DCU

Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University

A World of Opportunities

How Science, Technology and
Engineering are Transforming
the Careers of the Future

A guide for parents,
teachers and students

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STEM opens up a world of opportunities

The world is changing rapidly all around us. Globally, we are witnessing a time of unprecedented technological advances that are affecting most aspects of our lives. Nowhere is that impact more obvious than in the job market. Research shows that most jobs in the market today didn't exist 20 years ago, and it is predicted that up to 60% of the jobs available ten years from now will be completely new compared to today's situation.

The aim of this brochure is to assist parents, teachers and students in appreciating the exciting new career opportunities available, especially in the STEM areas, and in demystifying the terminology used to describe those careers.

The graduates profiled in these pages each tell the story of a new and exciting career path and of the relevance of particular qualifications in opening up a broad range of new career opportunities. It is important to emphasise that a STEM degree is not the only pathway into an exciting career in the world of science and technology, and a number of the featured graduates highlight this point.

The profiles selected for this brochure deliberately reflect a strong emphasis on gender diversity and female role models. There are rapidly growing opportunities and needs for women in STEM careers, and we need to encourage young women to achieve and lead in those roles.

I hope that this careers brochure proves to be a helpful guide and signpost for parents, teachers and students, so that students can make informed choices about the exciting and fulfilling career opportunities of the future!

Professor Brian MacCraith
President
Dublin City University

Chair of the STEM Education Review Group, the report of which was published in 2016.

Will a robot steal my job?

Will a robot steal my job? That's a key question I explored in a recent documentary for RTÉ, and it opened my eyes to the complexity and also the opportunities of a future where computers, artificial intelligence and machine learning — as well as what we might more traditionally call 'robots' — become capable of automating more and more tasks.

Automation is already happening. In my career to date as a journalist and broadcaster I have seen a revolution where technology has changed how we generate and consume news. The skills I use today, which include data mining and social media analysis, were not the skills I learned when I was starting secondary school in Longford in the mid-1990s.

But a degree in communications at Dublin Institute of Technology and then a Master's in Journalism at Dublin City University gave me a strong foundation on which to build as I moved from more traditional broadcasting to digital media — first in RTÉ and then at the BBC. While working at the latter I was fortunate enough to be part of a small team pioneering the move to digital and mobile journalism.

Today, as UK editor of the global digital media company, Mashable, I am doing a job that didn't even exist when I was at university just over a decade ago.

Along the way, I have readily embraced the power of technology. Technology has been a great enabler — much of the data sifting a journalist does is now aided by technology. But I know these types of changes create many challenges too. At any given moment in history, technology has affected some jobs more than others. Be it the cottage industries of the 18th century or the encyclopedia publishers of the 1980s, professions can disappear altogether. So if history teaches us anything, we know it is vital to accept no workplace and no sector is immune to the changes that technology can bring.

Journalism is no exception. At the moment a robot can write a factually accurate news story or report on an event such as a sports game — albeit with some limitations on the quality of tone and style. It still takes a person to understand the nuance of language, to contextualise the world around us and to turn the facts into an interesting story for an audience.

Rather than seeing the rise of robots in newsrooms as a threat, they provide an opportunity for journalists to pursue original, powerful storytelling and investigations that require the discernment of the human mind. Whether that is showing empathy and compassion for interviewees who have made sacrifices to tell their stories, or having a human instinct to read the trends and interpret how to deliver that to an audience.

Image: Alex Sapienza

In a world of technology, we still need the human skills of critical, lateral and independent thinking. We need to be open to the points of view of others, and we need to be nimble.

Mankind's use of tools has been a key factor in the growth of modern society. Over our entire history we have improved the technology of our tools to improve our lives. New tools free us to do different tasks, and to develop entirely new industries. Used properly, robots will simply be another step in that progression.

So will a robot steal my job? Yes, in part. As for it taking over completely, I remain unconvinced. However I hope that if that day comes, I will have once again adapted my skills and moved onto the next great opportunity. I will probably be doing a job that doesn't exist yet!

No sector is immune to the changes that technology can bring.

Anne-Marie Tomchak
UK Editor, Mashable
MA in Journalism, DCU

Science and Technology: A bright future for women

When you think of someone working in a tech company, you might think of a person who is an expert in computer coding or software. You might also think of a man.

