

Summary of Demand from Industry for Skills / Training – October 2023

The SERSF has compiled the following information from feedback from industry, industry clusters/associations and data available from the Skills and Labour Market Research Unit (SLMRU) of SOLAS.

Nationally employment is at a record level (2.64 million in Q2 2023) and there is now 215,300 employed in the South East – (Waterford/Wexford/Carlow/Kilkenny). Source CSO Q2 2023. 'Industry' employment in the South East stood at 27,700 in Q2 2023.

The national unemployment rate for August 2023 stood at 4.1% (11.2% for 15-24 year olds). The rate of staff turnover / churn has accelerated since the pandemic. Given the tight labour market, in addition to skills and training needs some sectors are now experiencing significant labour shortages.

Life Sciences – (12,600 employed - pharma & medtech).

This sector includes pharmaceutical and medical device manufacturing predominantly comprised large multi-national companies. The largest 10 pharmaceutical companies employ 5,200 staff and the largest 10 medical device manufacturers employ 6,600 staff in the South East (Carlow/Kilkenny/Waterford/Wexford/South Tipp)

This sector has an ongoing requirement for science and engineering professionals and associate professionals as well as semi-skilled operatives / technicians.

Roles in demand within the region

- Manufacturing Engineer
- Scientists – microbiology & chemistry
- Automation Engineer
- Process Engineer & Technician
- Laboratory Technician
- Quality Control & Quality Assurance
- Regulatory Affairs
- Skilled Production Operatives

Identified skills shortages and a need to upskill staff in the following disciplines has been identified:

- Good Manufacturing Practice (GMP)
- Advanced Scientific Techniques – a range of disciplines at post graduate level
- LEAN & Six Sigma & Operational Excellence
- Project Management
- Automation
- Quality Control & Quality Assurance
- Regulatory Affairs
- Digitisation & Data Analytics for process improvement
- Leadership and Management Development.

Availability of Graduates

The Higher Education Authority statistics reveal a steady and growing pipeline of graduates in **Science related disciplines** graduating in the South East in recent years.

Science Graduates from SETU (Carlow & Waterford)

Graduates in 'Science' disciplines in 2022 from SETU From www.hea.ie/statistics	
Isced Discipline	2022
(0510) Biological and related sciences	35
(0511) Biology	23
(0512) Biochemistry	43
(0520) Environmental sciences not elsewhere classified	0
(0521) Environmental science	9
(0522) Natural environments & wildlife	63
(0531) Chemistry	39
(0533) Physics	8
Grand Total	220

The equivalent numbers in previous years were as follows:

2021 - 253

2020 - 190

2019 - 150

2018 - 180

Note. All awards awarded in All HEA-Funded Institutions in the Calendar Year by field of study (ISCED): full-time & part-time (including distance and e-learning). Undergraduate awards only.

The Higher Education Authority statistics reveal a modest and static pipeline of graduates in relevant **Engineering related disciplines** graduating in the South East in recent years.

Undergraduate Pipeline from SETU (Carlow & Waterford) between 2017 and 2022 in Engineering related disciplines (source: www.heai.ie/statistics)

Isced Discipline	2017	2018	2019	2020	2021	2022
(0710) Engineering and engineering trades not further defined or elsewhere classified	46	35	34	18	21	15
(0712) Environmental protection technology	40	26	24	23	39	53
(0713) Electricity and energy	107	44	30	28	51	47
(0714) Electronics and automation	156	117	106	124	110	101
(0715) Mechanics and metal trades	54	43	55	46	50	40
(0716) Motor vehicles, ships and aircraft	95	123	120	83	69	73
(0721) Food processing	9				16	7
(0722) Materials (glass, paper, plastic and wood)		11	9	11	15	7
Engineering Other	<5					
(0730) Architecture and construction not further defined or elsewhere classified	5	8	28	36	35	39
(0731) Architecture and town planning	20	62	43	33	44	47
(0732) Building and civil engineering	61	54	142	140	128	100
Grand Total	594	523	591	542	578	529

(For the purpose of this exercise postgraduate numbers are not included on the basis that these are existing graduates gaining additional qualifications rather than new graduates.)

