

Smart Futures: Working in Technology

What skills are needed?
What are the career paths?
What subjects should I study?

Smart Futures is a government-industry programme providing secondary school students in Ireland with FREE access to role models working in science, technology, engineering and maths (STEM).

Keeping up to date on the many career paths available in STEM isn't easy. It's a fast-moving area, with multiple routes to entry and a high demand for graduates. From designing video games to medical devices, improving food science and sport, and even saving lives through cancer research, students need real insights into the many exciting and diverse STEM career opportunities in Ireland.

DID YOU KNOW?

World leaders in cloud computing, such as EMC, Citrix and Dropbox are located in Ireland

Smart Futures offers free career talks to all secondary schools in Ireland to give students the chance to ask practical questions about working in STEM and encouraging them to look beyond stereotypes.

Teachers, guidance counsellors, TY coordinators etc. can register via the 'Resources' section of www.SmartFutures.ie and request career talks at any time of the year. Talks are typically 40 mins, taking place in your classroom.

These talks are great for inspiring students to think differently about how they choose their school subjects, life after school and preparing for jobs of the future!

Why not invite a STEM volunteer to attend your parent evenings?

Visit www.SmartFutures.ie to read 100+ STEM career stories, watch videos, download posters and career infographics.

Smart Futures is managed by Science Foundation Ireland in partnership with Engineers Ireland.

Working in App Development

Demand for mobile phone applications (Apps) has never been higher, but the skilled developers who can design them are in short supply. Developers write programmes using various computer programming languages such as Objective C, C++ or Java. Currently, there are five major mobile platforms, each with its own core language(s) and development procedures. As smartphones and tablets continue to change how people communicate, shop and access information, developers must adapt rapidly and think creatively!

Also look up: Software Engineering, Programming, Computer Science, IT Systems

What does the job involve?

- Fluency in programming languages like Java, Objective-C and C++
- Coding, testing and debugging apps
- Knowledge of Android/iOS operating systems
- Using existing web applications

What skills are needed?

- Computer languages and coding
- Maths skills
- A flair for design
- Attention to detail
- Problem solving

Typical employers

- Android and iOS app development companies
- Software and financial services companies
- Self-employment / Start-ups

Typical qualifications

Typically, computer science, software engineering, information systems, business/management, physics/maths/applied science. Alternative routes include Post-Leaving Certificate (PLC) qualification in general computing/IT certificate or diploma. There are also many online resources to supplement learning.

DID YOU KNOW?

Ireland has some of the best wind and wave resources in the world, making it an ideal research and test bed location for developing renewable energy technologies

Working in Information Technology (IT) Security

Cyber security is the technique used to protect computers and networks from intrusions and criminal attacks. With some of the world's biggest firms, banks and governments under constant threat of cyberattack, skilled and qualified IT security specialists, with strong technical expertise are in high demand across the globe.

Also look up: Network Engineering, Software Security Specialist, Ethical Hacking

What does the job involve?

- Implementing security protocols at the development stages of software systems, networks and data centres
- Looking for vulnerabilities and risks in hardware and software
- Constantly monitoring for attacks and intrusions
- Identifying perpetrators and liaising with the authorities if necessary

What skills are needed?

- Strong IT skills and knowledge of hardware, software and networks
- Logic and reasoning to identify the strengths/weaknesses of IT systems
- Strong analytical skills and attention to detail
- Understanding of how hackers work and cybercriminal activity

Typical employers

- Network providers
- Banks
- Airlines
- Government agencies
- Technology companies
- Online retail

Typical qualifications

Degrees in IT security, computer programming, computer science, information science, and computer/software engineering are common gateways. Alternative routes include Post-Leaving Certificate (PLC) qualification in general computing/IT certificate or diploma and relevant apprenticeships.

DID YOU KNOW ?

9 of the top 10 global software companies are located in Ireland, including Microsoft, Google, Apple and Facebook

Working in BioTechnology / MedTech

Biotechnology involves the manipulation of biological processes for industrial and other purposes, e.g. the genetic manipulation of microorganisms for the production of antibiotics, hormones etc. Medical technologists create technologies that design and manufacture electrically active implantable products like artificial hearts, cardiovascular stents, as well as contact lenses, medical software and more.

Also look up: Biomedical Engineering, Regulatory Affairs, Process Engineering, Diagnostics

What does the job involve?

- Studying the genetic, chemical and physical attributes of cells, tissues and organisms
- Working to better diagnose, prevent, monitor and treat diseases
- Working with lab technicians on research findings and analysing results
- Developing new research procedures, software and prototyping new technologies

What skills are needed?

- Complex problem-solving
- Team work and communication skills
- Investigative skills
- Interest in biology and technology

Typical employers

- Medical technology companies
- Research / Agriculture agencies
- Pharmaceutical companies
- Regulatory bodies

Typical qualifications

Typically, a bachelor's degree in biotechnology. Students can attain a general science certificate/diploma, before progressing onto a biotechnology degree. Biochemistry, microbiology and pharmaceutical sciences are also relevant. Alternative routes include Post-Leaving Certificate (PLC) qualification in general science/computing certificate or diploma or MedTech apprenticeships.

Explore more STEM career pathways at www.SmartFutures.ie

DID YOU KNOW ?

84% of third-level STEM students are extremely positive they will get a job they enjoy after college

Next Steps?

So now you've read some examples of STEM careers, there are so many more still to explore! From nanotechnology to games development,

robotics, artificial intelligence and even Space exploration, technology offers a fulfilling career, with skills in demand across the globe, to help improve lives and the world we live in.

Thinking about #STEMcareers? Follow your passion and #DoWhatYouLove!

Who can I talk to?

Before choosing your school subjects, CAO options or PLC course, ask your teacher, guidance counsellor or TY coordinator to register on www.SmartFutures.ie for FREE career talks. Real people working in STEM can visit your class and answer your questions. The website also has 100+ examples of people's STEM career stories, videos and more!

How can I get involved?

There are hundreds of free STEM-related events and activities going on around the country, here are just a few:

- ScienceWeek.ie (November)
- EngineersWeek.ie (March)
- SpaceWeek.ie (October)
- SciFest.ie
- MathsWeek.ie (October)
- TechWeek.ie (April)
- CoderDojo.com
- GirlsHackIreland.org

Further resources?

Looking for information on PLCs, apprenticeships, course points or subject requirements? Visit:

www.CareersPortal.ie
www.CareersNews.ie
www.Qualifax.ie
www.Collegeaware.ie

www.GradIreland.ie
www.plccourses.ie
http://FIT.ie
www.STEPS.ie

SMART
FUTURES

Science
Foundation
Ireland
For what's next

STEPS
ENGINEERS IRELAND