Yet the opportunities in the technology and engineering sectors are far more diverse. And as technology becomes more pervasive throughout our lives, we need more diversity in the workforce. That's why Connecting Women in Technology (CWIT) is seeking to encourage students, and particularly young women, to take on subjects in science, technology, engineering and maths and to consider careers in those fields.

"Connecting Women in Technology is a collaborative initiative of women from 17 technology companies in Ireland that aims to attract and retain women to the technology sector," explains CWIT Branding Committee Chair, Aoife Macken, who is herself a good example of an interesting route into tech.

She studied business and economics and worked in property before a job with Web Summit brought her more into the technology world. From there she went to LinkedIn, building the market in the UK and now Israel, providing cutting-edge business-to-business marketing technology for LinkedIn.

CWIT showcases to school students the breadth of careers in tech, and works with Dublin City University's STEM Teacher Internship programme to enable secondary school teachers to get hands-on experience of the many careers and opportunities available within the science, technology and engineering industries.

CWIT also works with employers and policymakers in Ireland, and contributed to the Department of Education and Skills on the ICT Skills Action Plan.

Aoife's advice for students is to follow their interests and keep an open mind about tech. "When you get a qualification at university that shows commitment, then you can build on those skills and develop new ones as you work in new environments."

ConnectingWomenInTechnology

@cwitirl

When you get a qualification at university that shows commitment, then you can build on those skills and develop new ones as you work in new environments.

CWIT
Connecting Women in Technology

What is Data Analytics?

At its core, data analytics and artificial intelligence is about programming machines to see and 'learn' from complex patterns that may be hidden in data, and scientists and engineers need to build the technology.

Data analytics is one of the most exciting developments in technology in the 21st century, but what is it? The bottom line is that people and devices leave behind data 'footprints' online and in the physical world, and we can use those footprints to make life run more smoothly, to protect the environment and, yes, to make and save money for businesses.

You can thank data analytics for the 'recommender systems' that ping you with alerts about products, services and articles you might like. It underpins those clever signs on bus stops that tell us how long we have to wait for the next bus, and data analytics can even allow us to monitor and improve our health, ushering in a new era of opportunity to prevent, predict and treat diseases.

At its core, data analytics and artificial intelligence is about programming machines to see and 'learn' from complex patterns that may be hidden in data, and scientists and engineers need to build the technology.

But the field of data analytics also needs many human skills: teamwork, collaboration, communication, being able to solve problems and developing insight into how people and societies engage with technology.

Forfás and the Expert Group for Future Skills Needs have stated that Ireland could create up to 21,000 jobs in Ireland by 2020 in the area of data analytics, which makes it an attractive career option in the coming years, and with new EU law now in place, we're more assured that our data footprints are not abused in ways that could have been possible before. Data scientists and data analytics will help to shape our futures and can make the world a better place.

Prof Alan Smeaton
School of Computing, Dublin City University
Founding Director of the Insight Centre for Data Analytics

Data scientists and data analytics will help to shape our futures and can make the world a better place.

Data Analytics adds value

Medb Corcoran
Applied Intelligence Director, Accenture
MSc in Industrial Applied Mathematics, DCU

"I work with businesses that are looking to innovate, and data analytics plays a huge role. At The Dock, Accenture's Global Innovation Centre in Dublin, I help companies to build solutions that embed artificial intelligence, or AI, into their processes.

AI can bring huge benefits to businesses in this way, including creating smarter products and ways of doing business, and it can reduce costs and make workforces more productive and efficient.

Students wishing to work in the area of AI and data analytics often benefit from a grounding in and interest in maths, experience in computer coding and knowledge of data engineering, business processes and end-user design.

There are lots of other attributes too that help when working on the technical side of business, including communication skills, and being able to scope the size of work to be done, with clear deliverables and then commit to working to deadlines."
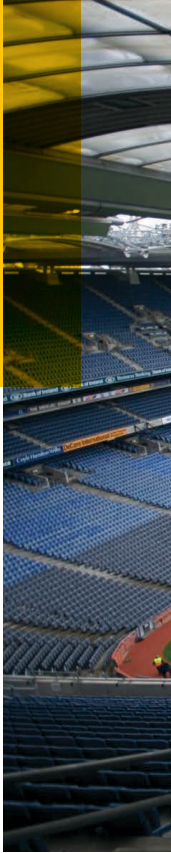

Prof Tomas Ward
AIB Chair in Data Analytics, DCU

"I work at DCU developing new technologies to help us understand ourselves. We develop smarter methods for the collection of information about a person's health and performance including those related to moods, decisions and physical well-being — all with their consent. With these varied datasets we use artificial intelligence, or AI, to make sense of what we have measured.

