge, experience and competence may also be evidenced through professional registration:
	+ Professional registration at the Registered Scientist (RSci) level will typically indicate partial competence at TAE Level 4.
	+ Professional registration at the Incorporated Engineer (IEng) level will typically indicate full competence at TAE Level 4.

Desirable

* Degree in science related subject
* Experience performing optical characterisation of photonic integrated circuits
* Knowledge of silicon photonics fabrication techniques
* Experience of chemical handling and waste disposal

**Teamwork and Communication**

Essential

* Delegates and/or collaborates effectively, understanding the strengths and weaknesses of colleagues.
* Works proactively with colleagues and other stakeholders, within and beyond the University, to achieve outcomes.
* Communicates effectively to develop understanding and achieve cooperation.
* Provides clear specialist advice, guidance and recommendations on complex issues.

**Planning, Organisation and Resource Management**

Essential

* Plans and progresses a rage of work activities within broad professional guidelines and established University policies and procedures.
* Formulates development plans to meet current skill requirements.
* Proven ability to plan and deliver technical or engineering activities to deadline and quality standards.
* Organisation and time management skills. Able to set and plan short/medium term priorities in line with team and execute accordingly.
* Able to progress a broad range of activities within professional guidelines and in support of university policy

**Problem Solving and Initiative**

Essential

* Develops detailed understanding of long-standing and/or complex problems and applies technical professional knowledge and experience to resolve them.
* Demonstrates an awareness of principles and trends in a professional or specialist field and awareness of how this affects activities in the University.

Desirable

* Familiarity with general diagnostic test equipment.

# Job Hazard Assessment

A full health clearance is required for this role where any hazards marked “**^**”, using the agreed Occupational Health referral template [available from here](https://sotonac.sharepoint.com/teams/HealthWellbeing/SitePages/Occupational-Health.aspx). Where a full health clearance is required, this will apply to all role holders, including existing members of staff.

## Physical Environment

Working outside **^** Not applicable

Exposure to noise levels >80dbA **^** Not applicable

Working with dust or fumes **^** Frequently 30-60% Time

Working with skin irritants **^** Frequently 30-60% Time

Working with chemicals (industrial or cleaning) **^** Frequently 30-60% Time

Working in a confined space **^** Not applicable

Working at height **^** Occasionally <30% Time

Working with sewage **^** Not applicable

Contact with cytotoxins **^** Not applicable

Exposure Prone Procedure (EPP) work **^** Not applicable

Contact with clinical specimens or pathology work **^**  Not applicable

Direct patient care or patient contact Not applicable

Exposure to temperature extremes Not applicable

Frequent hand washing Occasionally <30% Time

Ionising radiation Not applicable

## Psychological and Social Environment

Working shifts **^** Not applicable

Working nights **^** Not applicable

Lone working Occasionally <30% Time

Working with children Not applicable

Exposure to persons with challenging behaviourNot applicable

Working with larger groups Not applicable

## Equipment, Tools and Machines

Working with vibrating machinery or tools **^** Not applicable

Driving duties e.g. LGV, PCVs, forklift trucks **^** Not applicable

Food handling Not applicable

Contact with latexNot applicable

## Physical Abilities

Prolonged physical movements or actions e.g. walking **^** Occasionally <30% Time

Prolonged Standing or Sitting **^** Frequently 30-60% Time

Moving or handling heavy loads **^** Not applicable

Repetitive pulling or pushing **^** Occasionally <30% Time

Repetitive climbing (steps, stools, ladders, stairs) **^** Not applicable

Repetitive crouching, kneeling or stooping Occasionally <30% Time

Repetitive lifting Occasionally <30% Time

Fine motor grips (e.g. pipetting) Frequently 30-60% Time

Repetitive reaching below shoulder height Not applicable

Repetitive reaching at shoulder height Occasionally <30% Time

Repetitive reaching above shoulder height Not applicable

# Behaviours

Our [Inclusion and Respectful Behaviour Policy](https://www.southampton.ac.uk/about/governance/regulations-policies/policies/inclusion-respectful-behaviour) describes the expectations of everyone who is a part of our community.

Our **Southampton Behaviours** (below) outline the responsibilities we each have in working collaboratively to achieve our University strategy.

**Personal Leadership**

 - I take personal responsibility for my own actions and an active approach towards my development.

 - I reflect on my own behaviour, actively seek feedback and adapt my behaviour accordingly.

 - I demonstrate pride, passion and enthusiasm for our University community.

 - I demonstrate respect and build trust with an open and honest approach.

**Working Together**

 - I work collaboratively and build productive relationships across our University and beyond.

 - I actively listen to others and communicate clearly and appropriately with everyone.

 - I take an inclusive approach, value the differences that people bring and encourage others to contribute and flourish.

 - I proactively work through challenge and conflict, considering others’ views to achieve positive and productive outcomes.

**Developing Others**

 - I help to create an environment that engages and motivates others.

 - I take time to support and enable people to be the best they can be.

 - I recognise and value others’ achievements, give praise and celebrate their success.

 - I deliver balanced feedback to enable others to improve their contribution.

**Delivering Quality**

 - I identify opportunities and take action to make improvements.

 - I plan and prioritise efficiently and effectively, taking account of people, processes and resources.

 - I am accountable for tackling issues, making difficult decisions and seeing them through to their conclusion.

 - I encourage creativity and innovation in others, to deliver workable solutions.

**Driving Sustainability**

 - I consider the impact on people before taking decisions or actions that may affect them.

 - I embrace, enable and embed change effectively.

 - I regularly take account of external and internal factors, assessing the need for change, and gaining support to move forward.

 - I take time to understand our University strategy and communicate this to others.