cogent

The Sector Skills Council for
Chemicals and Pharmaceuticals,
Nuclear, Oil and Gas, Petroleum
and Polymers

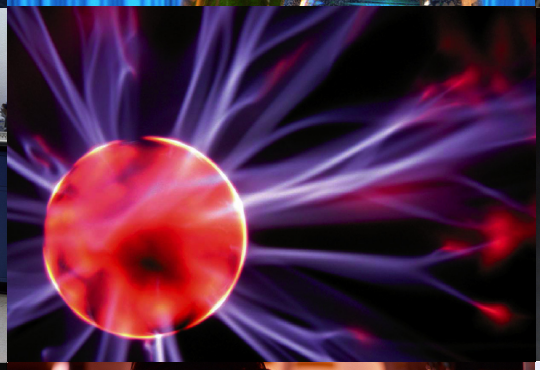
Assessment of Current Provision for the Cogent Sector - PART 2

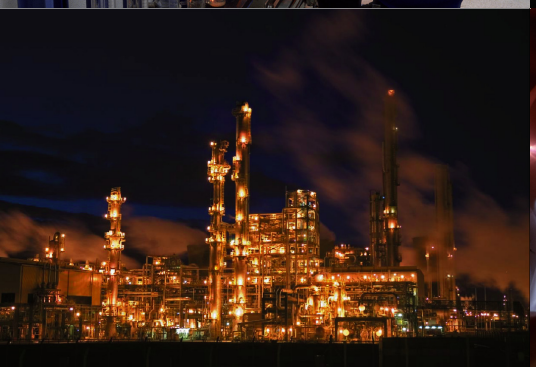
FINAL

Innovation — Competence — Productivity — Sustainability









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Appendix 1

Table A1a: Entry requirements for the Chemicals, Signmaking and Polymer Processing Apprenticeships

1. Chemical Apprenticeship	
Applicants from Scotland	**Typical Standard Grade Required**
Mathematics	1, 2 or 3
English	1, 2 or 3
Either :- Physics or Chemistry	1, 2 or 3
Plus one other subject	1, 2 or 3
Applicants from England/Wales/N Ireland	**Typical GCSE Grade Required**
Mathematics	A, B or C
English	A, B or C
Either:- Double Science, Physics, or Chemistry	A, B or C
Plus one other subject	A, B or C
2. Signmaking Apprenticeship	
Applicants from Scotland	**Typical Standard Grade Required**
Mathematics	1, 2, 3 or 4
English	1, 2, 3 or 4
Plus two of the below:-	
Chemistry	1, 2, 3 or 4
Physics	1, 2, 3 or 4
Craft & Design	1, 2, 3 or 4
Computing	1, 2, 3 or 4
Foreign Language	1, 2, 3 or 4
Applicants from England/Wales/N Ireland	**Typical GCSE Grade Required**
Mathematics	A, B or C
English	A, B or C
Plus two of the below:-	
Chemistry	A, B or C
Physics	A, B or C
Double Science	A, B or C
Craft & Design	A, B or C
Foreign Language	A, B or C
Computing	A, B or C
3. section deleted	

4. Polymer Processing Apprenticeship	
Applicants from Scotland	**Typical Standard Grade Required**
Mathematics	1, 2 or 3
English	1, 2 or 3
Either :- Physics or Chemistry	1, 2 or 3
Applicants from England/Wales/N Ireland	**Typical GCSE Grade Required**
Mathematics	A, B or C
English	A, B or C
Either :- Physics, Chemistry or Double Science	A, B or C

Appendix 2

Table A2a: Apprenticeships in Scotland: throughput

Apprenticeship Frameworks (Scotland)

Data Supplied by Scottish Enterprise and Highlands & Islands Enterprise

2002/03

	Nos. Starting	Gender		Nos. Completing	Gender	
		M	F		M	F
Chemical Manufacturing and Processing	**54**	52	2	**55**	47	8

2003/04

	Nos. Starting	Gender		Nos. Completing	Gender	
		M	F		M	F
Chemical Manufacturing and Processing	**51**	46	5	**33**	30	3
Polymer Processing	**11**	11	0	**5**	5	0

2004/05

	Nos. Starting	Gender		Nos. Completing	Gender	
		M	F		M	F
Chemical Manufacturing and Processing	**54**	51	3	**56**	52	4
Polymer Processing	**3**	3	0	**5**	5	0

Apprenticeship Framework for Engineering (Scotland)

Data Supplied by Scottish Enterprise and Highlands & Islands Enterprise

	Nos. Starting	Gender		Nos. Completing	Gender	
		M	F		M	F
Engineering - 2002/03	**692**	672	20	**465**	460	5
Engineering - 2003/04	**858**	837	21	**416**	402	14
Engineering - 2004/05	**874**	862	12	**486**	469	17

Table A2b: Table deleted

Apprenticeship and Advanced Apprenticeship Frameworks (England)
Data supplied by LSC

Figure A2a: Registrations for Chemical Apprenticeship and Advanced Apprenticeship - England

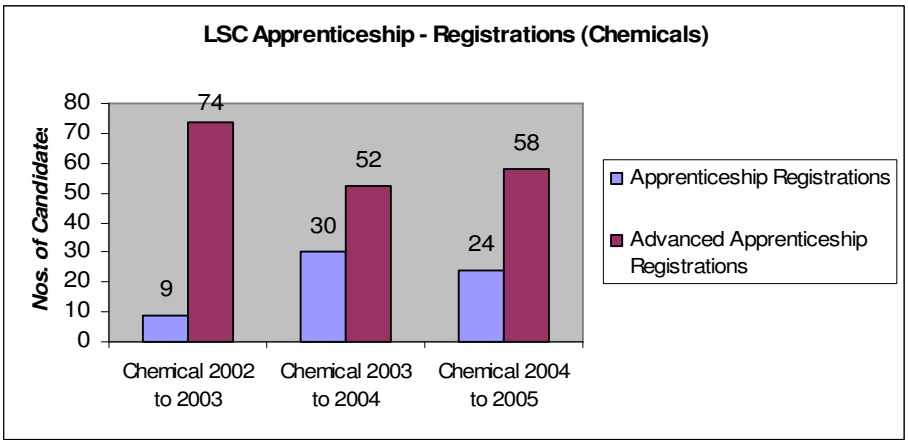


Figure A2b: Completions of Chemical Apprenticeships and Advanced Apprenticeships - England

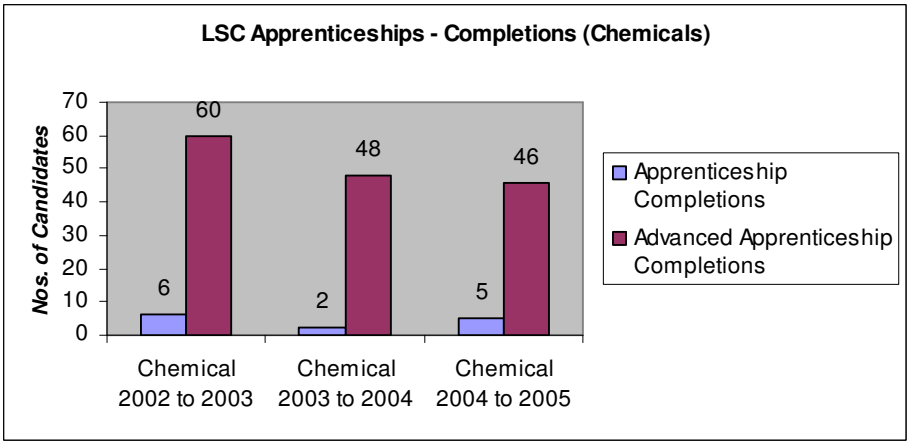


Figure A2c: Registrations for Polymers and Signmaking Apprenticeship and Advanced Apprenticeship - England

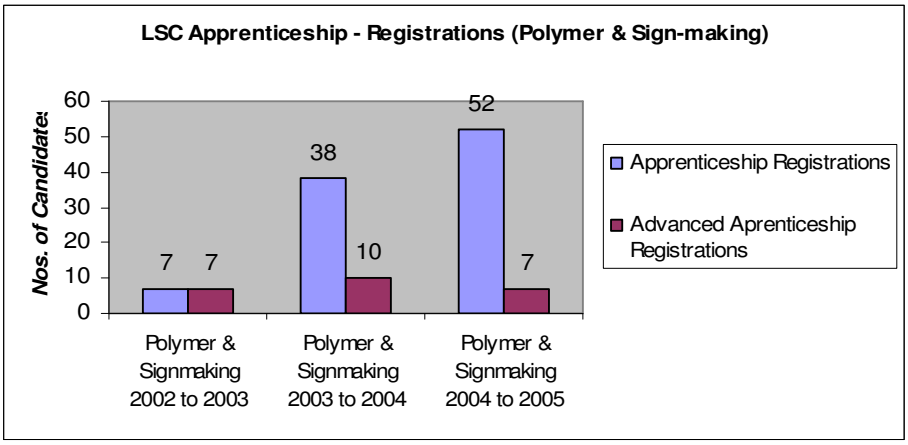


Figure A2d: Completions of Polymer and Signmaking Apprenticeships and Advanced Apprenticeships - England

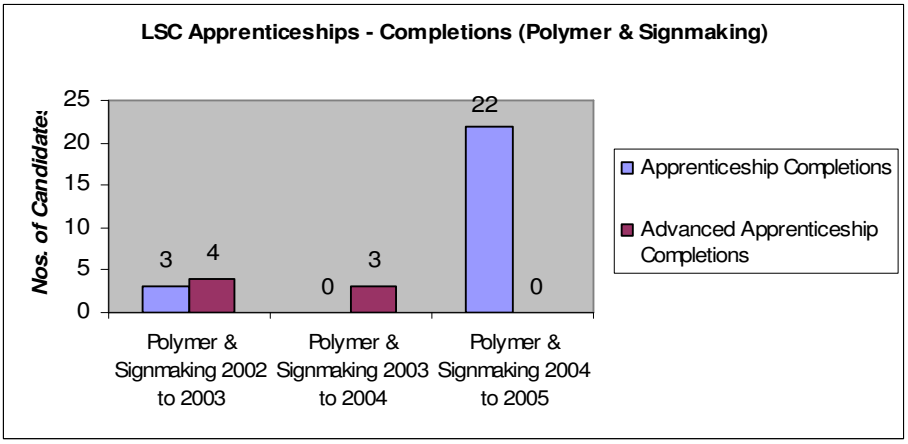


Figure A2e: Registrations for Engineering Apprenticeships and Advanced Apprenticeships - England

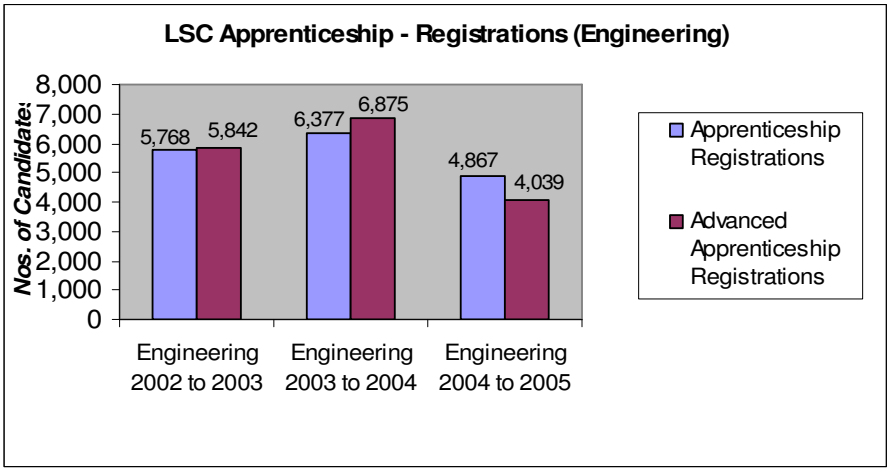
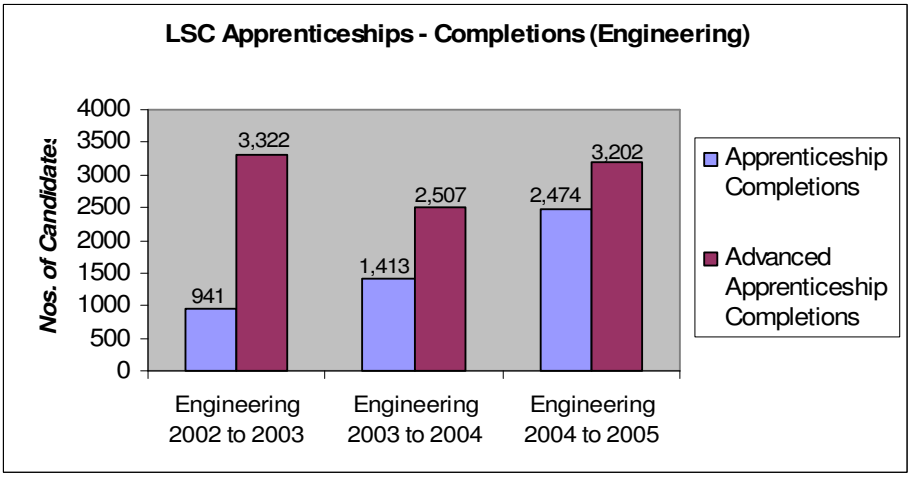


Figure A2f: Completions of Engineering Apprenticeships and Advanced Apprenticeships - England