With this approach we are exploring new ways to assess mood disorders, provide advanced warnings of seizure for those with epilepsy and to understand pain and fatigue patterns among different populations. I am also interested in learning more about how people make decisions in the real world outside the laboratory, especially in the context of financial choices.

To do this, we work with doctors, nurses, psychologists, engineers, chemists, social scientists, behavioural economists, experts in computers and statistics, as well as patients and their families."

The Internet of Things brings smart thinking to a connected world

As with any technology that is designed to help humans, we need people with a range of skills to build a connected world.

Imagine a world where traffic doesn't get congested in cities and homes and businesses can automatically use energy and water in ways that are good both for the planet and for their bank balance. Imagine a world where we can get early alerts about flooding and pollution to avoid disaster, and where gadgets can keep our health on track.

This can all happen thanks to the 'Internet of Things', networks of connected devices that provide us with information and may even take action automatically to make our world run more smoothly.

In DCU we are partnering with the GAA, Intel, Microsoft, Dublin City Council, and numerous companies on our Smart Stadium project, which is using Croke Park on Dublin's northside as a test-bed for connected technologies.

We are developing technologies that can optimise crowd movement, boost player performance and even help the grass to grow on the pitch.

We see companies of all sizes embracing Internet of Things technology, from the corporate giants to the many Irish start-up companies that are bubbling up with new connected solutions.

As with any technology that is designed to help humans, we need people with a range of skills to build a connected world.

They include but are not limited to engineering, science, maths, computer programming, design, behavioural psychology, marketing and project management.

These graduates will open up many connected opportunities for the future, helping to make our world a better, safer, greener place to live.

Prof Noel O'Connor
School of Electronic Engineering, Dublin City University
Director, Insight Centre for Data Analytics

The Internet of Things joins the dots

Lisa Ainsworth
CEO, NuWave Sensors
BEng in Electronic Engineering, DCU

At NuWave we have developed a device that takes samples of air to test for contamination or pathogens that can cause disease. Thanks to the Internet of Things, our sensors can send information to the cloud and so monitor in real time and link in with other systems to build up a bigger picture of what is going on in a region.

Our system can also learn over time. So perhaps a person with asthma has particular triggers, NuWave uses machine learning to automatically monitor the air and alert them early on or even automatically open a connected window or turn on the air conditioning to avoid an attack. Our team combines skills in industrial design, hardware, software engineering, consumer behaviour, business and data security, because we need technology that not only works reliably but that makes economical sense and that people will want to use."

Dr Suzanne Little
Assistant Professor, School of Computing, Dublin City University
SFI Funded Investigator, Insight Centre for Data Analytics, and Coordinator of the BSc in Data Science at DCU

"Have you ever wondered how self-driving cars can react to what is around them? Getting computers to 'see' in the way that we do is not easy. That's why part of my research at DCU is enabling computers to quickly process huge amounts of images from connected cameras that are the 'eyes' of the latest driver-assistance technologies.

We are training computers to better interpret what is of importance in these images and so carry out real-time actions like avoiding an object, or stopping at a red light. With billions of connected devices around the world now "talking" to each other, the need to handle and makes sense of vast amounts of information is becoming ever more important.

DCU's BSc in Data Science that I co-ordinate equips students with the skills to understand all kinds of information and use it to improve business, society and the environment. Data Scientists are investigators, they are storytellers and they are creative problem-solvers, and our changing world needs their skills now and into the future."

Prevent, predict and personalise for a healthy future

Today, around half of all humans around the world live with a chronic disease, such as rheumatoid arthritis, Alzheimer's disease, heart disease, diabetes or even cancer. This puts an enormous strain on healthcare systems and economies, not to mention the human cost.

One of the biggest issues facing healthcare is to tackle these conditions. There are many pieces to this puzzle, and science and technology have major roles to play.

We need to predict who is likely to develop chronic diseases, and to 'personalise' treatments so they fit the disease and the individual to get the best results.

