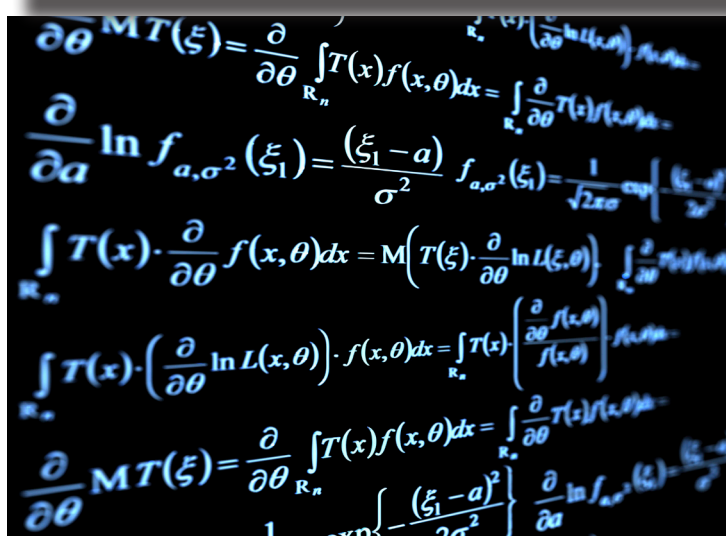
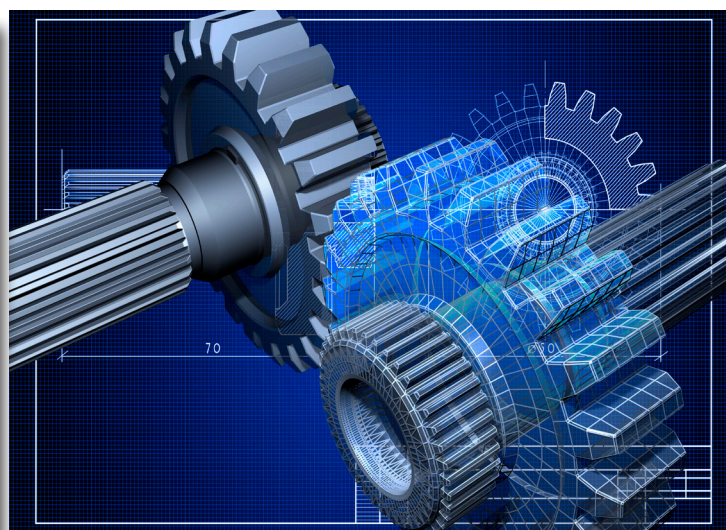


# Why STEM Careers for Northern Ireland?

A Briefing provided by the Engineering Policy Group **Northern Ireland**



## About This Briefing

The Engineering Policy Group Northern Ireland acts as a voice for the science, engineering and technology professions by providing independent, reliable and factual information to the public and policy makers in Northern Ireland. This Briefing aims to provide an accessible guide to current technologies and scientific facts of interest to the public.

For more Briefings, Position Statements and Factfiles on engineering and technology topics please visit <http://www.theiet.org/factfiles>.

## The Engineering Policy Group Northern Ireland

The panel acts as a two-way link between the profession and local government in Northern Ireland.

Its two main tasks are to provide feedback into government thinking and to proactively raise matters of relevance with government. It is a body of senior advisors chosen to represent the profession in satisfying these needs specifically for Northern Ireland. The policy panel comprises senior members from Northern Ireland industry, academe and professional organisations engaged with Northern Ireland issues.

As engineering and technology become increasingly interdisciplinary, global and inclusive, Professional Bodies reflect that progression and welcome involvement from, and communication between, all sectors of science, engineering and technology.

For more information please visit <http://www.theiet.org/policy/panels/nireland/>

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<http://www.theiet.org/cpd>

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## Why STEM Careers for Northern Ireland?