Appendix 3

Table A3a: Bachelors Degrees in England and Wales

Awarding Institution	Qualification Title	Qualification Type
Aston University	Chemistry Technology and Design	BEng Hon
	Chemical Engineering	BEng Hon
	Chemical Engineering (Computer Simulation)	BEng Hon
	Chemical Engineering (Energy and Environment)	BEng Hon
	Chemical Engineering (Management Studies)	BEng Hon
	Applied Chemistry	BSc Hon
	Biology and Chemistry	BSc Hon
	Chemical Process Design and Public Policy and Management	BSc Hon
	Chemistry	BSc Hon
	Chemistry (Biotechnology)	BSc Hon
	Chemistry (Environmental Management)	BSc Hon
	Chemistry (Management Studies)	BSc Hon
	Chemistry and Computer Studies	BSc Hon
	Chemistry and Environmental Science and Technology	BSc Hon
	Chemistry and European Studies	BSc Hon
	Chemistry and French	BSc Hon
	Chemistry and Human Psychology	BSc Hon
	Chemistry and Mathematics	BSc Hon
	Chemistry and Politics	BSc Hon
	Chemistry and Public Policy and Management	BSc Hon
	Biology and Chemical Process Design	BSc Hon
	Chemical Process Design and Geographical Info Sys	BSc Hon
	Chemical Process Design and Computer Science	BSc Hon
	Chemical Process and French	BSc Hon
	Chemical Process Design and German	BSc Hon
	Chemical Process Design and Sociology	BSc Hon
	Business Administration and Chemical Process Design	BSc Hon
	Chemical Process Design & Public Policy & Management	BSc Hon
	Chemical Process Design and French	BSc Hon
Cardiff University	Chemistry	BSc Hon
	Chemistry - Preliminary Year	BSc Hon
	Chemistry and Physics	BSc Hon
	Chemistry with Bioscience	BSc Hon
	Chemistry with Bioscience and Industrial Experience	BSc Hon
	Chemistry with Industrial Experience	BSc Hon
	Chemistry with Physics	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
Imperial College London	Chemistry	BSc Hon
	Chemistry and Management with a Year in Industry	BSc Hon
	Chemistry and Management	BSc Hon
Keele University	Chemistry and Geology	BSc Hon
	Applied Environmental Science and Chemistry	BSc Hon
	Biochemistry and Chemistry	BSc Hon
	Biology and Chemistry	BSc Hon
	Biology and Medicinal Chemistry	BSc Hon
	Business Administration and Chemistry	BSc Hon
	Business Administration and Medicinal Chemistry	BSc Hon
	Chemistry	BSc Hon
	Chemistry and Criminology	BSc Hon
	Chemistry and English	BSc Hon
	Chemistry and Finance	BSc Hon
	Chemistry and Forensic Science	BSc Hon
	Chemistry and Geography	BSc Hon
	Chemistry and History	BSc Hon
	Chemistry and Human Geography	BSc Hon
	Chemistry with Human Resource Management	BSc Hon
	Chemistry and International History	BSc Hon
	Chemistry and International Relations	BSc Hon
	Chemistry and Law	BSc Hon
	Chemistry and Management Science	BSc Hon
	Chemistry and Marketing	BSc Hon
	Chemistry and Mathematics	BSc Hon
	Chemistry and Music	BSc Hon
	Chemistry and Music Technology	BSc Hon
	Chemistry and Neuroscience	BSc Hon
	Chemistry and Philosophy	BSc Hon
	Chemistry and Physical Geography	BSc Hon
	Chemistry and Physics	BSc Hon
	Chemistry and Politics	BSc Hon
	Chemistry and Psychology	BSc Hon
	Chemistry and Sociology	BSc Hon
	Chemistry with Science Foundation Year	BSc Hon
	Medicinal Chemistry and Physics	BSc Hon
Kingston University	Biology and Chemistry	BSc Hon
	Chemistry	BSc Hon
	Chemistry (Applied)	BSc Hon
	Chemistry (Applied) (Foundation)	BSc Hon
	Chemistry (Foundation)	BSc Hon
	Chemistry and Computing	BSc Hon
	Chemistry and Internet Computing	BSc Hon
	Chemistry with Business Management	BSc Hon
Lancaster University	Environmental Chemistry	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
	Environmental Chemistry with Study in North America - Australasia	BSc Hon
Liverpool John Moores University	Biological and Chemical Sciences	BSc Hon
	Medicinal and Analytical Chemistry	BSc Hon
	Medicinal Chemistry	BSc Hon
London Metropolitan University	Joint Courses - (Polymer Engineering)	BA Hon
	Joint Courses - (Chemistry)	BA Hon
	Polymer Engineering	BEng Hon
	Joint Courses - (Polymer Engineering)	BSc Hon
	Biological Sciences and Chemistry	BSc Hon
	Biological and Medicinal Chemistry	BSc Hon
	Biology/Chemistry	BSc Hon
	Chemistry	BSc Hon
	Joint Courses - (Chemistry)	BSc Hon
London South Bank University	Petroleum Engineering	BEng Hon
	Chemical and Process Engineering	BEng Hon
	Chemical Engineering Foundation	BEng Hon
Loughborough University	Chemical Engineering	BEng Hon
	Chemical Engineering with Environmental Protection	BEng Hon
	Chemistry	BSc Hon
	Chemistry (4 Year SW)	BSc Hon
	Chemistry and Sports Science	BSc Hon
	Chemistry and Sports Science (4 Year SW)	BSc Hon
	Chemistry with Analytical Chemistry	BSc Hon
	Chemistry with Analytical Chemistry (4 Year SW)	BSc Hon
	Chemistry with Forensic Analysis	BSc Hon
	Chemistry with Forensic Analysis (4 Year SW)	BSc Hon
	Chemistry with a Foundation Year	BSc Hon
Manchester Metropolitan University	Plastics and Rubber Materials	BSc Hon
	Plastics and Rubber Materials (Foundation)	BSc Hon
	Polymer Science and Technology	BSc Hon
	Chemical Science	BSc Hon
	Analytical Chemistry	BSc Hon
	Analytical Chemistry (Foundation)	BSc Hon
	Applicable Mathematics/Chemistry	BSc Hon
	Biology/Chemistry	BSc Hon
	Business Economics/Chemistry	BSc Hon
	Chemical Science	BSc Hon
	Chemistry	BSc Hon
	Chemistry (Foundation)	BSc Hon
	Chemistry (Sandwich)	BSc Hon
	Chemistry with Study in Europe	BSc Hon
	Chemistry with Study in Europe (Foundation)	BSc Hon
	Chemistry/Computer Sciences	BSc Hon
	Chemistry/Economics	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
Manchester Metropolitan University	Chemistry/Environmental Studies	BSc Hon
	Chemistry/European Studies	BSc Hon
	Chemistry/Information Systems	BSc Hon
	Chemistry/Languages	BSc Hon
	Chemistry/Management Systems	BSc Hon
	Chemistry/Materials Science	BSc Hon
	Chemistry/Multimedia Technology	BSc Hon
	Chemistry/Psychology	BSc Hon
	Forensic Chemistry	BSc Hon
	Forensic Chemistry (Foundation)	BSc Hon
	Pharmaceutical Chemistry	BSc Hon
Northumbria University	Applied Chemistry	BSc Hon
	Biomedical Sciences and Chemistry	BSc Hon
	Chemistry with Biomedical Sciences	BSc Hon
	Chemistry with Forensic Chemistry	BSc Hon
	Pharmaceutical Chemistry	BSc Hon
Nottingham Trent University	Chemistry	BSc Hon
	Chemistry and Analytical Science	BSc Hon
	Chemistry for Business and the Environment	BSc Hon
	Chemistry with International Study	BSc Hon
	Chemistry with a Year in Industry	BSc Hon
	Chemistry with Professional Practice	BSc Hon
	Computer aided Chemistry	BSc Hon
Queen Mary University of London	Polymer Technology	BEng Hon
Southport College	Biological/Chemical Sciences	BSc Hon
The University of Hull	Chemistry	BSc Hon
	Chemistry with Analytical Chemistry and Toxicology	BSc Hon
	Chemistry with Business	BSc Hon
	Chemistry with Nanotechnology	BSc Hon
	Chemistry with eChem	BSc Hon
The University of Kent	Forensic Chemistry	BSc Hon
The University of Liverpool	Chemical Sciences (Foundation) (1 + 3)	BSc Hon
	Chemistry	BSc Hon
	Chemistry with Oceanography	BSc Hon
	Chemistry with a Year in Industry	BSc Hon
	Combined Honours - (Chemistry)	BSc Hon
	Chemical Sciences (Foundation)	BSc Hon
The University of Reading	Chemistry	BSc Hon
	Chemistry with Archaeology	BSc Hon
	Chemistry with Economics	BSc Hon
	Chemistry with Forensic Analysis	BSc Hon
	Chemistry with Information Technology	BSc Hon
	Chemistry with a year in Industry	BSc Hon
	Environmental Chemistry	BSc Hon
The University of Sheffield	Chemical Engineering	BEng Hon
	Chemical Physics	BSc Hon
	Chemical Physics (3 Years)	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
The University of Sheffield	Chemistry	BSc Hon
	Chemistry and Mathematics	BSc Hon
	Chemistry with Enterprise Management	BSc Hon
	Chemistry with Informatics	BSc Hon
	Chemistry with study in Japan	BSc Hon
	Materials Chemistry	BSc Hon
The University of York	Chemistry	BSc Hon
	Chemistry: Biological and Medicinal Chemistry	BSc Hon
	Chemistry: Management and Industry	BSc Hon
	Chemistry: Resources and the Environment	BSc Hon
University College London (University of London)	Chemical Engineering	BEng Hon
	Chemical Physics	BSc Hon
	Chemistry	BSc Hon
	Chemistry with Management studies	BSc Hon
	Chemistry with Mathematics	BSc Hon
	Chemistry with a European Language	BSc Hon
	Physical Sciences - (chemistry)	BSc Hon
University of Bath	Chemical Engineering	BEng Hon
	Chemical and Bioprocess Engineering	BEng Hon
	Chemistry	BSc Hon
	Chemistry (with study abroad)	BSc Hon
	Chemistry with Management	BSc Hon
University of Birmingham	Chemical Engineering with Business Management	BEng Hon
	Chemistry (International Foundation Programme)	BSc Hon
	Chemistry with Business Management	BSc Hon
	Chemistry with Environmental management	BSc Hon
	Chemistry with Foundation Year	BSc Hon
	Chemistry with Pharmacology	BSc Hon
	Chemistry with Psychology	BSc Hon
	Chemistry with a Year in Continental Europe	BSc Hon
University of Bradford	Chemistry with Pharmaceutical & Forensic Science	BSc Hon
University of Brighton	Pharmaceutical and Chemical Sciences	BSc Hon
University of Bristol	Chemistry	BSc Hon
	Chemistry and Law	BSc Hon
	Chemistry with a Preliminary year	BSc Hon
	Chemical Physics	BSc Hon
University of Cambridge	Natural Sciences - (Chemical Engineering)	BA Hon
University of East Anglia	Chemical Physics	BSc Hon
	Chemistry	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
University of East Anglia	Chemistry and Mathematics	BSc Hon
	Chemistry with Analytical Science	BSc Hon
	Chemistry with Management Studies	BSc Hon
	Chemistry with a Year in Europe	BSc Hon
	Chemistry with a Year in North America	BSc Hon
	Computational Chemistry	BSc Hon
	Environmental Chemistry	BSc Hon
	Pharmaceutical and Chemical Sciences	BSc Hon
	Chemical Physics	BSc Hon
University of Greenwich	Analytical Chemistry	BSc Hon
	Analytical Chemistry with European Study	BSc Hon
	Chemistry	BSc Hon
	Chemistry with Business Management	BSc Hon
	Chemistry with Education (Medway)	BSc Hon
	Chemistry with Entrepreneurship	BSc Hon
	Chemistry with European Study	BSc Hon
	Chemistry with French (Medway)	BSc Hon
	Chemistry with Human Resource Management	BSc Hon
	Chemistry with Marketing (Medway)	BSc Hon
	Chemistry with Spanish (Medway)	BSc Hon
	Pharmaceutical Chemistry	BSc Hon
University of Huddersfield	Chemistry	BSc Hon
	Chemistry with Analytical Chemistry	BSc Hon
	Chemistry with Biochemistry	BSc Hon
	Chemistry with Business	BSc Hon
	Chemistry with Chemical Engineering	BSc Hon
	Chemistry with Environmental Science	BSc Hon
	Chemistry with Forensic Science	BSc Hon
	Chemistry with Medicinal Chemistry	BSc Hon
University of Leeds	Colour and Polymer Chemistry	BSc Hon
	Applied Biology - Chemistry	BSc Hon
	Applied Chemistry	BSc Hon
	Biochemistry - Chemistry	BSc Hon
	Chemical Engineering - Chemistry	BSc Hon
	Chemistry	BSc Hon
	Chemistry with Analytical Chemistry	BSc Hon
	Chemistry - Computer Science	BSc Hon
	Chemistry - German	BSc Hon
	Chemistry - Management Studies	BSc Hon
	Chemistry - Mathematics	BSc Hon
	Chemistry - Pharmacology	BSc Hon
	Chemistry - Philosophy	BSc Hon
	Chemical Engineering Chemistry	BSc Hon
	Chemical Process Technology	BSc Hon
	Chemical Engineering-Chemistry	BSc Hon
University of Leeds	Chemistry - Physics	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
	Colour and Polymer Chemistry	BSc Hon
	Environmental Chemistry	BSc Hon
	Chemistry - French	BSc Hon
University of Leicester	Chemistry	BSc Hon
	Chemistry with Computer Science	BSc Hon
	Chemistry with Forensic Science	BSc Hon
	Chemistry with Management	BSc Hon
	Pharmaceutical Chemistry	BSc Hon
	Sciences with Integrated Foundation (4 Yrs) - (Chemistry)	BSc Hon
University of Manchester	Chemical Engineering	BEng Hon
	Analytical Chemistry (3 or 4 Years)	BSc Hon
	Chemistry (3 or 4 Years)	BSc Hon
	Chemistry with Forensic Science (3 or 4 Years)	BSc Hon
	Medicinal Chemistry (3 or 4 Years)	BSc Hon
University of Newcastle-upon-Tyne	Chemistry with Management	BSc Hon
	Chemistry	BSc Hon
	Chemistry (4 Years with Industrial Training)	BSc Hon
	Chemistry with Biology of Food	BSc Hon
	Chemistry with European Studies (French) (4 Year)	BSc Hon
	Chemistry with European Studies (German) (4 Years)	BSc Hon
	Chemistry with European Studies (Spanish) (4 Years)	BSc Hon
	Chemistry with Foundation Year	BSc Hon
	Combined Studies - (Chemistry)	BSc Hon
	Marine Technology (International) with Hon in Offshore Engineering	BEng Hon
	Offshore Engineering	BEng Hon
	Chemical and Process Engineering	BEng Hon
University of Nottingham	Chemical Engineering	BEng Hon
	Chemical Engineering with Environmental Engineering	BEng Hon
	Green chemistry and Process Engineering	BSc Hon
	Chemistry and Molecular Physics	BSc Hon
	Chemistry	BSc Hon
	Chemistry and Management Studies	BSc Hon
	Chemistry and Molecular Physics	BSc Hon
	Chemistry with Computational Chemistry	BSc Hon
	Chemistry with Industrial Experience	BSc Hon
	Green Chemistry and Process Engineering	BSc Hon
University of Plymouth	Chemistry (Analytical)	BSc Hon
	Chemistry (Applied)	BSc Hon
	Extended Science - Chemistry	BSc Hon
University of Southampton	Biochemistry and Chemistry	BSc Hon
	Chemistry	BSc Hon
University of Southampton	Chemistry with Foundation Year	BSc Hon