Research is already giving us a deeper understanding of the links between factors that often lie under our control, like exercise and what we eat and drink, and the risk of disease later in life. Technology, engineering and data analytics can help us to monitor our health and flag up potential problems.

In my own lab at DCU, we look at how we can use food and ingredients from milk and seaweed to influence the behaviour of the immune system, a part of the body that has key roles in protecting us against disease.

As we face the ongoing challenge of living healthier lives in the 21st century, we will need graduates with expertise and skills in drug discovery, genetics, exercise physiology, medicine, nutrition, behavioural psychology, sensor technology, ICT technology and data analytics. It will be the integration across these disciplines that will enable us to face this challenge together.

Technology, engineering and data analytics can help us to monitor our health and flag up potential problems.

Prof Christine Loscher
School of Biotechnology, Dublin City University
Associate Dean for Research, Faculty of Science and Health, DCU

Healthy foods, healthy bodies

Caroline Keeling
CEO, Keelings

A household name, Keelings in north Dublin is probably best known for providing fruit all year round to supermarkets. But there's something else they love to grow too: data and business intelligence. Keelings has developed its own software to monitor and manage the various processes involved in growing and supplying fresh produce to retailers.

"It's a game-changer," says CEO, Caroline Keeling. "But we still need human insight, and we will continue to need it even as technology integrates more and more into the business of Produce. Technology development might feel fast now but it is going to get even faster. This will give us more information and we need the skills and expertise to use that information to help us grow and source higher quality produce more efficiently and more cost-effectively."

Dr Brendan Egan
Associate Professor, School of Health and Human Performance, DCU

Whether you are an Olympic athlete or just going about your day-to-day life, feeding and using your muscles smartly can help you perform well and age healthily. At DCU, sports science researcher Dr Brendan Egan looks at how our muscles adapt to exercise and forms of training and nutrition support.

His lab works with human volunteers who try different diets and nutrition supplements, or who do particular exercise regimes, then the scientists analyse samples of blood and muscle from the volunteers to measure changes.

"People are always keen to know what foods can keep them healthy and performing well, and the science of nutrition and performance is growing quickly," says Brendan. "Ultimately the work we do in the lab will translate into people eating more effectively for health, endurance and strength."

Let's bio-engineer a healthier future

You might not have heard of bio-engineering, but it has probably already made your life better. Or it will in the future.

Bio-engineering, or biomedical engineering, combines biology and engineering to come up with new materials and devices we can use to tackle damage and disease in the body, and new ways of making food ingredients and medicines, among other things.

It has led to revolutionary and life-saving advances, such as stents that can be inserted into damaged or blocked arteries and the manufacture of complex drugs that can tackle chronic conditions such as arthritis, diabetes and cancer.

It is leading to new ways to 'grow your own' tissues and perhaps one day even organs or joints to replace the ones that get damaged by accidents, wear and tear or disease.

I studied biomedical engineering at DCU and that has led to me doing research here to make new materials to fix bones and joints in the body. Technology that I have helped to develop has been successfully tested in a competitive horse who had knee damage. The horse is still training today and we are now testing the technology on humans having knee operations. I'm also working on engineering new ways to deliver healing genes and medicines into the body over time."

Bio-engineering is just scratching the surface of what is possible for our food, our medicine, our health and the health of animals. Let's bio-engineer a healthier future.

Assistant Prof Tanya Levingstone
School of Mechanical and Manufacturing Engineering, Dublin City University
Principal Investigator, Centre for Medical Engineering Research (MEDeng), DCU and BioEngineering Research (Amber) Centre

It is leading to new ways to 'grow your own' tissues and perhaps one day even organs or joints to replace the ones that get damaged by accidents, wear and tear or disease.

New Bioengineering careers

John McGrath
Senior VP of Global Industrial Operations at GSK Vaccines
Biomedical Engineering, DCU

"I started my career with Biotechnology in DCU and today I oversee global vaccine manufacture with GSK. While at DCU I learned about biology, engineering and the hands-on, practical aspects of biomedicine. That has really stood to me going on to work with various pharmaceutical companies and now with GSK. It means that when I make a decision in a meeting, I understand the technical aspects involved. That training and experience helps me make more informed decisions. One of the most recent developments I am proud of at GSK has been our meningitis B vaccine, which is used to protect infants, including babies in Ireland, from this potentially devastating disease."

