



1 Advertisement

Post Title: Senior Electronic Engineer (Quantum Computing)

School/department: MPS

Hours: 100% FTE

Requests for flexible working options will be considered (subject to business need).

Contract: Fixed term initially for 1 years, with possibility of extension

Reference:

Salary: starting at £37,099 to £ 45,585 per annum pro rata

Placed on: 06 November 2023

Closing date: 03 January 2023. Applications must be received by midnight of the closing date.

Expected Interview date: 15/01/2024 or soon thereafter

Expected start date: 01/02/2024 or thereafter

Are you an electronic engineer and would like to be part of an effort to develop practical quantum computers while having the possibility of settling in a stable long-term university role?

The [Sussex Ion Quantum Technology group](#) are seeking to appoint a Senior Electronic Engineer with strong electronic design, hands-on testing and general engineering skills. The successful candidate should have a proven record in assisting the timely delivery of research or industry R&D projects.

The main areas of responsibility for the post include:

- Carry out technical development and engineering tasks on a portfolio of research projects that require electronics engineering, computer programming, computer hardware control, and other lab related skills.
- Some laboratory management through help with health & safety, equipment training, maintenance, automation and assisting with experiments.
- Participation in of group activities and events such as inductions, skills development sessions for researchers, and more.

You will be:

- Independent and proactive
- Organised and detail orientated
- Highly technically skilled
- A good communicator

You can find out more about the group at: <http://www.sussex.ac.uk/physics/igt/>

Please include with your completed application form a CV, cover letter, the contact

details of three referees and a document explaining how you address each of the person specifications criteria.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

“Please note that this position may be subject to [ATAS clearance](#) if you require visa sponsorship.”

For full details and how to apply see our [vacancies page](#)

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

2. The School / Division

Please find further information regarding the school/division at
<https://www.sussex.ac.uk/physics/> (Department of Physics and Astronomy)
<http://www.sussex.ac.uk/mps/> (School of Mathematical and Physical Sciences)
<http://www.sussex.ac.uk/scqt/> (Sussex Centre for Quantum Technologies)
<http://www.sussex.ac.uk/physics/igt> (Sussex Ion Quantum Technology Group)

3. Job Description

Job Description for the post of: Senior Electronic Engineer (Quantum Computing)

Department: Physics and Astronomy

Section/Unit/School: Mathematical and Physical Sciences

Location: Pevensey 2

Grade: Grade 7

Responsible to: Prof Winfried Hensinger (Principal Investigator) through to School Administrator

Role description:

To provide a wide range of engineering and laboratory management services by (a) contributing to the electronic engineering, setup and operation of experimental apparatus, laboratory instruments and infrastructure to support the research group in the successful

delivery of research project objectives as well as (b) ensuring continuous lasting upkeep of the expertise required for the operation of laboratory equipment.

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in the development and construction of operational and robust electronic sub-systems to be used in a variety of experimental setups used for the development of practical quantum computers.
2. Provide day to day electronic engineering lead and technical laboratory support by operating, maintaining, and modernising specialised instruments under your responsibility as well as training staff and students in the techniques required for their operations.
3. Pro-actively co-ordinate with research students, research fellows, and academic staff during the execution of the projects to assist with the successful delivery of the research objectives.

KEY RESPONSIBILITIES

1. Electronic engineering research and development responsibilities:

1. Responsible for the preparation/development of special (non-commercially available) electronic systems. This includes the design, engineering, construction, and documentation of custom electronic and/or mechanical sub-systems required for the operation of quantum computing hardware.
2. Help develop and maintain software for the automated control of laboratory equipment, experimental apparatus and quantum technology devices.
3. Help carry out experiments as needed for the timely advancement of research projects. Prepare, collate, analyse, and interpret research data. Liaise with Principal Investigator or staff on regular basis to discuss results and project progression/direction.
4. Assist academic staff and students in purchasing equipment. Lead the drafting of technical specification documents and liaise with external suppliers to arrange the commercial elements such as being provided with competitive quotes and ensuring that lead times agree with the research project timelines. Ensure the full and timely delivery of all procured equipment.
5. Instruct, train, and guide staff and students in techniques and operation of specialised equipment / apparatus under your responsibility as directed by a supervisor or member of academic staff. Participate in specialist networks and undertake development activities where necessary to keep knowledge and skills up to date and relevant for subject specialism. Apply working knowledge of theory and practice, sharing this knowledge with others as appropriate.