Awarding Institution	Qualification Title	Qualification Type
	Chemistry with Medicinal Sciences	BSc Hon
	Chemistry with Ocean and Earth Sciences	BSc Hon
University of Sunderland	Chemistry and Health studies	BA Hon
	Chemistry and Human Resources Management	BA Hon
	Chemistry and Journalism	BA Hon
	Chemistry and Management	BA Hon
	Chemistry and Marketing	BA Hon
	Chemistry and Music	BA Hon
	Chemistry and Photography	BA Hon
	Chemical and Pharmaceutical Science	BSc Hon
	Chemical and Pharmaceutical Science (Foundation)	BSc Hon
	Chemistry and Computer Studies	BSc Hon
	Chemistry and Human Resources Management	BSc Hon
	Chemistry and Marketing	BSc Hon
	Chemistry and Physiology	BSc Hon
	Chemistry and Politics	BSc Hon
	Chemistry and Psychology	BSc Hon
	Chemistry with Accounting	BSc Hon
	Chemistry with American Studies	BSc Hon
	Chemistry with Business Law	BSc Hon
	Chemistry with Business Studies	BSc Hon
	Chemistry with Comparative Literature	BSc Hon
	Chemistry with Computer Studies	BSc Hon
	Chemistry with Criminology	BSc Hon
	Chemistry with Education	BSc Hon
	Chemistry with English Studies	BSc Hon
	Chemistry with European Studies	BSc Hon
	Chemistry with Gender Studies	BSc Hon
	Chemistry with Geography	BSc Hon
	Chemistry with Human Resource management	BSc Hon
	Chemistry with Information Technology	BSc Hon
	Chemistry with Marketing	BSc Hon
	Chemical and Pharmaceutical Sciences	BSc Hon
	Chemical and Pharmaceutical Sciences (Foundation)	BSc Hon
	Chemistry and Education	Mod Hon
	Chemistry and English Studies	Mod Hon
	Chemistry and European Studies	Mod Hon
	Chemistry and Gender studies	Mod Hon
	Chemistry and Geography	Mod Hon
	Chemistry and History	Mod Hon
	Chemistry and History of Art & Design	Mod Hon
	Chemistry and Media Studies	Mod Hon
University of Sunderland	Chemistry and Sociology	Mod Hon

Awarding Institution	Qualification Title	Qualification Type
	Chemistry and Study in Linguistics	Mod Hon
	Chemistry with Management	Mod Hon
University of Surrey	Chemical Engineering	BEng Hon
	Chemical Engineering with Computing	BEng Hon
	Chemical Engineering with Foundation Year	BEng Hon
	Chemical and Bio-Systems Engineering	BEng Hon
	Chemistry	BSc Hon
	Chemistry (with Foundation Year)	BSc Hon
University of Sussex	Chemistry	BSc Hon
	Chemistry with American Studies	BSc Hon
	Chemistry with Education Studies	BSc Hon
	Chemistry with Management Studies	BSc Hon
University of Teesside	Computer Aided Chemical Engineering	BEng Hon
	Applied Chemistry	BSc Hon
	Forensic Chemistry	BSc Hon
University of Wales Swansea	Chemical and Bioprocess Eng (including Foundation Year)	BEng Hon
	Chemical and Bioprocess Engineering (with Year in Industry)	BEng Hon
	Chemical and Bioprocess Engineering	BEng Hon
University of Warwick	Chemistry	BSc Hon
	Chemistry with Management	BSc Hon

Appendix 4

Table A4a: Postgraduate Qualifications England

Awarding Institution	Qualification Title	Qualification Type
Aston University	Applied Chemistry	MChem Hon
	Chemistry	MChem Hon
	Chemical Engineering and Applied Chemistry	MEng Hon
	Chemical Engineering	MEng Hon
Cardiff University	Chemistry	MChem Hon
	Chemistry and Physics	MChem Hon
	Chemistry with a year in Industry	MChem Hon
	Chemistry with a year Abroad	MChem Hon
	Chemistry	MPhil Hon
	Medical Chemistry	MPhil Hon
	Molecular Modelling: Chemistry	MSc Hon
	Chemistry	PhD
	Medical Chemistry	PhD
Cranfield University	Diving and Underwater Technology (Option of Offshore and Ocean Technology)	MSc
	Offshore and Ocean Technology	MSc
	Offshore Materials Engineering (Option of Offshore and Ocean Technology)	MSc
	Offshore Materials Engineering (Option of Offshore and Ocean Technology)	MSc
	Offshore Renewable Energy (Option of Offshore and Ocean Technology)	MSc
	Pipeline Engineering (Option of Offshore and Ocean Technology)	MSc
	Risk Management (Option of Offshore and Ocean Technology)	MSc
	Subsea Engineering (Option of Offshore and Ocean Technology)	MSc
Imperial College London	Chemical Engineering	MEng Hon
	Chemical Engineering with a year abroad	MEng Hon
	Chemistry	MSc Hon
	Chemistry with Conservation Science	MSc Hon
	Chemistry with Fine Chemical Processing & a Year in Industry	MSc Hon
	Chemistry with Fine Chemicals Processing	MSc Hon
	Chemistry with Medicinal Chemical & a Year in Industry	MSc Hon
	Chemistry	MSc Hon
	Chemistry with Research Abroad	MSc Hon
	Chemistry with a Year in Industry	MSc Hon
Keele University	Chemistry with Industrial Placement	MChem Hon
Kingston University	Chemistry	MChem Hon
	Chemistry with Industrial Placement	MChem Hon
Lancaster University	Environmental Chemistry	MChem Hon

Awarding Institution	Qualification Title	Qualification Type
	Environmental Chemistry with Study in North America- Australasia	MChem Hon
Liverpool John Moores University	Chemistry	MChem Hon
London Metropolitan University	Polymer Science and Engineering	MSc
Loughborough University	Chemistry (4 Year Mchem)	MChem Hon
	Chemistry (5 Year SW)	MChem Hon
	Chemistry with Analytical Chemistry (4 Year MChem)	MChem Hon
	Chemistry with Analytical Chemistry (5 Year SW)	MChem Hon
	Chemistry with Forensic Analysis (4 Year MChem)	MChem Hon
	Chemistry with Forensic Analysis (5 Year SW)	MChem Hon
	Chemical Engineering with Professional Development	MEng Hon
	Chemical Engineering with Management	MEng Hon
	Chemical Engineering	MEng Hon
	Polymer Technology	MSc
	Polymer Technology	PgDip
	Polymer Technology	PgCert
North East Wales Institute of Higher Education	Science and the Environment: Water Soluble Polymers	MPhil Hon
	Water Soluble Polymers	MPhil Hon
	Science and the Environment: Water Soluble Polymers	PhD
	Water Soluble Polymers	PhD
Northumbria University	Chemistry	MChem Hon
Nottingham Trent University	Chemistry	MChem Hon
	Chemistry with International Study	MChem Hon
	Chemistry with Professional Pract.	MChem Hon
Nottingham Trent University	Chemistry and Analytical Science	MSc Hon
	Computer Aided Chemistry	MSc Hon
Oxford University	Chemistry	MChem Hon
	Chemical Engineering	MEng Hon
Manchester Metropolitan University	Analytical Chemistry	MChem Hon
	Chemistry	MChem Hon
	Chemistry with Study in Industry	MChem Hon
	Chemistry with Study in Industry (Foundation)	MChem Hon
The University of Hull	Chemistry with Analytical Chemistry and Toxicology - with Industrial Experience	MChem Hon
	Chemistry with Nanotechnology - Industrial Experience	MChem Hon
	Chemistry	MChem Hon
	Chemistry (with Industrial Experience)	MChem Hon
	Chemistry with Analytical Chemistry and Toxicology	MChem Hon
	Chemistry with Business	MChem Hon
	Chemistry with Nanotechnology	MChem Hon
	Chemistry with eChem	MChem Hon
	Chemistry with eChem (with	MChem Hon

Awarding Institution	Qualification Title	Qualification Type
	Industrial Experience)	
	Chemistry with Analytical Chemistry and Toxicology	MChem Hon
	Chemistry with Forensic Science and Toxicology	MChem Hon
The University of Liverpool	Chemistry	MChem Hon
	Chemistry with Business Studies	MChem Hon
	Chemistry with Nanotechnology	MChem Hon
	Chemistry with Research in Industry	MChem Hon
The University of Reading	Chemistry	MChem Hon
	Chemistry with Analytical Sciences	MChem Hon
	Chemistry with Medicinal Chemistry	MChem Hon
	Chemistry with a Year in Europe	MChem Hon
	Chemistry with a Year in Industry	MChem Hon
The University of Sheffield	Chemistry and Chemical Engineering	MChem Hon
	Biological Chemistry	MChem Hon
	Chemistry	MChem Hon
	Chemistry with Enterprise Management	MChem Hon
	Chemistry with Informatics	MChem Hon
	Chemistry with Mathematics	MChem Hon
	Chemistry with Study in America	MChem Hon
	Chemistry with Study in Australia	MChem Hon
	Chemistry with Study in Europe	MChem Hon
	Chemistry with Study in Industry	MChem Hon
	Chemistry with Study in Japan	MChem Hon
	Polymers and Polymer Composite Science and Engineering	MEng Hon
	Polymers for Advanced Technologies	MSc
	Chemical Engineering with Environmental Biotechnology	MEng Hon
	Chemical Engineering	MEng Hon
	Chemical Engineering including Foundation Year	MEng Hon
	Chemical Engineering and Chemistry	MEng Hon
	Chemical Engineering with Computer Science	MEng Hon
	Chemical Engineering with Fuel Technology	MEng Hon
	Chemical Engineering with Management	MEng Hon
	Chemical Engineering with a Modern Language	MEng Hon
	Physics and Astronomy: Surface and Interface Physics of Polymers	MPhil Hon
The University of York	Chemistry	MChem Hon
	Chemistry with a year in Europe	MChem Hon
	Chemistry Biological and Medicinal Chemistry	MChem Hon
	Chemistry Biological and Medicinal Chemistry Euro	MChem Hon
	Chemistry Management and	MChem Hon

Awarding Institution	Qualification Title	Qualification Type
	Industry Chemistry Management and Industry Euro	 MChem Hon
University College London (University of London)	Biochemical with Chemical Engineering Chemical Engineering Chemical Engineering with Study Abroad Chemical with Biochemical Engineering Biochemical with Chemical Engineering Chemical Physics Chemistry Chemistry (International Programme) Chemistry with Management Studies Chemistry with Mathematics Chemistry with a European Language Physical Sciences - (Chemistry)	MEng Hon MEng Hon MEng Hon MEng Hon MEng Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon
University of Bath	Chemistry Chemistry (with study abroad) Chemical Engineering	MChem Hon MChem Hon MEng Hon
University of Birmingham	Chemical Engineering Chemical Engineering (Industrial Experience) Chemical Engineering (International Studies) Chemical Engineering with Business Management Chemical Engineering with Foundation Year Chemistry Chemistry with Analytical Science Chemistry with Business Management Chemistry with Environmental Management Chemistry with French Chemistry with Pharmacology Chemistry with Psychology Chemistry with Study Abroad Physics and Technology of Nuclear Reactors Medical and Radiation Physics	MEng Hon MEng Hon MEng Hon MEng Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon
University of Bradford	Chemistry with Pharmacology & Forensic Science	MChem Hon
University of Bristol	Chemistry Chemistry with Industrial Experience Chemistry with Study in Continental Europe Chemistry with Study in N America Chemical Physics	MSc Hon MSc Hon MSc Hon MSc Hon MSc Hon

Awarding Institution	Qualification Title	Qualification Type
	Chemical Physics with Industrial Experience	MSc Hon
University of Cambridge	Engineering - (Chemical Engineering)	MEng Hon
	Conducting Polymers: Physics	MPhil Hon
	Conducting Polymers: Physics	PhD
University of East Anglia	Chemistry	MChem Hon
	Chemistry with Analytical Science	MChem Hon
	Chemistry with a Year in Industry	MChem Hon
	Chemistry with a Year in North America	MChem Hon
University of Greenwich	Applied Chemistry	MChem Hon
University of Huddersfield	Chemistry	MChem Hon
University of Leeds	Chemical Engineering	MEng Hon
	Pharmaceutical Chemical Engineering	MEng Hon
University of Leicester	Chemistry (4 Years)	MChem Hon
	Chemistry (Europe) (4 Years)	MChem Hon
	Chemistry (Sandwich) (4 Years)	MChem Hon
	Chemistry (USA) (4 Years)	MChem Hon
	Chemistry with Forensic Science (4 Years)	MChem Hon
	Pharmaceutical Chemistry	MChem Hon
University of Liverpool	Radiometrics	MSc Hon
	Radiometrics	PgDip
	Radiometrics	PgCert
University of Manchester	Analytical Chemistry (3 or 4 Years)	MChem Hon
	Chemistry (3 or 4 Years)	MChem Hon
	Chemistry with Business and Management	MChem Hon
	Chemistry with Forensic Science (3 or 4 Years)	MChem Hon
	Chemistry with Industrial Experience	MChem Hon
	Chemistry with Patent Law	MChem Hon
University of Manchester	Chemistry with Study in Europe	MChem Hon
	Chemistry with Study in North America	MChem Hon
	Medicinal Chemistry (3 or 4 Years)	MChem Hon
	Chemical Engineering	MEng Hon
	Chemical Engineering (Business Management)	MEng Hon
	Chemical Engineering with Biotechnology	MEng Hon
	Chemical Engineering with Chemistry	MEng Hon
	Chemical Engineering with Environmental Technology	MEng Hon
	Chemical Engineering with Industrial Experience	MEng Hon
	Chemical Engineering with Study in Europe	MEng Hon
	Chemical Engineering	MEng Hon
University of Newcastle-upon-Tyne	Chemistry	MChem Hon
	Chemistry (with Industrial Training)	MChem Hon