Image: Steve Humphreys & the Irish Independent

Liam Sexton
Technology Architecture Delivery Specialist at Accenture
Biomedical Engineering, DCU

At just 26, Liam Sexton has already built up an impressive CV. His interest in maths, technical graphics and physics at school in Waterford prompted him to study biomedical engineering at DCU, which combined mechanical engineering with aspects such as human anatomy and medical device design.

He did a five-month work placement with Accenture during his degree and separately he developed his imaging app as a start-up business through DCU's student accelerator, UStart.

Sexton now works with Accenture as a Technology Consulting Analyst.

"My job is to help clients find solutions that focus around technologies, and my focus on maths, engineering and biology has enabled me to break down problems and see patterns," he says. "That really opens up lots of opportunities at a fundamental level."

Preparing for Journalism in a data-driven future

Journalism is changing. These days a reporter can get a story from interrogating a dataset as well as interviewing a person. Or they may produce a radio or TV-quality package on their mobile phone.

Of course, there are some core skills in journalism that have not changed in more than a century. You need to communicate clearly, to be reasonably impartial, to cultivate your interviewing and people skills, to keep an eye to accuracy, to think critically and to have an inquiring mind. They are still at the heart of good journalism.

But those of us involved in delivering DCU's BA in Journalism know that plenty of other skills and approaches are needed to find and tell stories in the 21st century.

They include being familiar with the online world of search engines and ads, using data as a primary source for a story, verifying information, designing and producing packages for radio and podcasts and using your phone to shoot and edit footage of high enough quality for TV.

At FuJo (Future of Media and Journalism) Institute in DCU, we are also focusing research on key issues such as how algorithms impact on the stories we see on social media, how the rise of these platforms impacts on journalism business and how trust can be built in this fast-changing world.

Platforms and skills will undoubtedly change again in coming years and decades, yet now and into the future, the world needs high quality, authentic and considered journalism, communication and research. Having the foundation of an open mind with a willingness to listen and learn new approaches and skills will enable a new generation of journalists to tackle challenges, and that is what we seek to instil.

Jane Suiter
Associate Professor, School of Communications, Dublin City University
Director, Institute for Future Media and Journalism (FuJo)

The world needs high quality, authentic and considered journalism, communication and research.

Forging ahead in the world of digital news

Áine Kerr
Co-Founder and COO, Neva Labs
MA in Journalism, DCU

As a former journalist for a range of newspapers, including *The Irish Independent* and *The Irish Times*, and as the global Head of Journalism Partnerships for Facebook in New York, Áine Kerr has seen major revolutions in how and where news is published and accessed.

Her latest venture is NevaLabs, which she set up with Storyful founder Mark Little, to develop a personal assistant that gives a user back conscious control of their news experience: no hidden filters, control over data and privacy and no agenda.

"My humanities background has helped to inform my understanding of how technology can be a powerful force for good," says Kerr. "Only with the blend of technology and humans will we solve some of the most pressing known and unknown issues of our time."

Samantha Barry
Editor-In-Chief, Glamour Magazine
MA in Journalism, DCU

Samantha Barry is the envy of many young journalists. Since studying English and psychology at University College Cork and graduating with her Master's in Journalism from DCU she has worked for RTÉ, the BBC and CNN and she is now Editor-in-Chief for *Glamour* magazine, overseeing a new digital transformation in the iconic publication.

Her trademark zeal and passion for change has seen her transform how major organisations use social media to deliver news to consumers, and during the 2016 US presidential campaign, she interviewed Hillary Clinton, Donald Trump and Bernie Saunders among others.

In every part of my career I have been fascinated at embracing the change of technology and in particular how that relates to news consumption and habits," she stated in her recent TEDx DCU talk. "Pure journalism can stay the same but the way that we tell those stories has to evolve."

Advancing the future with physics

Where can a degree in physics take you? You might be surprised.

Lots of people immediately think of physicists as working in labs with machines, wearing white coats, and many do. But many don't.

They are in hospitals, in aeronautics, in telecoms, in the food industry and exploring the fabric of our universe.

They are building better weather and long-term climate forecasts, they are analysing risks and investments in the financial and banking industries and they are modelling the Earth's subsurface to understand quakes, plate tectonics and volcanic eruptions.

