

Quantum hardware engineer

As a quantum hardware engineer, you will work for a company and will use your understanding of engineering, physics, electronics and computer science to design new and innovative quantum technologies. For example, you could design new technologies for quantum computers, devices for ultimately secure quantum communications systems, quantum sensors or new quantum imaging technologies that enable non-invasive medical scans to take place.



What does the role involve?

- Working as part of a team on various research projects
- Designing and testing new technologies
- Analysing data to understand device performance
- Characterising new devices
- Writing research papers
- Attending conferences
- Carrying out field trials



Where would I work?

Laboratories and offices. Sometimes fieldwork could be involved.



What subjects should I do well in at school?

Physics, Computer Science, Electronics, Engineering, Mathematics, Design & Technology.



What qualifications do I need?

Minimum bachelor's degree but ideally PhD in experimental or applied Physics, Electrical Engineering, Mechanical Engineering or Computer Science.



What skills and attributes are required?

Good written and verbal communication, presentation skills, project management, adaptability, ability to multitask, understanding of coding languages such as python, good manual dexterity, logical thinking, innovative nature.



What work experience would be helpful?

Experience carrying out scientific research projects, software development using languages such as python, laboratory experience, commercial experience (could be gained from an internship).



What about career progression?

Progression in this career pathway could be through becoming a senior engineer and leading a team within a company, it could also be moving to a more senior role at a different company or even into academia.

CASE STUDY



Cassandra Mercury

Cassandra began by obtaining an undergraduate degree in Mechanical Engineering and subsequently a Master's in Aeronautical Engineering. She then went on to work in the Jet Propulsion Laboratory of NASA and at another company working as a Test and Development Engineer. Cassandra is now the Space Quantum Technology Lead for a space engineering company developing technologies for quantum communications in space. Find out more about Cassandra's journey at: (tinyurl.com/careersinquantum).



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