Job Description

Post title: **Senior Nanofabrication Engineer**

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School / Department:	Electronics and Computer Science
Faculty / Directorate:	Faculty of Engineering and Physical
Job Family:	Sciences Education, Research and
Grade:	Enterprise (ERE) Level 5
ERE Pathway (if	Knowledge Exchange and Enterprise
applicable): Post reporting	Liam Boodhoo
to:	N/A
Post line report(s):	Campus **:** Building 53, Highfield Campus
Post base location:	

Job purpose: To effectively and independently manage and run commercially oriented cleanroom nanofabrication projects. To engage in excellent team work and efficiency working on the nanofabrication processes of multiple concurrent R&D and low volume projects while managing client relationships and commercial pressures of high quality needs and strict timeframes for delivery.

The Faculty has a significant number and variety of commercial consulting and processing activities for client organisations throughout the world. The work is undertaken by a team of Nanofabrication Engineers and by accessing the research community within the Faculty.

Key accountabilities and indicative time allocation:

1. **75%**

Knowledge Exchange and Enterprise Contribution:

- Design, develop and deliver high-quality knowledge exchange and/or enterprise activities and outputs that meet stakeholder requirements and complement wider knowledge exchange and enterprise programmes or strategies, individually or as part of a wider project, team or unit.
- Undertake and manage processing on micro/nano-fabrication and characterisation activities in the Southampton Nanofabrication Centre cleanrooms.
- Understand the device architecture and any technology design rules where the industrial client has engaged in a commercial processing activity for a complete device. Help define test structures for process integration and development and design statistical experiments and analyse results to optimize processes.
- Ensure effective project management in delivery of projects, working with the team on delivery expectations and deal with any issues. Agree timing/resourcing of any work and coordinate the

activities of others to deliver projects. Agree and manage appropriate machine use and processes with the Cleanroom Complex Managers and support engineers. Coordinate with any external suppliers. Ensure smooth communication with clients as required.

- To manage and resolve day to day processing issues and ensure the timely delivery to meet client expectations. Adjust and implement changes in fabrication flows when needed for an agile approach to research and development work. Review and manage outcomes and variations for future project planning.
- To manage the quality and costs of delivered processing, planning and/or undertaking appropriate characterisation and inspection. Discuss and agree any required rework as necessary with the wider team and commercial clients.
- Research and develop new fabrication solutions through design or process as needed.
- To enhance expertise and development of stock processes.
- Supervise consulting engineers and process engineers on concurrent projects

2. **20%**

Leadership, Management and Engagement Contribution:

- Manage and run commercial R&D projects, low volume production jobs and associated resource management.
- Manage relationships with new and existing clients to maintain and set up existing and new commercial nanofabrication projects. To ensure technical and financial requirements are captured and projects are appropriately defined, process flows developed and documented.
- Attend customer meetings and respond in a timely manner to enquiries from clients, providing guidance on feasibility of any processing requests.
- Estimate resources required to deliver the projects and set out appropriate quotes for customers.
- Work with the team to define resource and time requirements, to communicate this effectively with clients to manage expectations on quality, timelines and expected technical outcomes of project output.
- Undertake marketing activities including but not limited to activities such as at conferences, exhibitions, preparing marketing materials, visiting clients, hosting client visits.
- Administration and reporting, for example project scheduling, tool management, risk assessments, project meetings, documentation, preparation and presentation of reports, time tracking
- Effectively conduct and engage in appraisal, career development and continuing professional development activities; formulate development plans to meet current and future skill needs.
- Engage with wider School, Faculty and University colleagues through advice and support with specialist skills.
- Support with consulting and training to wider research community.
- Ensure the effective management and use of assigned resources (e.g., budgets, equipment).
- Line manage or supervise staff, as appropriate.
- Effectively act as hiring manager, or member of a recruitment panel, throughout the recruitment process. Ensure recruitment aligns with strategic plans, promote diversity and inclusion, and ensure compliance with employment law. Implement best practice to enhance the candidate experience and support successful candidates through onboarding and induction.
- Actively contribute to, and support, Equality, Diversity and Inclusion initiatives within your role, ensuring that EDI principles are integrated into daily tasks and interactions

3.	5%

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

Internal and external relationships:

Internally manage and execute project coordination and delivery, work with others such as consulting engineers, process engineers, technicians and tool owners. The post holder will be responsible for overall execution of agreed projects, delivery and quality of client deliverables.