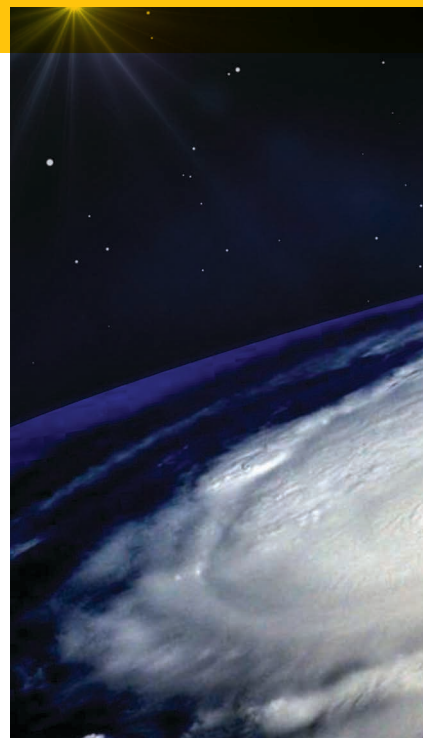They are TV presenters, teachers, policymakers and journalists.

How can a degree in physics enable this breadth of opportunity in careers? Because as well as learning practical skills and theory, physics students also develop a range of 21st-century skills, including how to work in teams, how to think creatively and critically, how to solve problems and how to communicate.
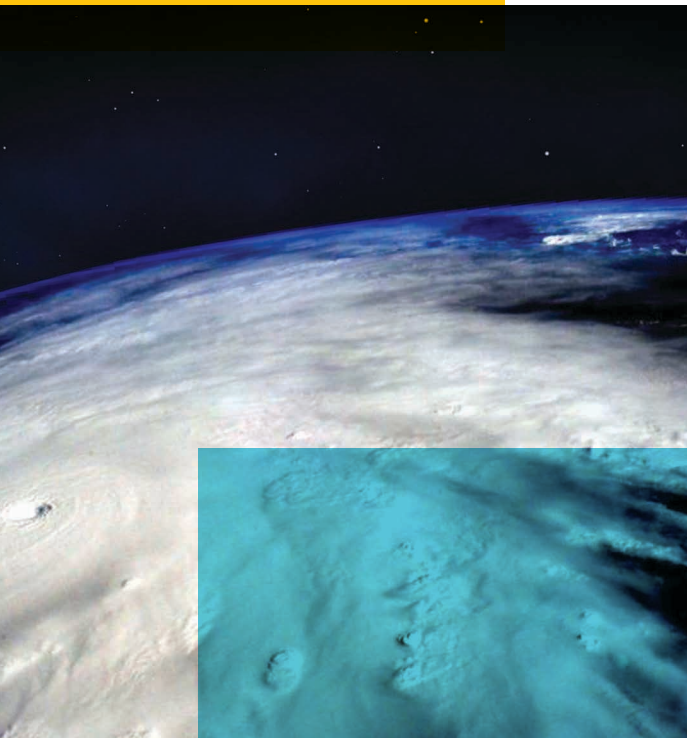
These skills are needed to tackle some of the most pressing issues of our day, such as how to use energy sustainably, how to ensure that humans have access to clean water and how to produce enough food for everyone.

At DCU, we have a range of undergraduate, Master's and PhD-level programmes in physics. In our teacher preparation programmes we shape our students to become innovative and inspirational teachers of physics. We strongly support the teaching and learning of physics in schools and offer opportunities for the general public to learn more about physics in our everyday life, and the diversity of careers it can enable.

For me, I think one of the most noble of those careers is for students to become physics teachers themselves. Ireland and the world is experiencing a shortage of secondary school teachers with a deep knowledge of physics.

We need those critical-thinking, problem-solving educators to ensure that our school students develop scientific literacy, so no matter what they go on to study and do, they will appreciate an evidence-based approach to the world.

They are building better weather and long-term climate forecasts, they are analysing risks and investments in the financial and banking industries and they are modelling the earth's subsurface to understand quakes, plate tectonics and volcanic eruptions.

Dr Eilish McLoughlin
Associate Professor, School of Physical Sciences, Dublin City University
Director, CASTeL Research Centre for STEM Education

Taking flight with physics

When Lisa Cusack was 13, she took her first flying lesson, and it set her on a path to become a fully qualified pilot.