- Rt Honourable Owen Paterson – Secretary of State for Northern Ireland speech 6th October 2010:  
“.....Northern Ireland is over-dependent on the public sector .....public spending accounts for a staggering 77.6 per cent of GDP. This is simply unsustainable.”:
- Perceived ideal careers as doctors, lawyers and accountants are service activities which do not themselves generate wealth. Science and engineering professional careers which do produce wealth creation can be equally rewarding both from enjoyment (job satisfaction) and financial perspectives, as well as being gateways to diverse careers in business, finance and law:

Occupation	Mean Gross Salaries (£)
Solicitors and lawyers, judges and coroners	54,979
Chartered engineer	54,181
Broadcast associate professionals	38,419
Finance and investment analysts/advisers	49,732
Hospital and health service managers	40,419
Chartered and certified accountants	38,419
Chemists	38,163
Management accountants	37,196
Journalists, newspaper/periodical editors	33,240

Source: EngineeringUK 2009/10 report:

<http://www.engineeringuk.com/research/>

The engineering salary is high due to the fact that engineers may end up as Directors and Chief Executive Offices of companies.

- Department for Employment and Learning: Oxford Economics “Forecasting Future Skill Needs in Northern Ireland”: [http://www.delni.gov.uk/del\\_future\\_skill\\_needs\\_final\\_report\\_june\\_09\\_v4\\_no\\_links.pdf](http://www.delni.gov.uk/del_future_skill_needs_final_report_june_09_v4_no_links.pdf):
  - Graduate subject diversity: The research suggests that the pool of graduates within the workforce has a rather ‘narrow’ unspecialised subject focus, which otherwise are essential for developing an innovative, export-led economy. There is an over abundance of business and mass communications graduates and a notable under-representation of creative arts & design/ arts and STEM graduates (7,000 and 4,000 respectively). This may reflect demand as opposed to current supply (many may migrate out for work) but is nevertheless a notable facet of the NI economy.
  - Increasing demand for STEM subjects: As best can be predicted, the base forecasts suggest that the growing sectors of the economy will require an increasing number of STEM qualified graduates and skilled labour.
- Department of Enterprise, Trade and Investment’s Northern Ireland Science Industry Panel (MATRIX): <http://matrixni.org/> identified five key STEM sectors and produced 5 MATRIX Horizon reports each of which contained a series of recommendations aimed at maximising the future science to market commercialisation opportunities within these sectors:
  - Life and Health Sciences
  - ICT
  - Agri-food
  - Advanced Materials
  - Advanced Engineering (Transport)
- At present physics based technologies support around one million jobs in the UK, or 5% of all jobs. In addition these are highly productive jobs with a Gross Value Added (GVA) per employee at £69,000 - 70% higher than the UK average. Given Northern Ireland’s current low GVA per employee, around 80% of the UK average, it is clear that it is growth in this type of employment which is essential for the region:  
<http://www.iop.org/publications/> and <http://www.delni.gov.uk>
- Summary of Strategically Important and Vulnerable Subjects - HEFCE advisory group: <http://www.hefce.ac.uk/pubs/>
  - During the last three years, the number of students in Chemistry, Physics and Mathematics programmes in HE has increased at a greater rate than the average across all subjects and to a level beyond that at the beginning of the decade. The latest data on A levels and entrants to HE suggests that this trend will continue. A significant increase in students taking Mathematics A level can be expected to have a positive impact on HE admissions throughout science and

engineering.