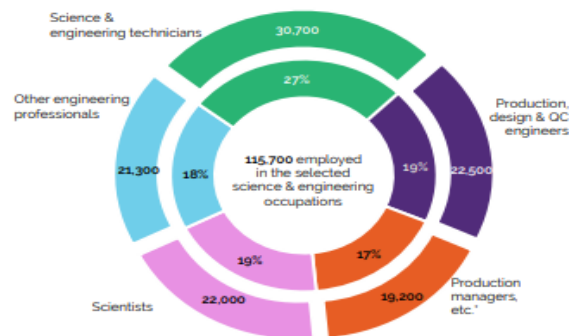
Extracts from the National Skills Bulletin 2022

10.1 Science & Engineering Occupations

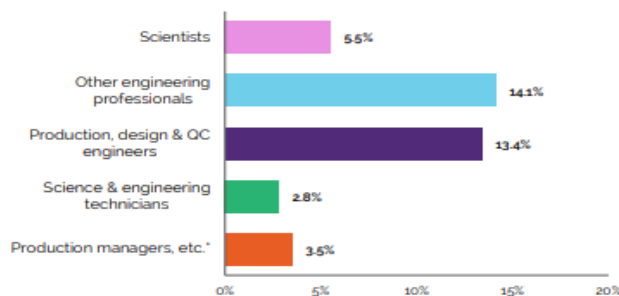
Overall employment: approximately 115,700 persons (67% male) were employed in the selected science and engineering occupations, representing 4.8% of the national workforce.

- **Sector:** 47% of overall employment was concentrated in industry, followed by 21% in professional service activities and 8% for ICT
- **Employment growth (5-year):** between 2016 and 2021, overall employment increased by 33,000 (6.9% on average annually compared to 2.3% nationally). The strongest rate of employment growth was observed for other engineering professionals (14.1%) during the period
- **Age:** the 25-54 age group accounted for the majority of those employed in these occupations, at 83%. The share of persons employed aged 55 years and over was 12%, below the national average of 19%
- **Education:** the share who had attained third level qualifications (86%) was significantly above the national average share (53%), while a further 11% had attained a higher secondary/FET qualification
- **Full-time/part-time:** 95% of those employed in science and engineering occupations were in full-time employment
- **Nationality:** the share of Irish national workers was 82%, slightly below the national average of 83%.

Numbers employed, 2021 (annual average)



Average growth rates (%) 2016-2021



Between 2016 and 2021, overall employment increased by 33,000 (6.9% on average annually compared to 2.3% nationally).

Source: SLMRU (SOLAS) analysis of CSO data

Overall Outlook for these Occupations

Employment grew strongly in this occupational group over the five-year period, particularly in the year since 2020 with an additional 16,000 persons employed. This has been driven primarily by growth in employment in high tech manufacturing. Although the volume of pharma exports slowed in 2021, they remain the largest goods exporting sector according to the Spring Economic Insights series, which also reported a surge in exports of semiconductors and medical devices in 2021³⁸. Provision from the third level education system for science and engineering graduates remains strong. However, the strong employment growth for these occupations and the demand for the skillsets associated with scientists and engineers (e.g. critical analysis, problem solving) across a range of other occupations (e.g. public administration professionals, teachers, among others), will ensure continued demand and job opportunities for these roles. Furthermore, the shift towards a low carbon economy is expected to result in a demand for additional skills amongst scientists (e.g. ecology, environmental, conservation), electrical engineers (e.g. renewable and high voltage) and technicians (e.g. solar/wind).

Future demand for these occupations is anticipated to be strong, with shortages likely to persist. The shortages are expected to be small in number and for some will relate to those with experience in niche areas.

