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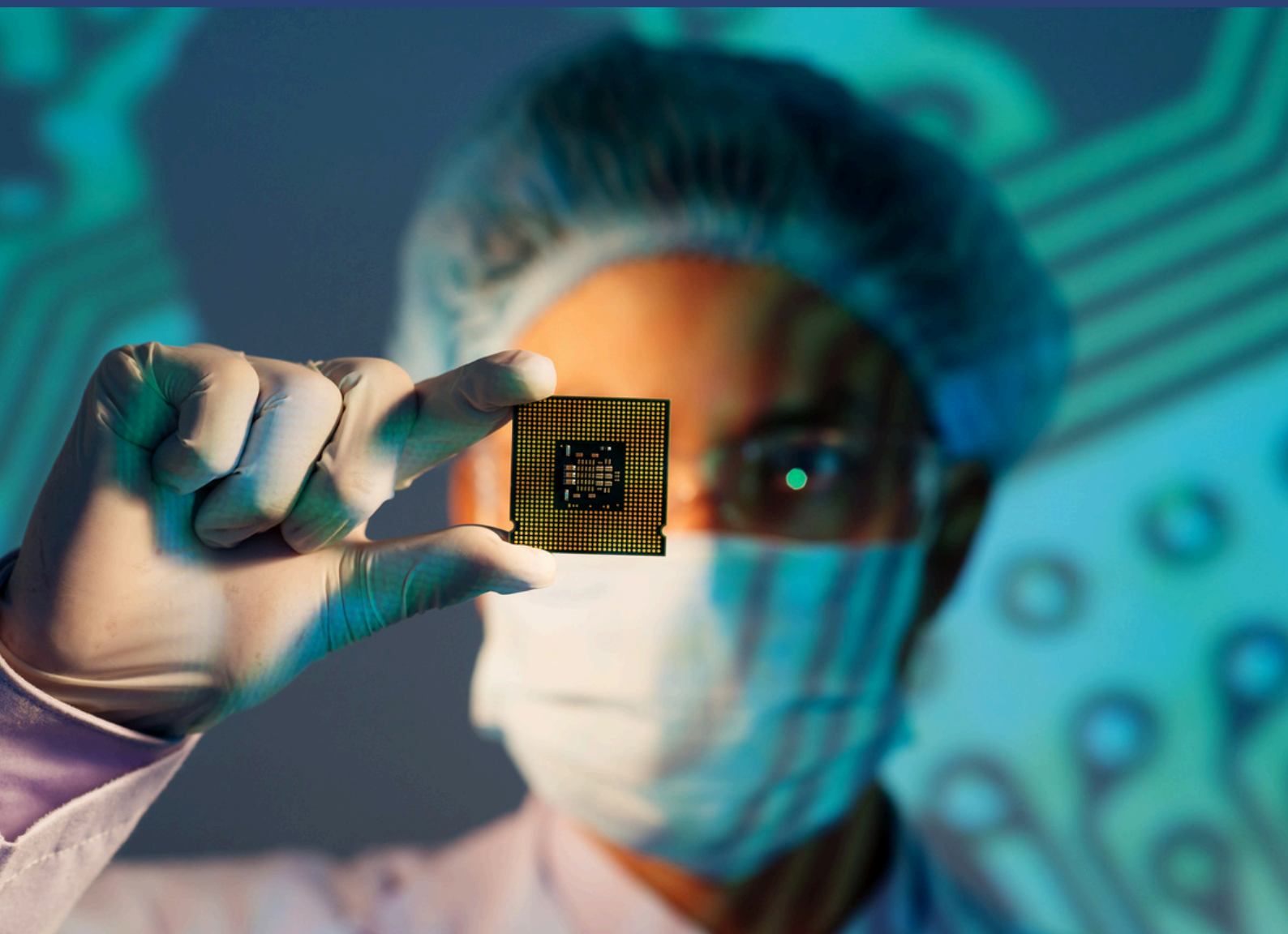
UK Electronics Skills Foundation

Semiconductors in Northern Ireland

Industry | Innovation | Careers | Opportunity

From the shipyards that shaped giants to the labs now crafting tomorrow's technologies, Northern Ireland has always been a place where skill is shared, talent is nurtured, and innovation grows through collaboration.