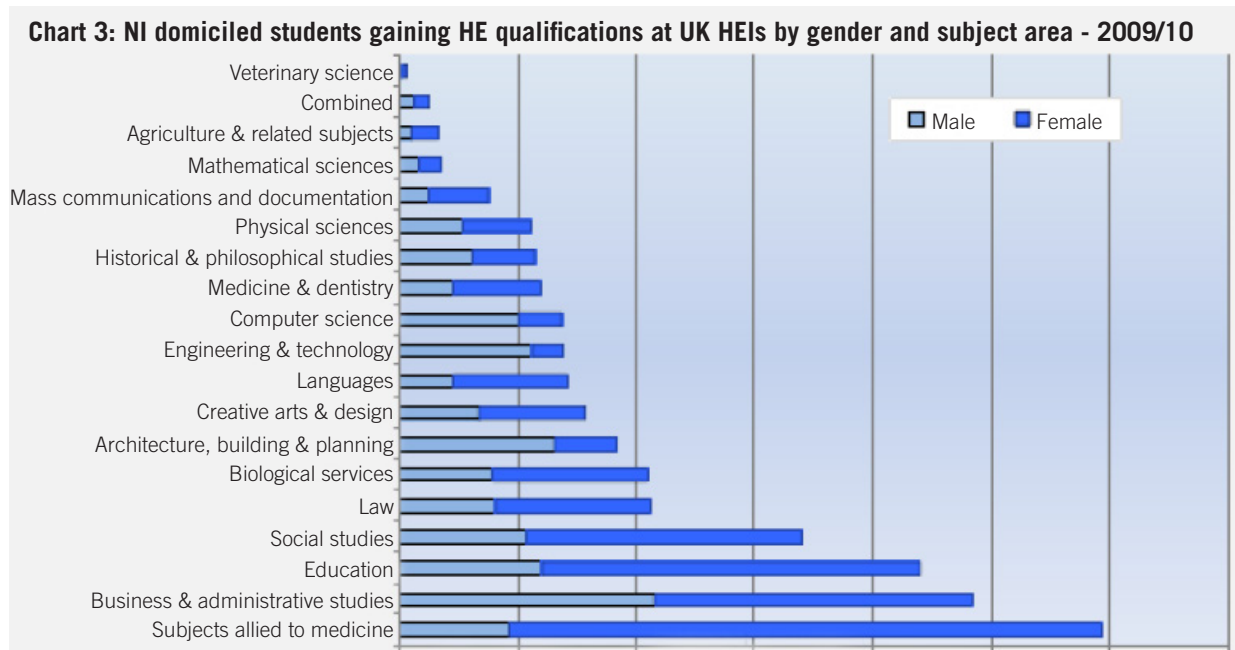
- In Engineering, the number of students in HE programmes has been declining for some time, but the pattern varies between sub-disciplines. During the last three years, the number of Electrical Engineering students has declined, albeit from a large base, whereas Civil Engineering and Chemical Engineering numbers have increased at a rate well beyond the average for all subjects. Other areas of engineering appear more stable, although a significant decline in entrants to Minerals, Metallurgy and Materials Engineering programmes suggests that numbers in this area will decline during the coming years. In collaboration with the relevant professional institutions, the Advisory Group will see to develop a better understanding of the causes of these trends, and any actions that may be needed in response to them, during 2010.

- Department for Employment and Learning Statistical Bulletin 2009/10 – subject of study:

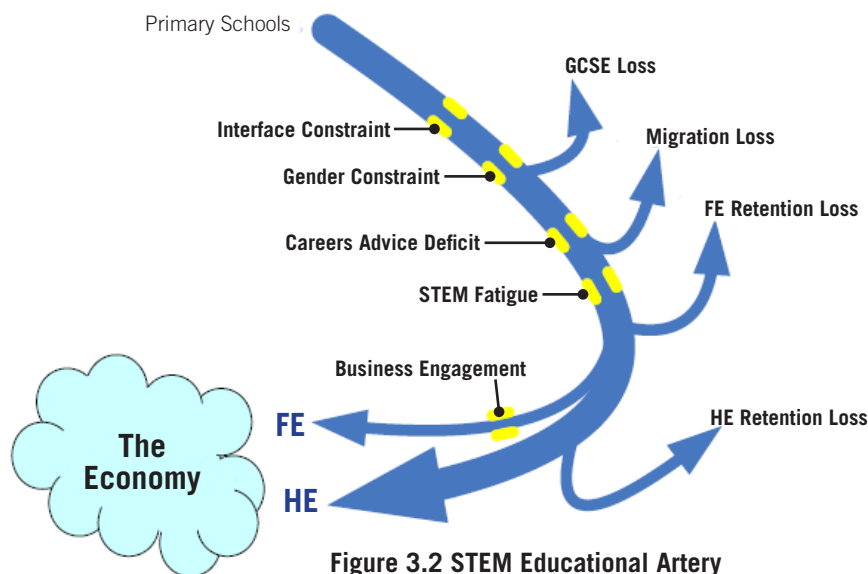
<http://www.delni.gov.uk/index/publications.htm>

- In 2009/10, 46% of qualifications gained by students at NI HEI's were in a STEM related subject

#### Subject of Study (Table 2, Chart 3)



Following a STEM ambition there are many challenges to an individual achieving successful contribution to NI's economy as shown in the NI Department of Education, and for Employment and Learning STEM Review 2009: [http://www.delni.gov.uk/report\\_of\\_the\\_stem\\_review.pdf](http://www.delni.gov.uk/report_of_the_stem_review.pdf)





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