2. General laboratory management

1. Assist in the upkeep and maintenance of critical equipment.
2. Assist in the planning, inventory, and organisation of resources for the routine running of research / general laboratories.
3. Provide technical assistance and advice to staff and students on the preparation of high-quality technical documentation. Collate and administer research group shared records, data, and documentation, ensuring their good organisation for reliable future accessibility, effective communication and efficient research project progression.
4. Carry out regular assessments of essential laboratory infrastructure. Plan, organise and manage preventive measures and organise emergency repairs.
5. Ensure the implementation of a safe laboratory environment using good working practices in line with relevant local and legal requirements. Coordinate and administer health and safety records by undertaking standard risk, or other safety, assessments, and producing standard operating procedures, when necessary, under the supervision of the Principal Investigator or supervisor. Lead health and safety training by carrying out H&S lab induction, monitoring compliance, and holding regular H&S update sessions. Assist student and staff with incident reports.
6. Attend research group meetings and communicate with other group members and other departmental or University staff on group-wide and project specific issues.

3. Other tasks and responsibilities:

1. Supervision of technical staff may be required within own area of responsibility as directed by a supervisor or member of academic staff.
2. Autonomously lead, plan and organise group events such as electronics workshops and outreach activities. Show initiative in commissioning (i.e. design, construction, installation, operation and maintenance) new outreach hardware and materials.
3. Support doctoral students and staff in planning their research activities by providing relevant technical expertise and project management expertise.
4. This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.
5. Undertake additional duties, as required by the Principal Investigator.

INDICATIVE PERFORMANCE CRITERIA

The post holder will report direct to the Head of Group (Principal Investigator). Working under their general direction within a clear framework the post holder will manage their own work to achieve their agreed objectives. The role holder will play a key role in supporting the Ion Quantum Technology research group to achieve the

strategic research and operational goals within the School of Mathematics and Physical Sciences. The post holder will work collaboratively across the University and with key stakeholders to deliver single team working that efficiently and effectively supports the achievement of those goals and objectives.

Working closely and in collaboration with the Head of Group the postholder will:

- Provide electronic engineering expertise for the Sussex Ion Quantum Technology Group
- Actively contribute to the engineering and production of electronic sub-systems used for quantum computing applications, assist in the development of practical quantum computers providing electronic engineering expertise
- Be accountable for adequate technical and safety training, and compliance with applicable policies

4. Person Specification

SKILLS / ABILITIES

Essential

Desirable

Skilled in the art of electronic circuit and system design and testing. Hands on benchwork including assembly and reworking.	X	
Ability to operate testing equipment (e.g. network analyser, impedance analyser, LCR meter, etc.)	X	
Ability to work individually on own initiative and without close supervision, and as part of a team	X	
Ability to exercise a degree of innovation and creative problem-solving	X	
Strong oral and written communication skills, and interpersonal skills	X	
Highly developed organizational skills with the ability to manage multiple project streams. Ability to prioritize and ensure tasks are completed.	X	
Experience in the operation and maintenance of ultra-high vacuum, cryogenic and laser systems as well as other standard laboratory equipment		X
Ability to develop and maintain source code for laboratory control systems (Python, Labview)		X
Experience in FPGA programming using Verilog or VHDL		X

KNOWLEDGE

Essential

Desirable

Excellent ICT knowledge, including a good working knowledge of project management software, word processing, spreadsheets, databases, internet, email	X	
Understanding of the principles/fundamentals to perform engineering calculation / design of mechanical and laser sub-systems		X
Understanding of the principles/fundamentals to perform engineering calculation / design of electrical sub-systems	X	
Good level of knowledge in mechanical and electronics manufacturing processes		X
Good level of knowledge in Python, Labview, Linux		X

EXPERIENCE

Essential

Desirable

Possession of a breadth and/or depth of experience showing full working knowledge and proficiency of own area of expertise and the ability to discharge the role effectively and efficiently	X	
Postgraduate qualification in engineering or science (Masters or PhD), or other equivalent qualification, or level of experience in engineering (electrical, mechanical, cryogenics, or laser system) or physical sciences.		X
Undergraduate qualification in electronic engineering or equivalent	X	
Design experience of PCBs	X	
Experience in the development of scientific instruments		X
Proven record in managing research laboratories		X
Experience in interacting with suppliers, and ensuring best value for money		X
Experience of developing new systems and procedures	X	
Excellent record-keeping and report-writing skills and ability to write documents and make presentations clearly with appropriate logical structure, description and explanation, and good layout and presentation.	X	

PERSONAL ATTRIBUTES AND CIRCUMSTANCES

Essential

Desirable

Willing to act as a point of reference to others and demonstrate continuous specialist development, acquiring and refining skills and expertise in new or related areas	X	
Dependable and reliable	X	
Evidence of a high degree of personal initiative and commitment to self-development	X	
Being comfortable working both as part of a team, and independently	X	