Occupation	Economic summary
Scientists	<p>The employment growth rate over the five-year period was above average although employment remained relatively stable between 2020 and 2021. Employment permits issued in 2021 were primarily for medical, process, and analytical scientists and chemists. In June 2022, medical scientists were moved to the Critical Skills Employment Permit List due to issues with sourcing suitable candidates. Medical scientists were also identified in the Shifting Sands report as one of the top growing occupations in terms of advertised job vacancies; the top skills sought in job vacancy adverts included pathology, biochemistry, microbiology and quality assurance/control. Vacancies for analytical and process scientists were also identified as difficult to fill in the Recruitment Agency Survey. Both the Skills for Growth and Spotlight on Skills data pointed to issues in sourcing skills for food science and food manufacturing. Education provision for scientists continued to increase strongly with 5,300 graduates at NQF levels 8-10 in 2020, an additional 500 graduates when compared to 2016.</p> <p>Demand for these skills in the life sciences is likely to continue to grow, with shortages occurring for roles that require a high level of experience and/or in niche areas.</p>

Shortage:
Analytical,
process, and
medical
scientists

<p>Production, design & QC engineers</p> <p>Shortage: Quality control/assurance, process, and design engineer</p>	<p>Employment in this occupation has seen strong annual growth since 2018, resulting in a 13% annual average growth rate over the five-year period. Over 600 new employment permits were issued in 2021 in roles including quality, design, and process engineers. This occupation group had the highest number of mentions of vacancies that were difficult to fill in the Recruitment Agency Survey, especially for quality, compliance and process engineering roles. Mentions in the Skills for Growth data related to quality (in food, pharma and medical devices), process (across packaging, medical devices and electrical) and design (e.g. equipment manufacturing) engineers. The volume of advertised vacancies in the OVATE data increased in 2021 on the previous year and were mostly for production and process engineers. Almost 3,900 engineering awards at NFQ levels 8-10 were awarded in 2020, an increase of over 800 since 2016.</p> <p>Demand appears to be particularly strong for this occupation and with employment levels increasing, issues in attracting candidates with relevant experience are likely to persist.</p>
<p>Other engineering professionals (e.g. mechanical, electrical and electronic engineers)</p> <p>Shortage: Engineers (mechanical, electrical, automation, validation)</p>	<p>The strong employment growth for this occupation is partly due to changes to the Labour Force Survey methodology in 2017; however, there was also strong employment growth between 2020 and 2021. Employment permits issued in 2021 included automation, electrical, mechanical and validation engineers. There is evidence of difficulties in filling vacancies for this occupation from the Skills for Growth data and Recruitment Agency Survey; roles in electrical, validation, automation, mechanical, and environmental health & safety (EHS) engineers are in particular demand, especially for, although not confined to, those with skills and experience in specific industries (e.g. high voltage electricity, manufacturing engineering). Strong demand for these engineering roles is expected to persist particularly for those with industry-specific experience.</p>
<p>Science & engineering technicians</p> <p>Shortage: Maintenance/lab technicians</p>	<p>Employment growth over the five-year period was marginally above the national average although growth was strong in the year to 2021. The Recruitment Agency Survey identified vacancies for maintenance technicians in manufacturing with electrical/mechanical skills as difficult-to-fill; Skills for Growth data also highlighted issues with maintenance technicians (in food manufacturing) along with laboratory technicians (also in food), and technicians in bio-pharma and injection moulding. Advertised vacancies in the DSP and OVATE data referred to various technician roles including maintenance, manufacturing and lab. Demand for these high-skilled technicians is likely to persist, although new manufacturing engineering apprentices at level 6 and 7 for the medical devices sector may assist with alleviating some shortages.</p>
<p>Production managers in manufacturing</p>	<p>Employment growth was above the national average, with strong growth occurring between 2020 and 2021 for this occupation. Employment permits issued in 2021 mainly related to engineering directors. There was one mention of a difficult-to-fill vacancy in the Recruitment Agency Survey for a production manager. There was a large increase in the volume of advertised vacancies in the OVATE data, albeit from a relatively small base.</p> <p>Demand for these roles will be dependent on the strength of the manufacturing sector across all technology levels, although supply chain issues and rising inflation may temper demand for some manufacturing sub-sectors, particularly those outside the high-tech segment.</p>

From National Skills Bulletin 2022. October 2022