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Local Strength Global Impact

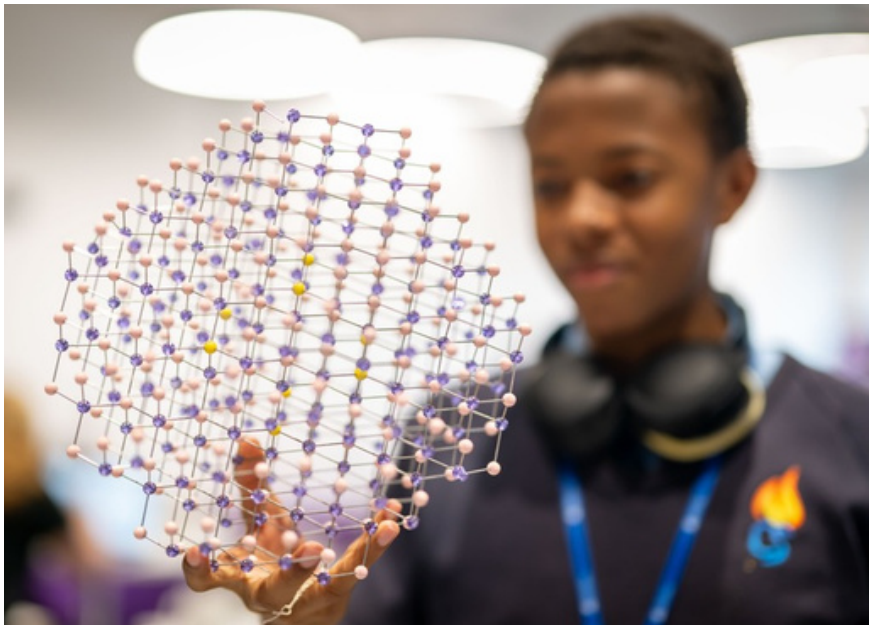
Northern Ireland has always taken pride in making things well, from linen to ships, to a world-leading data-storage technology built at Seagate's Springtown campus.

In Belfast's Innovation District and at Queen's University Belfast and Ulster University, teams are developing advanced semiconductor materials, microsensors, designing secure chips, and creating next-generation technologies used in everything from medical devices to global data networks.

What truly sets Northern Ireland apart is how closely its universities, colleges, and high-tech companies work together. Students can study subjects relevant to semiconductors at institutions such as Queen's University Belfast or Ulster University, while colleges such as the Belfast Met and South West College offer related courses and useful practical training.

Hands-on experience is also available in labs, cleanrooms, and engineering workshops through partnerships with local employers and the Skill Up programme. This community spirit means people share skills, equipment, and ideas whilst creating real opportunities, from apprenticeships and new degree pathways to hands-on jobs within the semiconductor sector.

Growing up in Northen Ireland means you have the chance to build a great future, precisely where your home is.



When ideas meet action

Across Northern Ireland, ideas move quickly from concept to creation.

In Derry~Londonderry, engineers create tiny but powerful parts used in hard drives and data centres. This technology helps us store the photos, videos, apps, and data we use every day. The area is also home to cutting-edge research centres supported by Queen's University Belfast, Ulster University, QAMEC and Smart Nano NI, providing the very spaces where students, researchers, and industry partners collaborate on real-world challenges, turning scientific ideas into working devices. Just over an hour away in Belfast, companies develop power devices, sensors, and photonics systems used in healthcare, communications, and advanced manufacturing.