Today, she flies the Airbus 330 for Aer Lingus to America twice a week, and she credits her degree in Applied Physics at DCU as a major stepping stone to get there.

"It taught me a great deal about applying myself to my goal and also about approaching and solving problems. A lot of that credit goes to the physics lecturers, who were extremely approachable and encouraging.

As part of my course at DCU I had the opportunity through my INTRA placement, to work in Air Traffic Control, which was a fabulous experience, that led to me getting more flying lessons."

Understanding the physics of flight has helped Lisa on her journey to the skies.

"Getting a 230 tonne plane 38,000 feet into the air is an incredible feeling, much of which is governed by the laws of physics. We use a lot of technology to monitor and maintain the aircraft during flight and we need a constant insight into atmospheric conditions," she explains. "Studying physics at DCU has definitely helped me understand aviation in depth, and I believe it played a crucial role in being selected as one of only 12 out of 3000 cadets!"
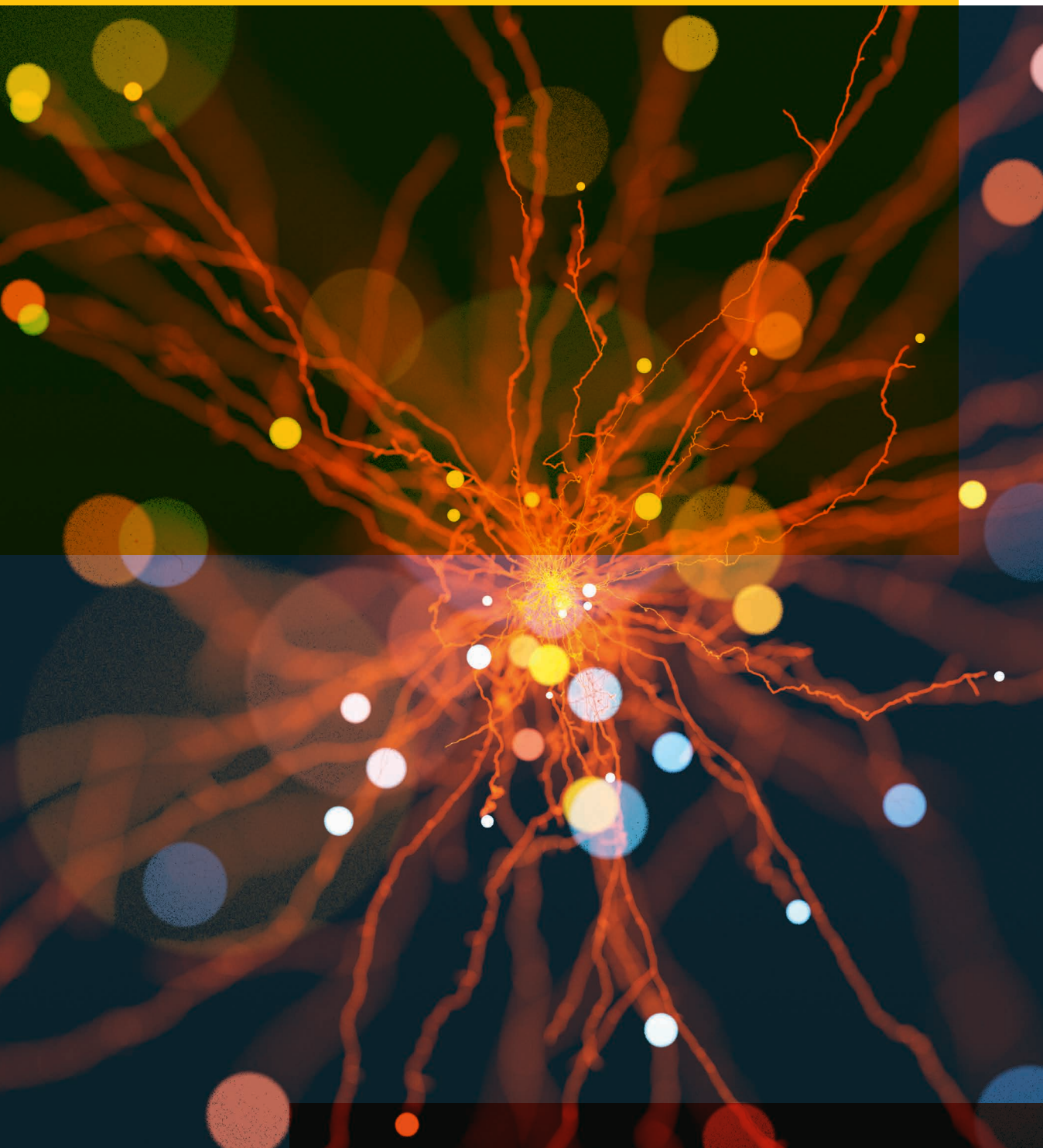
Lisa Cusack
A330 Pilot, Aer Lingus
BSc in Applied Physics, DCU