Awarding Institution	Qualification Title	Qualification Type
	Chemistry with Medicinal Chemical (with Industry Training)	MChem Hon
	Chemistry with Foundation Year	MChem Hon
	Chemistry with Study in North America	MChem Hon
	Offshore Engineering	MEng Hon
	Chemical and Process Engineering (Hons University of Newcastle Upon Tyne Bioprocess Eng)	MEng Hon
	Chemical and Process Engineering (Hons Process Control)	MEng Hon
	Chemical and Process Engineering (Hons Sustainable Eng)	MEng Hon
	Chemical and Process Engineering	MEng Hon
	Chemical and Process Engineering (Europe)	MEng Hon
	Chemical and Process Engineering (Hons Intensified Processing)	MEng Hon
	Chemical and Process Engineering (Hons Bioprocess Eng)	MEng Hon
University of Nottingham	Chemical Engineering	MEng Hon
	Chemical Engineering with Environmental Engineering	MEng Hon
	Chemical Engineering with Modern Language	MEng Hon
	Chemical Engineering	MEng Hon
	Chemistry and Molecular Physics (4 Years)	MSc Hon
	Chemistry (4 Years)	MSc Hon
	Chemistry with Computational Chemistry	MSc Hon
	Chemistry with a Research Year in Industry	MSc Hon
	Chemistry with an Assessed Research Year in Industry	MSc Hon
University of Nottingham	Chemistry with an International Study Year	MSc Hon
	Green Chemistry and Process Engineering	MSc Hon
University of Southampton	Chemistry with Ocean and Earth sciences	MChem Hon
	Chemistry (inc Professional Training)	MChem Hon
	Chemistry with Mathematics	MChem Hon
	Chemistry with Medicinal Sciences	MChem Hon
University of Surrey	Chemistry	MChem Hon
	Chemical Engineering	MEng Hon
	Chemical Engineering with Computing	MEng Hon
	Chemical and Bio-Systems Engineering	MEng Hon
University of Sussex	Chemistry	MChem Hon
	Chemistry with Management Studies	MChem Hon
	Chemistry with a Sandwich Year	MChem Hon
University of Wales Swansea	Chemical and Biochemical	MEng Hon

Awarding Institution	Qualification Title	Qualification Type
	Engineering Computer-Based Simulation of Polymer Processing: Civil Engineering Computer-Based Simulation of Polymer Processing: Civil Engineering Chemical Engineering Computer-Based Simulation of Polymer Processing: Civil Engineering Chemical Engineering	 MPhil Hon MRes Hon MSc Hon PhD PgDip
University of Warwick	Chemistry Chemical Biology	MChem Hon MChem Hon

Appendix 5

Table A5a: Bachelors Degrees Scotland

Awarding Institution	Qualification Title	Qualification Type
Aberdeen University	Chemistry	BSc Hon
	Chemistry for Offshore Industry	BSc Hon
	Chemistry with Physics	BSc Hon
	Environmental Chemistry	BSc Hon
	Geology and Petroleum Geology	BSc Hon
	Physics and Chemistry	BSc Hon
Dundee University	Pharmaceutical Chemistry	BSc Hon
Edinburgh University	Chemical Engineering	BEng Hon
	Chemical Engineering with Environmental Engineering	BEng Hon
	Chemical Engineering with Management	BEng Hon
	Chemical Physics	BSc Hon
	Chemistry	BSc Hon
	Chemistry with Environmental Chemistry with Management	BSc Hon
Glasgow University	Chemical Physics	BSc Hon
	Chemistry	BSc Hon
	Environmental Chemistry	BSc Hon
	Environmental Chemistry/Geography	BSc Hon
	Geography, Chemistry and the Environment	BSc Hon
Heriot-Watt University, Edinburgh	Chemical Engineering	BEng Hon
	Chemical Engineering & Diploma in Industrial Training	BEng Hon
	Chemistry	BSc Hon
Napier University, Edinburgh	Polymer Engineering – Customised Programme	Dip/Hon Mod
	Polymer Engineering	BEng Hon
Paisley University	Chemical Engineering	BEng Hons
	Chemical Engineering with Chemistry	BSc Hon
	Chemistry	BSc Hon
	Earth Science with Chemistry	BSc Hon
Robert Gordon University, Aberdeen	Mechanical and Offshore Engineering	BEng Hons
St Andrews University	Chemical Sciences	BSc Hon
	Chemistry	BSc Hon
	Chemistry – Geoscience	BSc Hon
	Chemistry – Mathematics	BSc Hon
Strathclyde University	Chemical Engineering	BEng Hon
	Chemistry	BSc Hon
	Natural Science – (Chemistry)	BSc
UHI Millennium Institute, Inverness	Marine Science	BSc Hon
	Mechanical Engineering with Decommissioning Studies	BEng Hon
	Electrical Engineering with Decommissioning Studies	BEng Hon

Appendix 6

Table A6a: Postgraduate qualifications – Masters Degrees Scotland

Awarding Institution	Qualification Title	Qualification Type
Aberdeen University	Chemistry	MChem Hon
	Chemistry for Offshore Industry	MChem Hon
	Environmental Chemistry	MChem Hon
	Hydrocarbon Enterprise	MSc
	Petroleum Geology	MSc
Dundee University	Oil and Gas Economics Int Oil and Gas Management	MSc
	Oil & Gas Management	MBA
Edinburgh University	Chemical Engineering	MEng Hon
	Chemical Engineering with Environmental Engineering	MEng Hon
	Chemical Engineering with Management	MEng Hon
	Chemical Physics	MChemPhys Hon
	Chemical Physics with Industrial Experience	MChemPhys Hon
	Chemistry	MChem Hon
	Chemistry with Environmental	MChem Hon
	Chemistry with Industrial Experience	
	Chemistry with Environmental Chemistry with Management	MChem Hon
	Chemistry with Industrial Experience	MEng Hon
	Petroleum Geoscience	MSc
Glasgow University	Chemical Physics	MSci
	Environmental Chemistry	MSci Hon
	Environmental Chemistry/Geography	MSci
	Nuclear Physics – Physics and Astronomy	MSc
Heriot-Watt University, Edinburgh	Chemical Engineering	MEng Hon
	Chemical Engineering	MPhil
	Chemical Engineering & Diploma in Industrial Training	MEng Hon
	Chemical Engineering with Energy Engineering	MEng Hon
	Chemical Engineering with Environmental Engineering	MEng Hon
	Chemistry	MChem Hon
	Chemistry	MPhil
	Chemistry with Industrial Experience	MChem
	Geoscience of Subsurface Exploration Appraisal & Development	MSc
	Modelling Polymers	MPhil
	Offshore Engineering / Ocean Science Technology	MPhil
	Oilfield Chemistry	MPhil
	Petroleum Engineering	MSc
	Production Engineering	MPhil
	Reservoir Evaluation and	MSc

Awarding Institution	Qualification Title	Qualification Type
	Management Subsea Engineering	 MSc
Napier University, Edinburgh	Engineering (Polymers) Plastics Moulding Technology	MSc MSc
Robert Gordon University, Aberdeen	Oil and Gas Engineering Drilling and Well Engineering Petroleum Production Engineering Asset Management	MSc MSc MSc MSc
St Andrews University	Chemistry Chemistry – Physics Materials Chemistry	MChem Hon MSci Hon MPhil
Strathclyde University	Chemical Engineering Chemical Processing Applied Chemistry and Chemical Engineering Chemical Technology and Management Chemistry	MEng Hon MSc MSci Deg MSc MSci Hon

Appendix 7

Table A7a: Postgraduate qualifications – PgDip, PgCert, PhD Scotland

Awarding Institution	Qualification Title	Qualification Type
Dundee University	Oil and Gas Economics Int Oil and Gas Management	PgDip
Edinburgh University	Petroleum Geoscience	PgDip
Glasgow University	Nuclear Physics – Physics and Astronomy	PhD
Heriot-Watt University, Edinburgh	Chemical Engineering Chemistry Modelling Polymers Offshore Engineering / Ocean Science Technology Oilfield Chemistry Petroleum Engineering Production Engineering	PhD PhD PhD PhD PhD PgDip PhD
Napier University, Edinburgh	Plastics Moulding Technology	PgDip
Robert Gordon University, Aberdeen	Oil and Gas Engineering Oil and Gas Engineering	PgCert PgDip
St Andrews University	Materials Chemistry	PhD
Strathclyde University	Chemical Processing Chemical Processing Chemical Technology and Management Chemical Technology and Management	PgCert PgDip PgCert PgDip

Appendix 8a

HESA Definitions – First year students and qualifiers

Student Definitions – 1995/96 – 2004/05

Coverage – 1995/96 to 2001/02

Higher education (HE) students are those students on programmes of study for which the level of instruction is above that of courses leading to the Advanced Level of the General Certificate of Education (GCE A-levels), the Advanced Higher Grade and Higher Grade of the Scottish Certificate of Education (SCE Advanced Highers/Highers), or the BTEC or SCOTVEC National Certificate/Diploma (ONC/OND).

The HESA Student Record contains information about individual enrolments, which, because a student can be enrolled on more than one programme of study, will exceed the number of students.

Coverage – 2002/03 to 2004/05

Higher education (HE) students are those students on programmes of study for which the level of instruction is above that of level 3 of the National Qualifications Framework, i.e. courses leading to the Advanced Level of the General Certificate of Education (GCE A-levels), the Advanced Level of the Vocational Certificate of Education (VCE A-levels) or the Advanced Higher Grade and Higher Grade of the Scottish Qualifications Authority (SQA) Advanced Highers/Highers.

The HESA Student Record contains information about individual enrolments, which, because a student can be enrolled on more than one programme of study, will exceed the number of students. Postdoctoral students are not included in the HESA Student Record.

The **HESA standard registration population** has been derived from the HESA Student Record and ensures that similar activity is counted in a similar way irrespective of when it occurs. The population splits the student experience into 'years of programme of study'; the first year of which is deemed to start on the commencement date of the programme with second, and subsequent years, starting on, or near, the anniversary of that date. Registrations are counted once for each 'year of programme of study'. Short course registrations are counted in the standard registration population regardless of whether they are active on the 1 December of the reporting period. However students who leave within 2 weeks of their start date, or anniversary of their start date, and are on a course of more than two weeks duration, are not included in the standard registration population. Dormant students, incoming visiting and exchange students from overseas and students studying for the whole of their programme of study outside of the UK are also excluded from this population.

Qualifications obtained population

The **HESA qualifications obtained population** is a count of student enrolments associated with the award of an HE qualification (excluding HE institutional credits)

during the period 1 August to 31 July inclusive. This population includes qualifications obtained during the reporting year, which were returned to HESA by 15 November (1994/95 – 1999/00), 9 November (2000/01 – 2002/03), 10 November (2003/04) & 31 October (2004/05).

The qualifications obtained population excludes qualifications awarded to incoming visiting and exchange students. This population also now includes awards from dormant students.

Rounding strategy

Due to the provisions of the Data Protection Act 1998 and the Human Rights Act 1998, HESA implements a strategy in published and released tabulations designed to prevent the disclosure of personal information about any individual. These tabulations are derived from the HESA non-statutory populations and may differ slightly from those published by related statutory bodies. This strategy involves rounding all numbers to the nearest 5. A summary of this strategy is as follows:

- 0, 1, 2 are rounded to 0
- All other numbers are rounded to the nearest 5

So for example 3 is represented as 5, 22 is represented as 20, 3286 is represented as 3285 while 0, 20, 55, 3510 remain unchanged.

This rounding strategy is also applied to total figures; the consequence of which is that the sum of numbers in each row or column will rarely match the total shown precisely. Note that subject level data calculated by apportionment will also be rounded in accordance with this strategy.

Average values, proportions and FTE values prepared by HESA will not be affected by the above strategy, and will be calculated on precise raw numbers. However, percentages calculated on populations which contain 52 or fewer individuals will be suppressed and represented as '..' as will averages based on populations of 7 or less.

Level of study/Level of qualification obtained

The level of study is taken from the qualification aim of the student.

Postgraduate programmes of study are those leading to higher degrees, diplomas and certificates (including Postgraduate Certificate of Education (PGCE) and professional qualifications) and usually require that entrants are already qualified to degree level (i.e. already qualified at level 4 of the National Qualifications Framework).

First degree includes first degrees with or without eligibility to register to practice with a Health or Social Care or Veterinary statutory regulatory body, first degrees with qualified teacher status (QTS)/registration with the General Teaching Council (GTC), enhanced first degrees, first degrees obtained concurrently with a diploma and intercalated first degrees.

Foundation degrees, HNDs and HNCs are shown separately.

Other undergraduate includes qualification aims below degree level such as Foundation Degrees (from 2001/02 onwards), diplomas in HE with eligibility to register to practice with a Health or Social Care regulatory body, Higher National Diploma (HND), Higher National Certificate (HNC), Diploma of Higher Education (DipHE), Certificate of Higher Education (CertHE), foundation courses at HE level, NVQ/SVQ levels 4 and 5, post-degree diplomas and certificates at undergraduate level, professional qualifications at undergraduate level, other undergraduate diplomas and certificates including post registration health and social care courses, other formal HE qualifications of less than degree standard, institutional undergraduate credit and no formal undergraduate qualifications.

Domicile

Domicile data is supplied to HESA in the form of postcodes (UK domiciled students) or country codes. Postcodes are mapped to counties, unitary authorities and UK nations following consultation with Geoplan Postcode Marketing. Countries are mapped to geographical regions following consultation with the Department for Education and Skills. Where no data is supplied about the student's domicile, fee eligibility is used to determine whether domicile is European Union, including the UK, or not.

UK domiciled students are those whose normal residence is in the UK, including the Channel Islands and Isle of Man.

This enquiry is restricted to UK domiciled entrants/qualifiers.

Subject Areas – 1994/95 – 2001/02

Programmes of study have been aggregated to 19 broad **subject areas**. The relationship of the academic content of the programme to the 19 areas has been compiled according to the following rules:

- a programme with a single subject is allocated to that area
- if a combination of two subjects lies within one area, the programme is allocated to that area
- if a combination of two subjects lies within more than one area, with a major/minor split, the programme is allocated to the area relating to the major part of study
- if a combination of two subjects lies within more than one area, with an equal split, the programme is allocated to the 'Combined' area.

It should be noted that all subject combinations (major or minor) containing initial teacher training (ITT) are included in the 'Education' subject area.

Major Subject

The 19 broad subject areas are disaggregated into 161 **Principal Subjects**. Similarly to above, rules are used to determine the principal subject as follows:

- a programme with a single subject is allocated to that subject
- in a combination of two subjects with a major/minor split, the programme is allocated to the major subject of study

- in a combination of two subjects with a balanced split then if the two subjects fall within the same subject area the programme is allocated to a 'balanced combinations within subject area' category, otherwise it is allocated to a 'balanced combinations across subject areas' category.
- in a combination of three subjects (which are treated as balanced combinations), if the three subjects fall within the same subject area then the programme is allocated to a 'balanced combinations within subject area' category, otherwise it is allocated to a 'balanced combinations across subject areas' category.
- all subject combinations (major or minor) containing initial teacher training (ITT) are included in the 'Teacher Training' subject.