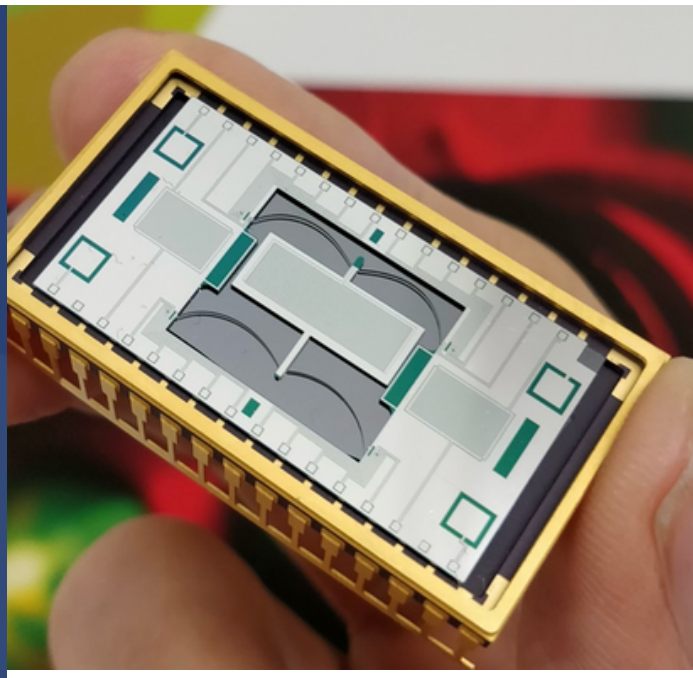


Image courtesy of the
James Watt Nanofabrication Centre
University of Glasgow
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Curious about studying Electronics Engineering? Explore local opportunities

- Queen's University Belfast
- Ulster University
- Advanced Manufacturing Innovation Centre
- North West Regional College
- SmartNanoNI
- Belfast Met
- South East Regional College
- Manufacturing NI
- South West College
- Northern Ireland Science Festival
- Sentinus
- Armagh Observatory and Planetarium

Local organisations

SEAGATE TECHNOLOGY SPRINGTOWN

Derry~Londonderry, BT48 0BF

Seagate is a global leader in data storage technology and a major innovator in photonics, a field that uses light to transmit and process information. From its advanced facilities in Northern Ireland, Seagate develops photonic components and integrates them into data storage devices to enable faster, more energy-efficient data storage. This work underpins next-generation hard drive platforms like Mozaic, which use laser technology to dramatically increase capacity while reducing power consumption.

The site located near Derry~Londonderry, offers apprenticeships, technician roles and graduate jobs. For students interested in science, engineering, or cleanroom manufacturing, there are opportunities in areas such as fabrication (making and shaping the tiny components), materials analysis (examining what things are made of), testing (checking that the devices work properly) and laser research (using lasers to study and improve new technologies).

AMD

Belfast BT1 3BG

AMD's Belfast team develops the software and tools that helps graphics cards, CPUs and data-centre systems run smoothly and efficiently. Their work supports everyday technologies like gaming, video editing and cloud services. When a game loads faster or when a video you watch looks nice and sharp, tools created here in Belfast may be responsible for this.

AMD offers exciting opportunities and roles for people who are interested in coding, computer science, maths or digital design. Students and graduates can apply for internships, placements and early-career roles at AMD Belfast and explore pathways into software engineering, algorithms, testing and data analysis.

Engineer stories

HI, MY NAME IS JACOB

I am a 'Graduate Process Engineer' at KLA Newport. KLA manufactures semiconductor wafer processing equipment - basically, machines that make computer parts.

Our customers want to make sure that our machines can make a certain product - so it is my job to ensure that they can do so, and to show them how to do it. I also look at long-term improvements to our machines.

A typical day would usually include some demo work, such as demonstrating that the machine can get certain results specified by the customer. I would need to gather results by measuring the wafers after they have been processed through our equipment. Then, I may need to formally write up my findings and present these to a customer.

KLA Newport manufactures lots of different machines, that each can be used to make a range of devices. This means that we are present in a massive number of industries. Our machines are used to make devices in cars, mobile phones, data centres, healthcare, lighting and so much more.

What I enjoy the most about working in the semiconductor industry is the variety. Every day is different, so it keeps you on your toes.

It is also very exciting to work right at the forefront of technology. I am also looking forward to start travelling with work soon, but right now the biggest benefit for me is knowing how widely used my work is. It is hard to find an industry now that is not reliant upon the semiconductor industry!

If you are curious about Electronics but not sure it's for you, watch YouTube videos on the semiconductor industry and wafer processing.

You could also attend some career fairs/conferences as a lot are free, especially if you are in university. But if you don't fancy university, there are also a lot of apprenticeships available too.

Engineer stories

HI, MY NAME IS DANI

My job title is “Manufacturing Excellence Assistant Engineer”. My responsibilities as an equipment engineer includes carrying out tasks such as preventative maintenance, fault diagnosis and testing on both mechanical and electrical equipment.