Externally the post holder will coordinate and undertake liaison with clients to ensure the successful delivery of their requirements and will advise clients on how best to deliver their processing needs. The post holder will be responsible for any visiting engineers from commercial clients.

New appointees will be assigned a senior colleague to guide their development and aid their integration into the School, Faculty and University.

Special requirements:

Fine and gross motor grips for delicate handling of small coupons up to 300 mm diameter wafers.

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 nano- and micro-fabrication, supported by detailed understanding.
- Postgraduate qualification (MSc) or equivalent professional qualifications and experience in a cleanroom related discipline.
- Significant and demonstrable experience of development and delivery of fabrication outcomes.
- Strong cleanroom process design and development experience.
- Ability to establish quality and characterisation procedures to deliver quality outcomes to clients and be responsive to any issues they raise.

The required level of knowledge and understanding can be demonstrated through some or all of the following:

- Considerable work experience
- Vocational training
- Formal qualification(s) equivalent to Level 7 or 8 of the Regulated Qualifications Framework e.g. master's degree, postgraduate certificate, diploma, PhD in relevant subject area in or Level 7 or 8 award, certificate, diploma.
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- Formal qualification(s) equivalent to Level 7 of the Regulated Qualifications Framework e.g. foundation degree or degree with honours, or Level 7 award, certificate, diploma, NVQ.

Desirable

- Degree in Electrical and Electronic Engineering or related discipline and/or proven industrial experience of cleanroom processing.
- Experience working to commercial deadlines and managing commercial pressures.
- Experience managing commercial projects.
- Experience managing client expectations

Teamwork and Communication

Essential

- Able to provide accurate and timely specialist guidance on complex issues. Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience.
- Able to navigate technical and non-technical negotiations with clients, suppliers and colleagues.
- Delegate and/or collaborate effectively, understanding the strengths and weaknesses of colleagues.
- Work proactively with colleagues and other stakeholders at all levels, within and beyond the University, to achieve positive outcomes.
- Communicate effectively to develop understanding and achieve cooperation.
- Provide clear advice, guidance and recommendations on novel or complex concepts and issues.

- Proactive in promoting a working environment that is inclusive and engaging; recognising the value diversity brings.
- Able to work in cleanroom conditions and have adequate fine handling skills for fragile wafers and samples.

Desirable

- Experience of delivering technical and non-technical presentations to a range of clients from commercial and academic backgrounds.

Planning, Organisation and Resource Management

Essential

- Proven ability to plan, develop and deliver a range of high quality nanofabrication activities.
- Able to plan and manage their own and the work of others to meet multiple concurrent projects and minimise impact of other users of the Cleanroom Complex.

Problem Solving and Initiative

Essential

- Able to apply originality in modifying existing approaches to solve problems.
- Develop detailed understanding of long-standing and/or complex problems and apply accumulated knowledge and experience to understand and/or resolve them.

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. 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 ^	Occasionally <30% Time
Working with skin irritants ^	Occasionally <30% Time
Working with chemicals (industrial or cleaning) ^	Occasionally <30% Time
Working in a confined space ^	Not applicable
Working at height ^	Not applicable
Working with sewage ^	Not applicable
Contact with cytotoxins ^	Occasionally <30% Time
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	Not applicable
Ionising radiation	Not applicable

Psychological and Social Environment

Working shifts ^	Not applicable
Working nights ^	Not applicable
Lone working	Not applicable
Working with children	Not applicable
Exposure to persons with challenging behaviour	Not 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 latex	Not applicable

Physical Abilities

Prolonged physical movements or actions e.g. walking ^	Occasionally <30% Time
Prolonged Standing or Sitting ^	Occasionally <30% Time
Moving or handling heavy loads ^	Not applicable
Repetitive pulling or pushing ^	Not applicable

Repetitive climbing (steps, stools, ladders, stairs) ^	Not applicable
Repetitive crouching, kneeling or stooping	Not applicable
Repetitive lifting	Not applicable
Fine motor grips (e.g. pipetting)	Occasionally <30% Time
Repetitive reaching below shoulder height	Not applicable
Repetitive reaching at shoulder height	Not applicable
Repetitive reaching above shoulder height	Not applicable

Behaviours

Our Inclusion and Respectful Behaviour Policy 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.