Subject areas – 2002/03 onwards

In 2002/03 a new subject classification was introduced called the Joint Academic Coding System (JACS). This subject classification looks similar to that previously published but has been devised in a different way. Therefore subject data is not comparable to that previously published.

Additionally, from 2002/03, a new procedure of apportionment has been introduced. Under apportionment, each headcount is, where necessary, divided in a way that in broad-brush terms reflects the pattern of a split programme. This is analogous to the use of FTE calculations, but should not be confused with them, since the splits used for apportionment are conventional rather than data-based.

For split programmes not involving an initial teacher training (ITT) component, the apportionment algorithm is as follows:

- 50%:50% for a balanced two-way split;
- 66.667%:33.333% for a major/minor two-way split;
- 33.333%:33.333%:33.333% for a balanced three-way split.

ITT students at undergraduate level who also have a specialism subject recorded (typically, secondary ITT students) are apportioned 50% to the 'Education' subject area and the remaining 50% is further apportioned according to the algorithm for non-ITT students. Where no subject other than education is recorded, or where the student is on a PGCE course, apportionment is 100% to the 'Education' subject area.

The 19 broad subject areas have been retained. Further details have been outlined in the HESA Student Circular 02/03 'Subject Areas and Related Issues'.

Principal subjects

The 19 broad subject areas are disaggregated into 159 **Principal subjects**. Similarly to above, the following rules are used to determine the principal subject:

For split programmes not involving an initial teacher training (ITT) component, the apportionment algorithm is as follows:

- 50%:50% for a balanced two-way split;
- 66.667%:33.333% for a major/minor two-way split;
- 33.333%:33.333%:33.333% for a balanced three-way split.

ITT students at undergraduate level who also have a specialism subject recorded (typically, secondary ITT students) are apportioned 50% to the 'Education' subject area and the remaining 50% is further apportioned according to the algorithm for non-ITT students. Where no subject other than education is recorded, or where the student is on a PGCE course, apportionment is 100% to the 'Education' subject area.

This enquiry is restricted to the following subjects:
H8 Chemical, process & energy engineering
(H8 Chemical engineering in 1995/96 – 2001/02 data)
F1 Chemistry
H6 Electronic & electrical engineering
(H5 Electrical engineering & H6 Electronic engineering in 1995/96 – 2001/02 data)
F6 Geology
H3 Mechanical engineering
F3 Physics
J4 Polymers & textiles
J5 Materials technology not otherwise specified
(J5 Other materials technology in 1995/96 – 2001/02 data)

New entrant

New entrants are first year students who have not previously undertaken a higher education programme of study in the UK.

Open University change in reporting practice – 2003/04

Data returned by the Open University in 2003/04 now provides a split between part-time first degree students and other undergraduate students. This is due to changes in reporting practice made according to HEFCE funding requirements. Previously students taking Open University credits were returned as studying at other undergraduate level or other postgraduate level, although the credits gained could count towards the award of a first degree or postgraduate degree. In 2003/04 Open University students were reported according to their recorded award intention and the broad subject of that award intention at the HESA return date. It should be noted that Open University students do not have to declare an award intention and many are still reported as studying for institutional credit within the "combined" subject of study. This has had the affect of apparently reducing part-time other undergraduate numbers. This has also affected the number of records returned as students who linked modules to two distinct qualification aims have been returned in two records. It should, however, be noted that the qualifications obtained tables have not been affected in such a dramatic way because the changes in reporting practice only affects enrolment data.

Destinations of Leavers from Higher Education (DLHE) definitions 2003/04

Coverage

The **HESA Destinations of Leavers from Higher Education (DLHE) target population** contains all United Kingdom (UK) and European Union (EU) domiciled students reported to HESA for the reporting period 1 August 2003 to 31 July 2004 as obtaining relevant qualifications and whose study was full-time or part-time (including sandwich students and those writing-up theses). Awards from dormant status are not included in the target population. The coverage differs from the population used in previous years for the First Destination Supplement (FDS) in a number of ways. Notably, those who obtained any of the relevant qualifications following part-time study are now included, together with those obtaining postgraduate diplomas and certificates (full-time or part-time).

Relevant qualifications for inclusion in the DLHE return are postgraduate degrees, postgraduate diplomas and certificates, Postgraduate Certificates in Education (PGCE), first degrees (excludes intercalated degrees), Diplomas of Higher Education (DipHE), Certificates of Higher Education (CertHE), foundation degrees, Higher National Diplomas (HND) or Higher National Certificates (HNC). The population for the DLHE return does not necessarily represent the full cohort graduating during the reporting period: examples of those excluded are professional qualifications (e.g. associate membership or membership of a body such as the Institute of Bankers) and undergraduate diplomas and certificates (other than foundation degrees, HND, DipHE, HNC and CertHE).

The reference dates for this DLHE return were 15 April 2004 (if the leaver obtained the qualification between 1 August 2003 and 31 December 2003) and 14 January 2005 (if the leaver obtained the qualification between 1 January 2004 and 31 July 2004).

Rounding strategy

Due to the provisions of the Data Protection Act 1998 and the Human Rights Act 1998, HESA implements a strategy in published and released tabulations designed to prevent the disclosure of personal information about any individual. These tabulations are derived from the HESA non-statutory populations and may differ slightly from those published by related statutory bodies. This strategy involves rounding all numbers to the nearest 5. A summary of this strategy is as follows:

0, 1, 2 are rounded to 0
All other numbers are rounded to the nearest 5

So for example 3 is represented as 5, 22 is represented as 20, 3286 is represented as 3285 while 0, 20, 55, 3510 remain unchanged.

This rounding strategy is also applied to total figures; the consequence of which is that the sum of numbers in each row or column will rarely match the total shown

precisely. Note that subject level data calculated by apportionment will also be rounded in accordance with this strategy.

Average values, proportions and FTE values prepared by HESA will not be affected by the above strategy, and will be calculated on precise raw numbers. However, percentages calculated on populations which contains 52 or fewer individuals will be suppressed and represented as '..' as will averages based on populations of 7 or less.

Level of qualification obtained

Postgraduate qualifications are doctorate degrees, masters degrees, higher bachelors degrees, postgraduate diplomas and certificates, and PGCEs. In some analyses doctorate degrees and PGCEs are tabulated separately, and masters degrees, other higher degrees, postgraduate diplomas and certificates form another group.

First degrees are first degrees, first degrees with eligibility to register to practice (doctor/dentist/veterinary surgeon), first degrees with qualified teacher status (QTS)/registration with the General Teaching Council (GTC) for Scotland, enhanced first degrees and first degrees obtained concurrently with diplomas.

Foundation degrees, HNDs and HNCs are shown separately.

Other undergraduate qualifications are foundation degrees and all other higher education qualifications not included above which are within the scope of the DLHE return.

Domicile

Domicile data is supplied to HESA in the form of postcodes (UK domiciled students) or country codes. Postcodes are mapped to counties, unitary authorities and UK nations following consultation with Geoplan Postcode Marketing. Countries are mapped to geographical regions following consultation with the Department for Education and Skills. Where no data is supplied about the student's domicile, fee eligibility is used to determine whether domicile is European Union, including the UK, or not.

UK domiciled students are those whose normal residence is in the UK, including the Channel Islands and Isle of Man.

This enquiry is restricted to UK domiciled leavers.

Subject areas

In 2002/03 a new subject classification was introduced called the Joint Academic Coding System (JACS). This subject classification looks similar to that previously published but has been devised in a different way. Therefore subject data is not comparable to that previously published.

Additionally, from 2002/03, a new procedure of apportionment has been introduced. Under apportionment, each headcount is, where necessary, divided in a way that in

broad-brush terms reflects the pattern of a split programme. This is analogous to the use of FTE calculations, but should not be confused with them, since the splits used for apportionment are conventional rather than data-based.

For split programmes not involving an initial teacher training (ITT) component, the apportionment algorithm is as follows:

- 50%:50% for a balanced two-way split;
- 66.667%:33.333% for a major/minor two-way split;
- 33.333%:33.333%:33.333% for a balanced three-way split.

ITT students at undergraduate level who also have a specialism subject recorded (typically, secondary ITT students) are apportioned 50% to the 'Education' subject area and the remaining 50% is further apportioned according to the algorithm for non-ITT students. Where no subject other than education is recorded, or where the student is on a PGCE course, apportionment is 100% to the 'Education' subject area.

The 19 broad subject areas have been retained. Further details have been outlined in the HESA Student Circular 02/03 'Subject Areas and Related Issues'.

Principal subjects

The 19 broad subject areas are disaggregated into 159 **Principal subjects**. Similarly to above, the following rules are used to determine the principal subject:

For split programmes not involving an initial teacher training (ITT) component, the apportionment algorithm is as follows:

- 50%:50% for a balanced two-way split;
- 66.667%:33.333% for a major/minor two-way split;
- 33.333%:33.333%:33.333% for a balanced three-way split.

ITT students at undergraduate level who also have a specialism subject recorded (typically, secondary ITT students) are apportioned 50% to the 'Education' subject area and the remaining 50% is further apportioned according to the algorithm for non-ITT students. Where no subject other than education is recorded, or where the student is on a PGCE course, apportionment is 100% to the 'Education' subject area.

This enquiry is restricted to the following subjects:
H8 Chemical, process & energy engineering
F1 Chemistry
H6 Electronic & electrical engineering
F6 Geology
H3 Mechanical engineering
F3 Physics
J4 Polymers & textiles
J5 Materials technology not otherwise specified

The Standard Industrial Classification

The Standard Industrial Classification of economic activities (SIC) provides a framework for the collection, tabulation, presentation and analysis of data about

economic activities. The present version (SIC(92)) is aligned with similar classifications in all member states of the European Union and is obligatory in all cases where the UK is required to transmit statistics broken down by economic activity to the European Commission.

Standard industry codes for economic activity are used to describe the relationship between the inputs and outputs of such activity. In cases where multiple activities take place, classification usually relates to the single most important activity. In the case of destination statistics, this will usually be the most important activity undertaken by an employer (or self-employed person). Economic activities are measured by enquiring into the nature of an employer's (or self-employed person's) business.

Employment categories

In the DLHE survey leavers are able to report separately what they are doing in relation to both employment and study and a matrix of possible outcomes is constructed. This matrix is used to define the key categories of outcomes such as employed and unemployed.

As leavers report separately what they are doing in relation to employment and further study, it is possible to be involved in either employment only, further study only or employment and further study. Therefore where the terms employment and further study are used, it is important to note that:

- employment includes those in employment only, and those in both employment and further study
- further study includes those in further study only, and those in both employment and further study.

Matrix of Standard Categories for Publication from DLHE

Employment Circumstances	Full-time study (1)	Part-time study (2)	Not in study (3)
Employed full-time (01)	D	D	A
Employed part-time (02)	D	D	B
Self-employed/Freelance (03)	D	D	A
Voluntary work (04)	D	D	C
Other unpaid work (05)	D	D	C
Permanently unable to work (06)	G	G	G
Temporarily sick or unable to work (07)	E	E	G
Retired (08)	G	G	G
Looking after the home or family (09)	E	E	G
Taking time out in order to travel (10)	G	G	G
Due to start a job within the next month (11)	E	F	F
Unemployed and looking for employment, further study or training (12)	E	F	F
Not employed but NOT looking for employment, further study or training (13)	E	E	O
Something else (14)	E	E	O
Explicit refusal (XX)	X	X	X

Publication Categories

Full-time paid work only (including self-employed)	A
Part-time paid work only	B
Voluntary/Unpaid work only	C
Work and further study	D
Further study only	E
Assumed to be unemployed	F
Not available for employment	G
Other	O
Explicit refusal	X

Employment

Employment only includes those graduates who reported that they were in full-time paid work (including self-employed/freelance), part-time paid work, voluntary or unpaid work, and who were not also studying.

Full-time employment only includes those who reported that they were in full-time paid work (including self-employed/freelance) and who were not also studying.

Combination of work and further study includes those who reported that they were in full-time paid work (including self-employed/freelance), part-time paid work, voluntary or unpaid work, and who were also studying full-time or part-time.

Unemployment

Assumed to be unemployed includes those students who gave their employment circumstances as unemployed and looking for employment, further study or training, and who were also either in part-time study or not studying, plus those who were due to start a job within the next month and who were also either in part-time study or not studying.

Further study

Further study only includes those who gave their employment circumstances as temporarily sick or unable to work, looking after the home or family, not employed but not looking for employment, further study or training, or something else and who were also either in full-time study or part-time study, plus those who were due to start a job within the next month or unemployed and looking for employment, further study or training and who were also in full-time study.