It taught me a great deal about applying myself to my goal and also about approaching and solving problems.

Saving the Planet with Science

Deirdre Boilson
Division Head, ITER Nuclear Fusion Research
BSc in Applied Physics, MSc in Plasma Physics and PhD in Plasma Physics, DCU

The world needs clean sources of energy, and physics can help to track them down. DCU graduate Dr Deirdre Boilson works at ITER, a major facility in the South of France where scientists are looking to control a process called nuclear fusion. Unlike the nuclear fission that splits atoms apart in nuclear power plants and creates radioactive waste, nuclear fusion pushes atoms together at extremely high temperatures to safely and cleanly release enormous amounts of energy, and it's the same process that happens in the heart of the sun.

Deirdre moved to ITER as a result of doing her PhD in physics at DCU.

"We are basically building a machine that can recreate the process of nuclear fusion that happens in the sun and harness the energy that comes from it," she says. "It's a big goal, but the rewards are big too, this could be an enormous source of clean and sustainable energy to reduce our reliance on fossil fuels."

Dr Jenny Lawler
Lecturer in Bioprocess Engineering, Dublin City University
PhD in Biotechnology, DCU

Clean, safe water is a foundation for good health. Without it, the threats of environmental damage and human and animal illness loom large.

A Chemical Engineer who has worked in the pharmaceutical industry, she completed a PhD in Biotechnology in DCU and now works on several approaches to keep water safe. They include projects to understand the impact of plastic waste in oceans and rivers and to clean wastewater from industry in an environmentally friendly way.

"Water pollution is a major issue for humans around the world," says Jenny. "We can use scientific studies to understand the causes and impacts of those problems and develop new technologies to ensure that our oceans, rivers and drinking water are the best they can be for our health and the environment."

How to get there
Pathways in DCU

DCU offers many degree programmes that can provide you with a direct or an indirect pathway into a STEM career. The table below highlights many of the degree programmes in our Faculty of Science and Health and our Faculty of Engineering and Computing that can lead directly into one of the exciting career areas featured in this brochure. We have also included the broader "common entry" routes for those who may wish to keep their options open until they learn some more about the areas involved.

It is also important to emphasise that, like many of the successful graduates featured in this brochure, you can choose a programme from our Faculty of Humanities and Social Sciences, DCU Business School, or the DCU Institute of Education. The attributes and insights developed by graduates in these areas are highly sought after by many employers in the STEM sectors.

For full details on all of our undergraduate programmes and life at DCU, visit: www.dcu.ie/cao

Data Analytics
– BSc in Data Science
– Actuarial Mathematics
– Computer Applications
– Enterprise Computing

Internet of Things
– Electronic & Computer Engineering
– Mechatronic Engineering
– Mechanical and Manufacturing Engineering
– Data Science
– Enterprise Computing
– Computer Applications

Undergraduate Courses

Future of Food/Health/Bio-Engineering
– Biotechnology
– Biomedical Engineering
– Genetics and Cell Biology
– Environmental Science and Technology
– Chemical and Pharmaceutical Science
– Health and Society
– Sports Science and Health
– Physics with Biomedical Sciences

Future of Media and Journalism
– Journalism
– Multimedia
– Communications
– Arts (Media studies)
– Computer Applications
– Enterprise Computing
– Data Science
– Social Science and Cultural Innovation

Climate and Natural Resources
– Environmental Science and Technology
– Applied Physics
– Analytical Chemistry

General Science and Technology
– Common Entry into Science
– Common Entry into Engineering
– Common Entry into Actuarial and Financial Mathematics
– Science Education and Physical Education Degrees
– Nursing Degrees

Purposefully different, consistently excellent

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