I am working on improving our Laser Anneal machine. We are unable to run this machine automatically due to the wafer edge not being detected, so it’s having to be run manually for now. This is not ideal, as it means an operator needs to stand at the machine, reducing productivity elsewhere in the fab. By resolving this challenge, it means more wafers will be processed throughout the fab, resulting in more devices being shipped out for use in renewable applications!

Something I am very proud of is achieving my HNC in Electrical Engineering and getting to where I am today as an Assistant Engineer. When I was younger, school wasn’t my strong point as I didn’t feel academically capable so to be where I am today is something I would have never imagined - I will always be proud of myself.

I like that everyday is different, we are a development fab so there are always challenges to improve current processes and our state-of-the-art machinery, this gives me opportunities to expand my knowledge through hands on experience and training.

At Clas-SiC, I have been able to gain a wide variety of experience by working alongside a very knowledgeable process, equipment and facility engineers who have guided and mentored me. I have also had the opportunity to travel to China to help set up Equipment for one of our customers.

Curiosity is the perfect place to start. You don’t need to know if Electronics is ‘for you’ yet, just try a small project and see how it feels.

Electronics is such a broad field that most people eventually find a part of it that sparks their interest, and even exploring it gives you valuable problem-solving skills!

Hands on science for all

Northern Ireland's STEM community is strong and vibrant making science and technology accessible to everyone!

Organisations such as the W5 in Belfast, the Northern Ireland Science Festival, Sentinus, and the regional STEM ambassador networks, give students and the local community the opportunity to explore Electronics, robotics, photonics and digital manufacturing in fun, hands-on ways.

More specifically, W5 often delivers interactive science shows, workshops and exhibits covering topics from energy and optics to engineering and materials. Sentinus runs school and community workshops, summer placements, and project-based learning to help young people get real-world experience of STEM and digital skills. Every year, the NI Science Festival brings together scientists, schools and the public for talks, workshops and events across the region.

This combination of outreach, hands-on learning and career-path activities creates a strong foundation for a future in STEM. Don't forget to keep an eye on their webpages because the next event they run might be the experience that changes your life!

- See inside the mysterious world of compound semiconductors, Cardiff University CPD Unit
- STEM in 10: Introducing an Electronic Revolution, Glasgow University

Everyday impact

You might not see them, but the technologies made in Northern Ireland are working behind the scenes in things you use every single day.

Cloud & AI

Tiny components made in Derry~Londonderry help run the world's biggest data centres powering your apps, your photos, your streaming services, and even AI tools.

Transport

Laser-testing systems built in NI help make driver-assistance systems and autonomous-vehicle technologies safer to use.

Healthcare

Skin patches that track heart rate or blood oxygen in real time are being developed by companies like B-Secur.

Communications

Photonics technologies tested in Northern Ireland help keep the internet fast and reliable.

Energy

Power-electronics engineers in Belfast design devices that use energy more efficiently, supporting cleaner energy systems.

Opportunity in action

If you are a person who loves figuring out how things work Northern Ireland is a great place to begin your future.

Here, you can learn how to make tiny sensors that fit on your fingertip, build laser systems used in medical scanners, design circuits that help electric cars run better and so much more! Across the region, new labs and training centres give you the chance to suit up, solve problems, and create actual technology. So, the big question is: *could the next breakthrough come from you?*

Want to explore local opportunities?

- Seagate
- Oxford Instruments (Belfast)
- AMD Belfast
- Yelo Photonics
- Sensoteq
- Cirdan
- B-Secur
- IceMOS Technology

The Northern Ireland semiconductor cluster is a place where your skills can grow into world-changing ideas.

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The UK has a long heritage of technological innovation and has a world-class Electronics sector. It has the potential to grow and innovate to provide solutions to some of the biggest challenges facing society today.

It is our mission to inspire more young people to pursue rewarding careers in this important industry, and give them the skills to thrive.

We are an independent, UK based charity, and we work collaboratively employers, universities and schools to raise awareness of, and promote interest in, Electronics and Semiconductors.

Find out more about our educational resources for:

Aspiring engineers
Teachers

Get in touch

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