Appendix 9

UK domiciled first year students by level of study
Source: HESA 25027 Item 1 – First year students 1995 – 2005

Postgraduate 1995 to 2002

Table A9a: Total UK domiciled first year students by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	1850	1550	1550	1306	1285	1130	1160
Physics	1050	735	820	815	740	645	735
Geology	575	450	485	490	455	420	380
Mechanical engineering	900	795	695	990	745	730	665
Electrical engineering	415	305	315	320	260	225	315
Electronic engineering	1405	1300	1175	1005	1030	1111	975
Chemical engineering	330	300	265	266	320	255	380
Polymers and textiles	130	155	115	150	145	120	120
Other materials technology	255	320	268	260	195	205	195

Figure A9a:

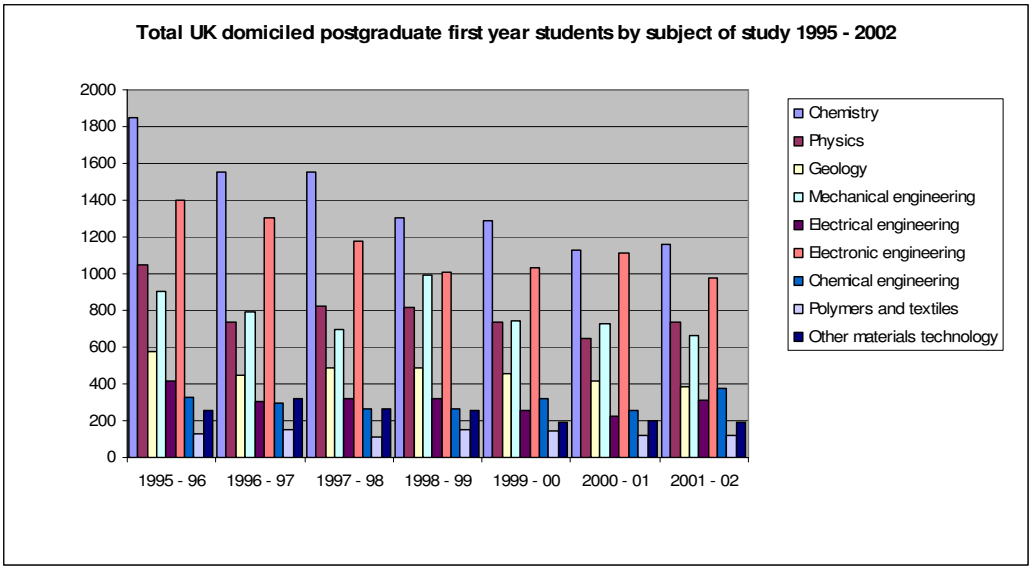


Table A9b: Total Female UK domiciled first year students by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	635	520	550	495	490	420	455
Physics	225	140	150	235	165	145	165
Geology	185	160	165	185	165	145	165
Mechanical engineering	90	95	85	170	90	90	85
Electrical engineering	40	30	35	45	35	30	45
Electronic engineering	155	165	145	120	185	190	145
Chemical engineering	85	85	75	70	95	75	110
Polymers and textiles	55	80	50	75	65	60	60
Other materials technology	60	115	95	95	40	75	65

Table A9c: Total Male UK domiciled first year students by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	1215	1035	1000	810	800	710	700
Physics	825	595	670	580	575	500	575
Geology	395	290	325	305	295	275	220

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Mechanical engineering	810	700	610	820	655	645	585
Electrical engineering	375	275	280	275	225	200	270
Electronic engineering	1245	1140	1030	885	840	925	830
Chemical engineering	250	215	195	200	225	180	265
Polymers and textiles	75	80	65	75	80	60	60
Other materials technology	195	210	175	165	155	125	130

Postgraduate 2002 to 2005

Table: A9d: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	1160	1130	985
Physics	785	795	740
Geology	440	425	410
Mechanical engineering	685	550	475
Electrical and electrical engineering	1250	1150	1025
Chemical, process and energy engineering	350	415	430
Polymers and textiles	100	60	75
Materials technology not otherwise specified	195	225	225

Figure A9b:

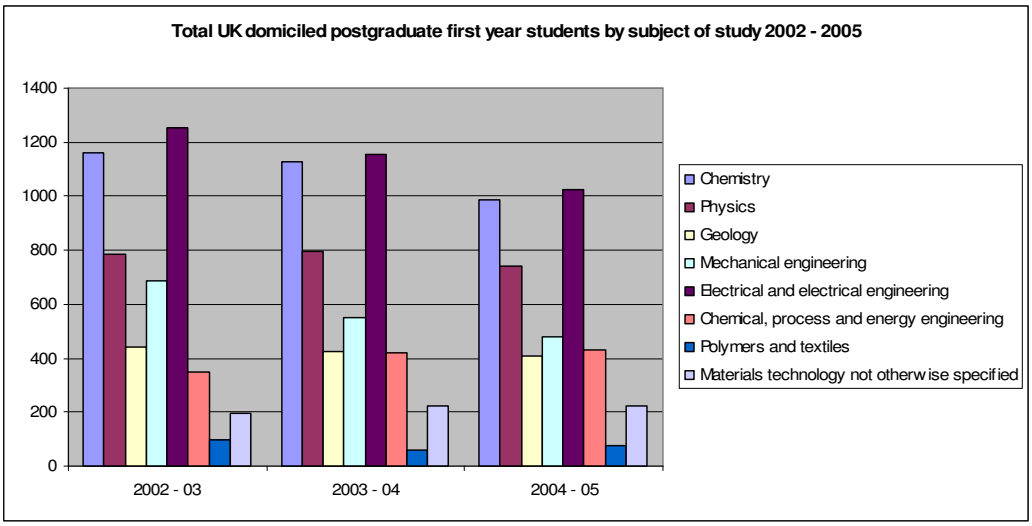


Table A9e: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	445	435	415
Physics	200	190	180
Geology	170	160	155
Mechanical engineering	90	70	55
Electrical and electrical engineering	205	210	160
Chemical, process and energy engineering	100	95	115
Polymers and textiles	55	40	45
Materials technology not otherwise specified	70	85	80

Table A9f: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	715	695	570
Physics	585	605	560
Geology	270	265	255
Mechanical engineering	595	485	425

Subject	2002 - 03	2003 - 04	2004 - 05
Electrical and electrical engineering	1045	945	865
Chemical, process and energy engineering	250	325	310
Polymers and textiles	40	20	25
Materials technology not otherwise specified	125	140	145

First degree 1995 to 2002

Table A9g: Total UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	5020	4690	4630	4320	3780	3300	3165
Physics	3100	2980	2960	2910	2660	2405	2510
Geology	1570	1370	1415	1405	1265	1240	1205
Mechanical engineering	4530	4030	3880	4320	3910	3455	3430
Electrical engineering	1335	850	760	675	820	720	825
Electronic engineering	5045	4655	4435	4670	4940	5365	5885
Chemical engineering	1090	915	985	890	835	685	640
Polymers and textiles	1105	1035	820	800	700	770	730
Other materials technology	510	430	410	390	300	215	255

Figure A9c:

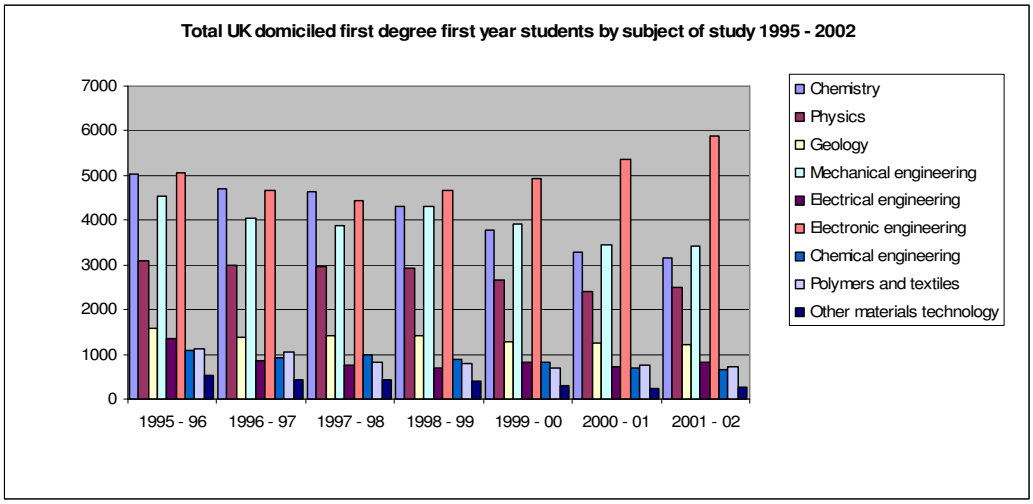


Table A9h: Total Female UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	1835	1670	1690	1650	1535	1435	1395
Physics	555	570	545	565	530	450	465
Geology	470	425	460	460	450	450	440
Mechanical engineering	370	320	275	320	300	270	235
Electrical engineering	95	50	50	50	50	50	50
Electronic engineering	385	330	390	400	510	565	645
Chemical engineering	250	210	210	215	185	160	160
Polymers and textiles	805	745	605	605	540	630	590
Other materials technology	120	90	80	95	90	55	75

Table A9i:Total Male UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	3180	3025	2940	2665	2245	1865	1770
Physics	2540	2410	2415	2345	2130	1955	2045
Geology	1105	955	955	940	820	790	765
Mechanical engineering	4160	3710	3605	4000	3615	3190	3190

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Electrical engineering	1240	800	710	625	770	665	775
Electronic engineering	4665	4325	4045	4270	4430	4800	5240
Chemical engineering	840	705	775	675	650	525	485
Polymers and textiles	300	290	215	190	160	140	140
Other materials technology	390	340	330	295	205	160	180

First degree 2002 - 2005

Table A9j: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	2345	2235	2020
Physics	2795	2755	3040
Geology	1370	1580	1785
Mechanical engineering	3540	3635	3730
Electrical and electronic engineering	6020	4795	4245
Chemical, process and energy engineering	663	640	660
Polymers and textiles	645	585	535
Materials technology not otherwise specified	395	385	380

Figure A9d:

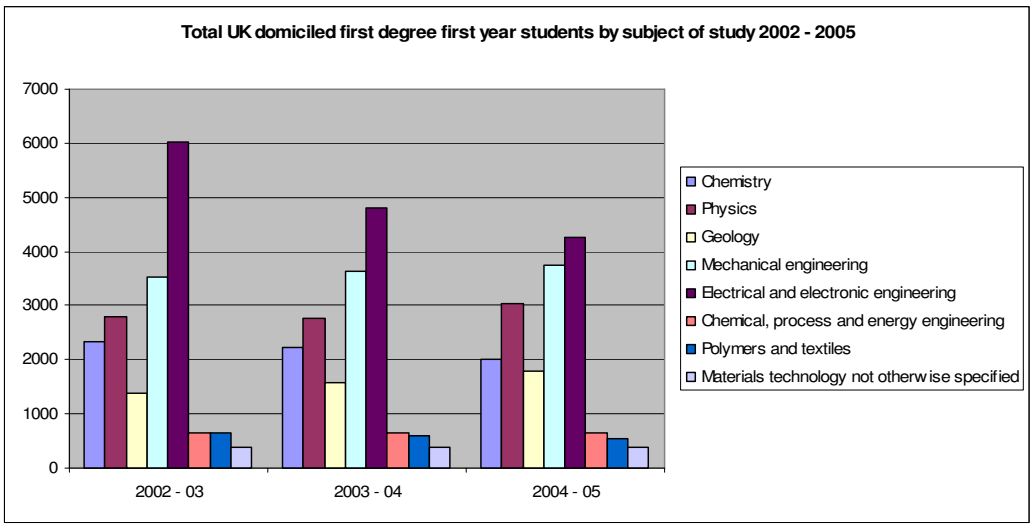


Table A9k: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	1630	1540	1445
Physics	565	565	565
Geology	535	615	680
Mechanical engineering	255	280	275
Electrical and electronic engineering	550	445	365
Chemical, process and energy engineering	150	150	140
Polymers and textiles	560	510	490
Materials technology not otherwise specified	120	110	130

Table A9l: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	715	695	575
Physics	2230	2190	2480
Geology	840	965	1105
Mechanical engineering	3285	3355	3455
Electrical and electronic engineering	5475	4345	3880

Subject	2002 - 03	2003 - 04	2004 - 05
Chemical, process and energy engineering	515	490	520
Polymers and textiles	85	75	45
Materials technology not otherwise specified	270	275	245

Foundation degree 2002 - 2005

Table A9m: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	50	45	40
Physics	20	5	5
Geology	0	0	0
Mechanical engineering	90	145	140
Electrical and electronic engineering	175	100	210
Chemical, process and energy engineering	10	20	15
Polymers and textiles	0	5	5
Materials technology not otherwise specified	0	15	75

Figure A9e:

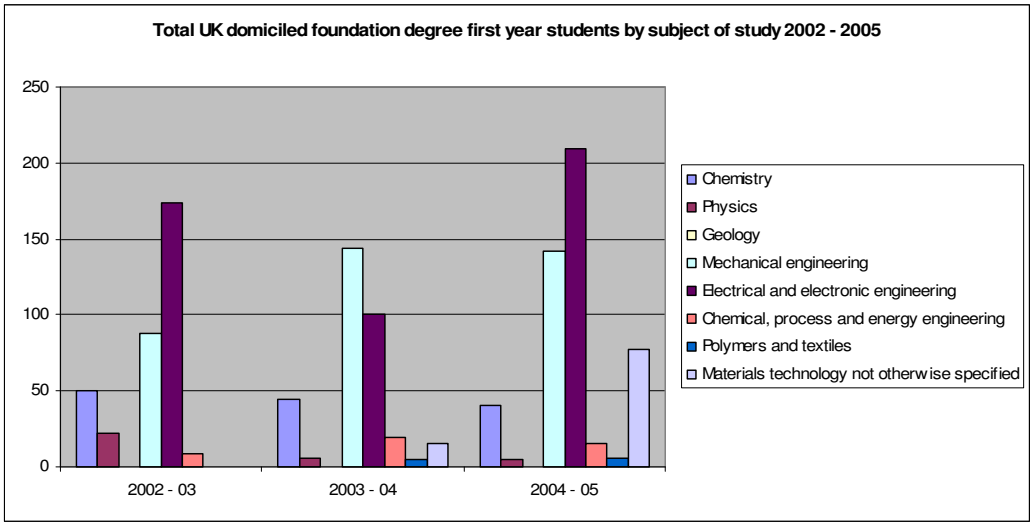


Table A9n: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	30	25	20
Physics	5	0	0
Geology			
Mechanical engineering	10	5	5
Electrical and electronic engineering	25	15	30
Chemical, process and energy engineering	0	0	0
Polymers and textiles		0	0
Materials technology not otherwise specified		0	20

Table A9o: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	20	20	20
Physics	20	5	5
Geology			
Mechanical engineering	75	140	135
Electrical and electronic engineering	145	85	180
Chemical, process and energy engineering	10	20	15
Polymers and textiles		5	5

Subject	2002 - 03	2003 - 04	2004 - 05
Materials technology not otherwise specified		15	55

HND 1995 - 2002

Table A9p: Total UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	280	160	170	140	130	105	95
Physics	45	35	25	15	10	5	5
Geology	30	25	25	15	5	0	15
Mechanical engineering	890	745	575	480	500	560	475
Electrical engineering	680	520	295	300	270	260	195
Electronic engineering	760	545	510	575	695	655	610
Chemical engineering	25	15	45	20	15	10	5
Polymers and textiles	555	410	335	275	265	275	230
Other materials technology	120	100	40	20	5	10	80

Figure A9f

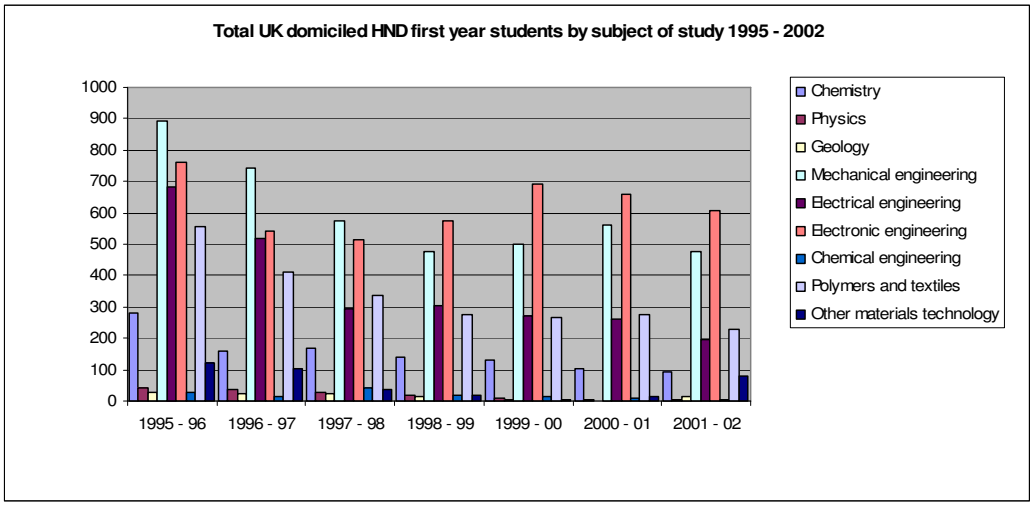


Table A9q: Total Female UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	90	50	50	55	50	45	35
Physics	5	5	5	0	0	0	0
Geology	5	7	0	0	0	0	5
Mechanical engineering	30	35	35	20	35	25	25
Electrical engineering	30	20	10	10	15	15	15
Electronic engineering	45	30	50	70	80	70	45
Chemical engineering	0	5	5	5	5	0	0
Polymers and textiles	255	115	120	85	105	135	90
Other materials technology	30	35	5	5	0	5	25

Table A9r: Total Male UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	185	105	115	85	80	60	55
Physics	40	35	25	15	5	5	5
Geology	25	20	20	15	5	0	10
Mechanical engineering	860	705	540	460	465	540	455
Electrical engineering	650	500	285	295	260	245	185
Electronic engineering	715	510	460	505	615	590	565
Chemical engineering	25	5	35	15	10	10	5

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Polymers and textiles	300	290	215	190	160	140	140
Other materials technology	95	65	30	15	5	10	55

HND 2002 - 2005

Table A9s: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	40	30	5
Physics	0	0	0
Geology	0	0	0
Mechanical engineering	90	150	150
Electrical and electronic engineering	580	535	430
Chemical, process and energy engineering	5	5	5
Polymers and textiles	115	105	110
Materials technology not otherwise specified	40	45	45

Figure A9g:

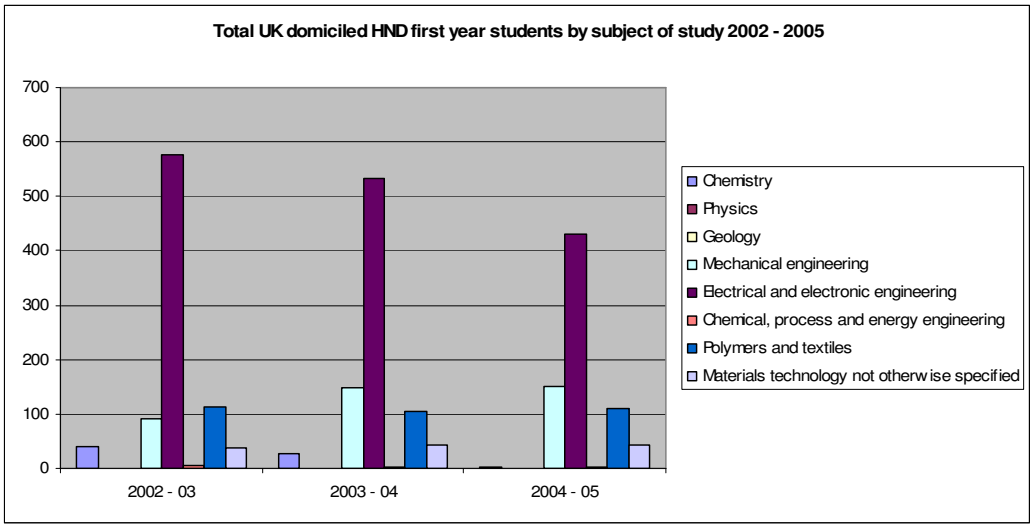


Table A9t: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	15	15	0
Physics			
Geology			
Mechanical engineering	15	5	15
Electrical and electronic engineering	40	35	20
Chemical, process and energy engineering	0	0	0
Polymers and textiles	85	85	90
Materials technology not otherwise specified	5	10	5

Table A9u: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	25	10	5
Physics			
Geology			
Mechanical engineering	75	140	135
Electrical and electronic engineering	535	500	410
Chemical, process and energy engineering	5	5	0
Polymers and textiles	30	20	20
Materials technology not otherwise specified	35	35	35

HNC 1995 - 2002

Table A9v: Total UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	365	295	285	245	210	140	160
Physics	0	0	0	0	0	0	0
Geology	0	0	10	5	10	15	5
Mechanical engineering	635	650	820	820	720	780	815
Electrical engineering	415	490	330	285	240	390	255
Electronic engineering	415	350	390	430	445	470	560
Chemical engineering	15	5	5	40	20	20	10
Polymers and textiles	110	100	85	60	45	65	25
Other materials technology	15	20	40	20	10	20	30

Figure A9h:

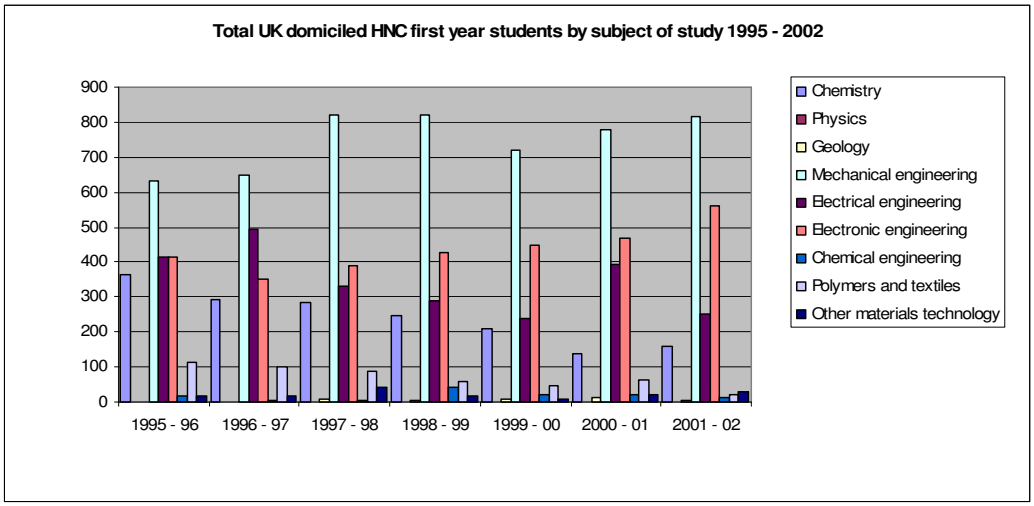


Table A9w: Total Female UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	145	135	130	110	85	55	75
Physics							
Geology	0		5	0	5	5	0
Mechanical engineering	25	25	15	20	30	25	30
Electrical engineering	20	20	10	10	10	20	5
Electronic engineering	15	15	20	30	25	20	30
Chemical engineering	5	0	0	0	0	0	0
Polymers and textiles	30	25	20	15	5	5	5
Other materials technology	0	5	5	5	0	0	0

Table A9x: Total Male UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	225	160	155	135	125	80	85
Physics							
Geology	0		5	5	5	5	5
Mechanical engineering	610	625	800	800	690	750	785
Electrical engineering	395	470	320	280	230	370	250
Electronic engineering	400	335	370	390	425	445	530
Chemical engineering	15	5	5	40	20	20	10
Polymers and textiles	80	75	65	45	40	60	15
Other materials technology	15	15	35	15	5	20	30

HNC 2002 - 2005

Table A9y: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	100	60	60
Physics	0	0	0
Geology	0	0	0
Mechanical engineering	625	520	505
Electrical and electronic engineering	755	675	750
Chemical, process and energy engineering	15	15	10
Polymers and textiles	20	10	10
Materials technology not otherwise specified	15	15	15

Figure A9i:

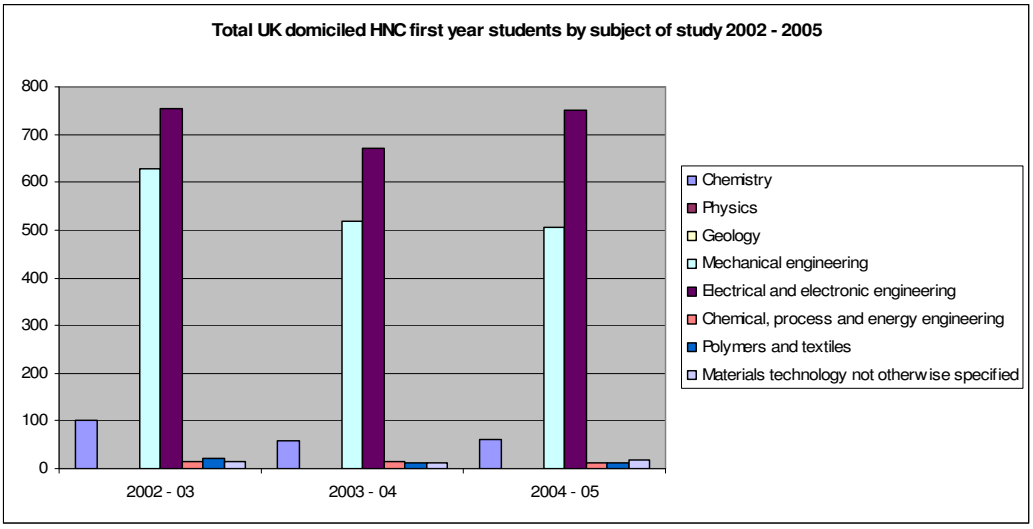


Table A9z: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	40	25	25
Physics			
Geology			
Mechanical engineering	25	20	20
Electrical and electronic engineering	35	35	35
Chemical, process and energy engineering	0	0	0
Polymers and textiles	5	0	0
Materials technology not otherwise specified	0	0	0

Table A9aa: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	60	30	35
Physics			
Geology			
Mechanical engineering	605	500	485
Electrical and electronic engineering	715	640	715
Chemical, process and energy engineering	15	15	10
Polymers and textiles	15	10	10
Materials technology not otherwise specified	15	10	15

Other undergraduate 1995 - 2002

Table A9ab: Total UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	125	170	95	290	250	260	310
Physics	10	25	10	0	15	60	10
Geology	160	285	185	105	310	290	265
Mechanical engineering	200	205	200	155	420	345	455
Electrical engineering	5	5	0	15	5	140	155
Electronic engineering	390	255	340	245	180	190	285
Chemical engineering	25	10	30	20	10	10	10
Polymers and textiles	20	70	80	70	50	65	75
Other materials technology	40	0	0	10	0	0	15

Figure A9j:

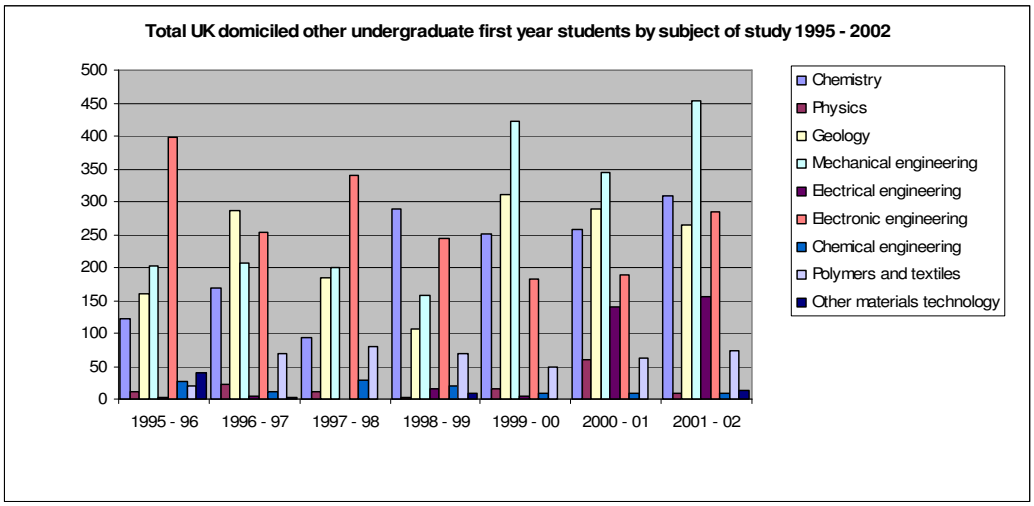


Table A9ac: Total Female UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	55	60	40	100	110	120	110
Physics	0	15	5	0	10	15	5
Geology	90	170	105	65	165	180	130
Mechanical engineering	25	20	15	15	130	80	105
Electrical engineering	0	0	0	5	0	10	20
Electronic engineering	35	20	25	25	15	10	25
Chemical engineering	5	5	0	0	5	0	0
Polymers and textiles	5	20	20	20	15	25	25
Other materials technology	15	0	0	5			0

Table A9ad: Total Male UK domiciled first year students by subject of study 1995 - 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	70	110	55	190	145	140	200
Physics	10	10	10	0	5	45	5
Geology	70	115	80	40	150	110	135
Mechanical engineering	180	185	185	140	290	265	350
Electrical engineering	5	5	0	15	5	130	140
Electronic engineering	365	235	315	215	170	180	260
Chemical engineering	20	10	25	20	5	10	10
Polymers and textiles	15	50	60	50	35	40	50
Other materials technology	25	0	0	5			15

Other undergraduate 2002 - 2005

Table A9ae: Total UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	355	360	325
Physics	5	75	90
Geology	238	225	210
Mechanical engineering	30	70	70
Electrical and electronic engineering	215	395	535
Chemical, process and energy engineering	10	0	0
Polymers and textiles	5	5	5
Materials technology not otherwise specified	35	10	25

Figure A9ak:

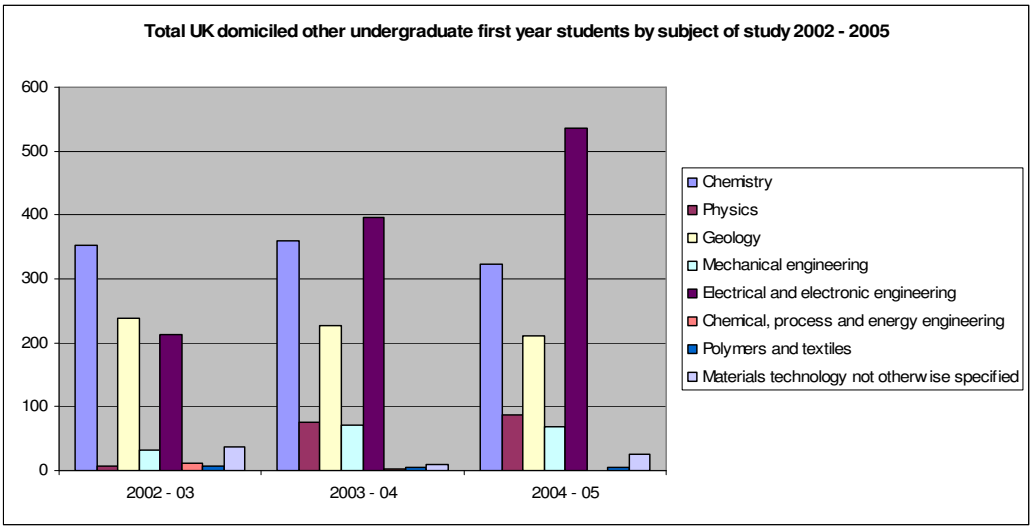


Table A9af: Total Female UK domiciled first year students by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	150	200	185
Physics	0	20	30
Geology	120	115	100
Mechanical engineering	5	50	40
Electrical and electronic engineering	25	70	60
Chemical, process and energy engineering	10	0	
Polymers and textiles	0	0	5
Materials technology not otherwise specified	5	0	5

Table A9ag: Total Male UK domiciled first year students by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	205	160	140
Physics	5	60	60
Geology	120	110	115
Mechanical engineering	25	20	25
Electrical and electronic engineering	190	330	480
Chemical, process and energy engineering	0	0	0
Polymers and textiles	5	5	0
Materials technology not otherwise specified	30	5	20

Appendix 10

UK domiciled qualifiers by level of study
Source: HESA 25027 Item 2 – Qualifiers 1995 – 2005

Postgraduate 1995 to 2002

Table A10a: Total UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	1230	1230	1330	1220	1220	1100	990
Physics	785	755	775	695	590	585	560
Geology	440	405	430	405	400	400	385
Mechanical engineering	440	510	520	525	490	540	415
Electrical engineering	235	245	270	265	200	205	190
Electronic engineering	790	905	790	840	705	740	735
Chemical engineering	225	260	255	265	240	280	205
Polymers and textiles	55	85	75	85	95	55	70
Other materials technology	165	270	225	205	155	165	130

Figure A10a:

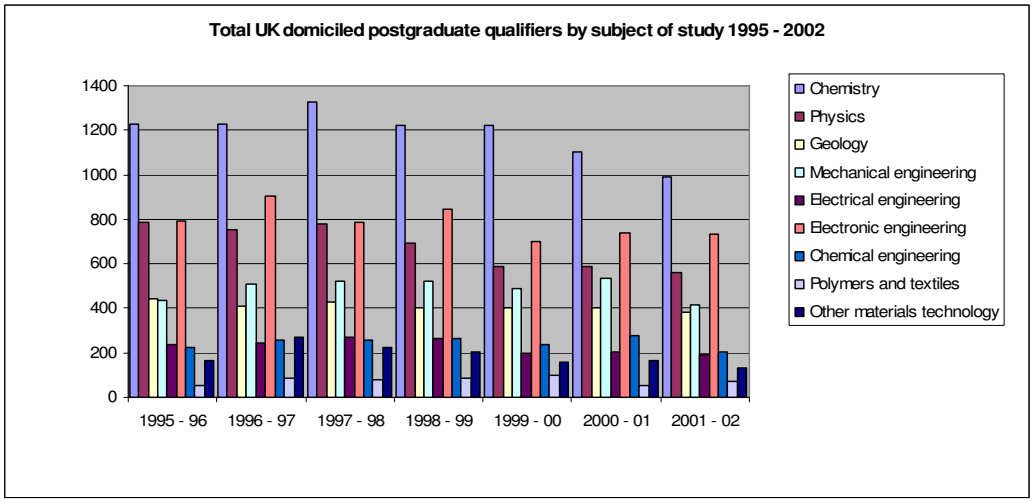


Table A10b: Total Female UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	415	385	470	395	405	375	385
Physics	160	150	175	150	135	120	125
Geology	110	110	135	135	150	145	130
Mechanical engineering	45	55	65	55	45	70	40
Electrical engineering	25	20	30	40	30	25	25
Electronic engineering	90	110	100	135	140	110	130
Chemical engineering	50	65	70	75	65	85	50
Polymers and textiles	25	50	30	40	65	20	30
Other materials technology	55	105	70	80	50	45	45

Table A10c: Total Male UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	815	846	855	825	815	730	600
Physics	630	600	600	545	460	470	435
Geology	330	295	295	270	250	255	255
Mechanical engineering	395	450	460	465	440	465	380
Electrical engineering	210	225	240	226	170	180	165
Electronic engineering	705	795	685	705	565	635	605

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemical engineering	170	195	185	190	175	195	155
Polymers and textiles	30	35	45	50	30	35	40
Other materials technology	110	165	155	125	105	115	85

Postgraduate 2002 to 2005

Table A10d: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	1020	1095	1005
Physics	625	610	610
Geology	390	415	360
Mechanical engineering	455	435	425
Electrical and electronic engineering	885	910	905
Chemical, process and energy engineering	245	260	270
Polymers and textiles	75	50	500
Materials technology not otherwise specified	190	150	150

Figure A10b:

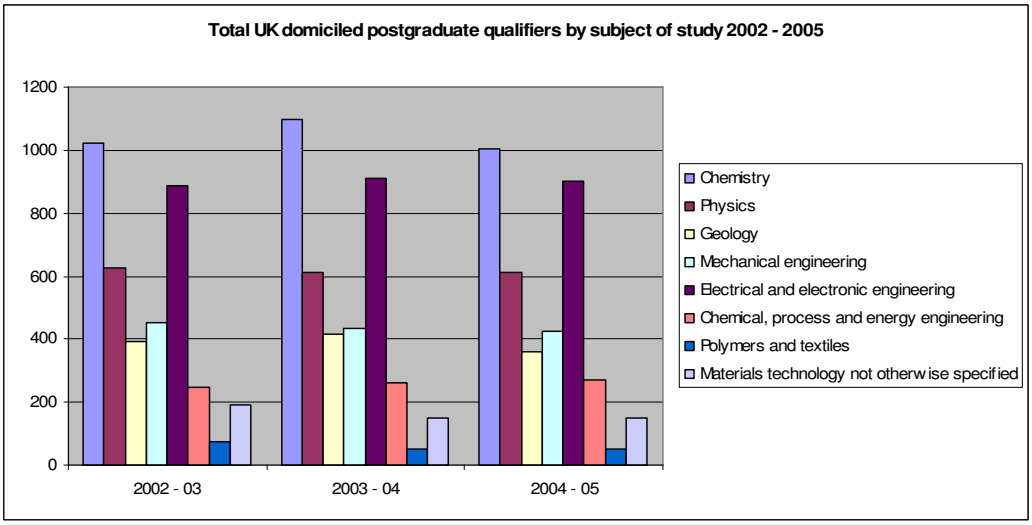


Table A10e: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	370	415	370
Physics	150	150	155
Geology	150	155	125
Mechanical engineering	45	60	50
Electrical and electronic engineering	150	155	175
Chemical, process and energy engineering	65	90	81
Polymers and textiles	45	20	25
Materials technology not otherwise specified	55	50	45

Table A10f: Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	650	685	635
Physics	480	460	455
Geology	240	260	235
Mechanical engineering	410	375	375
Electrical and electronic engineering	735	750	730
Chemical, process and energy engineering	180	175	185

Subject	2002 - 03	2003 - 04	2004 - 05
Polymers and textiles	30	30	25
Materials technology not otherwise specified	135	105	100

First degree 1995 to 2002

Table A10g: Total UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	3905	3550	3140	3425	3160	3075	2995
Physics	980	1020	1020	975	905	905	870
Geology	1275	1310	1190	1095	1175	1115	1100
Mechanical engineering	2735	2595	2720	2530	2535	2675	2720
Electrical engineering	815	565	600	580	590	640	630
Electronic engineering	2980	2890	2785	2800	2690	2810	3095
Chemical engineering	950	900	845	805	760	795	715
Polymers and textiles	690	730	710	590	765	615	550
Other materials technology	400	360	305	315	315	290	325

Figure A10c:

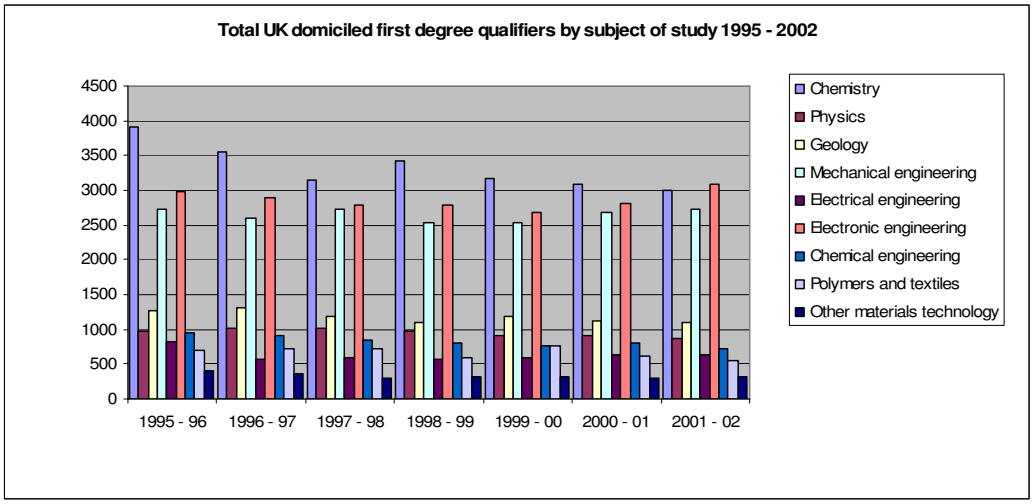


Table A10h: Total Female UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	1440	1305	1240	1365	1235	1320	1235
Physics	355	420	415	430	445	435	435
Geology	385	370	405	350	390	385	415
Mechanical engineering	255	205	220	230	200	210	215
Electrical engineering	60	40	45	45	30	50	50
Electronic engineering	225	235	220	220	215	250	330
Chemical engineering	215	195	175	190	180	195	185
Polymers and textiles	505	510	525	435	625	465	420
Other materials technology	110	70	60	55	65	80	110

Table A10i: Total Male UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	2465	2245	1900	2060	1925	1755	1755
Physics	630	600	600	545	460	470	435
Geology	890	935	790	745	790	725	685
Mechanical engineering	2480	2390	2500	2300	2340	2460	2505
Electrical engineering	755	525	555	535	560	590	580
Electronic engineering	2755	2655	2565	2580	2470	2565	2765

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemical engineering	735	710	670	615	580	600	530
Polymers and textiles	180	220	190	155	145	150	130
Other materials technology	290	290	240	260	250	215	220

First degree 2002 to 2005

Table A10j: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	2760	2550	2535
Physics	2055	1995	2085
Geology	1135	1145	1125
Mechanical engineering	2630	2640	2635
Electrical and electronic engineering	4095	3940	3565
Chemical, process and energy engineering	575	540	535
Polymers and textiles	435	275	275
Materials technology not otherwise specified	270	240	220

Figure A10d:

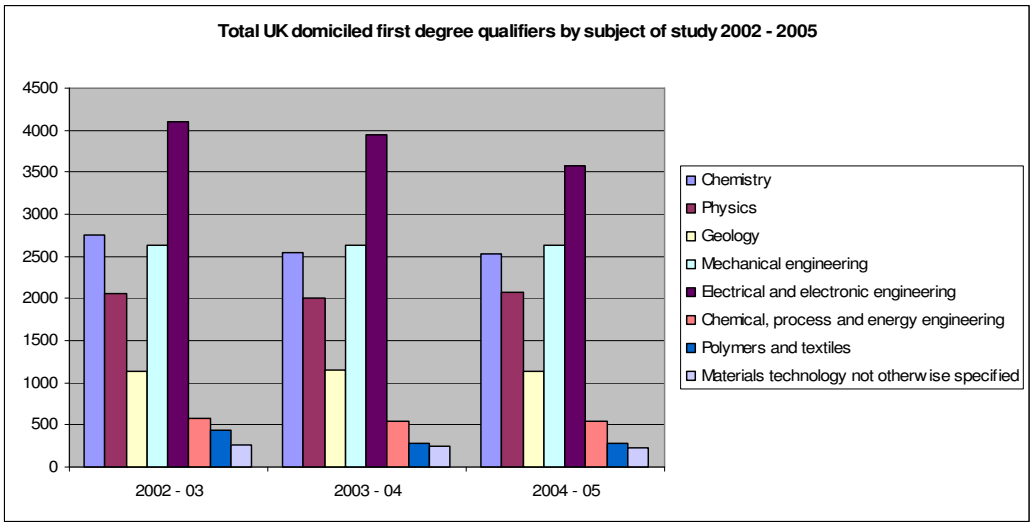


Table A10k: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	1240	1190	1210
Physics	470	460	435
Geology	430	440	455
Mechanical engineering	233	235	205
Electrical and electronic engineering	455	430	360
Chemical, process and energy engineering	155	130	125
Polymers and textiles	370	230	230
Materials technology not otherwise specified	130	140	120

Table A10l: Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	1520	1360	1325
Physics	1580	1530	1645
Geology	700	705	670
Mechanical engineering	2395	2400	2430
Electrical and electronic engineering	3640	3510	3210
Chemical, process and energy engineering	420	410	405

Subject	2002 - 03	2003 - 04	2004 - 05
Polymers and textiles	65	45	45
Materials technology not otherwise specified	135	105	100

Foundation degree 2002 to 2005

Table A10m: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	15	30	35
Physics	5	0	0
Geology	0	0	0
Mechanical engineering	25	5	30
Electrical and electronic engineering	60	95	75
Chemical, process and energy engineering	0	10	10
Polymers and textiles	0	0	0
Materials technology not otherwise specified	0	0	35

Figure A10e:

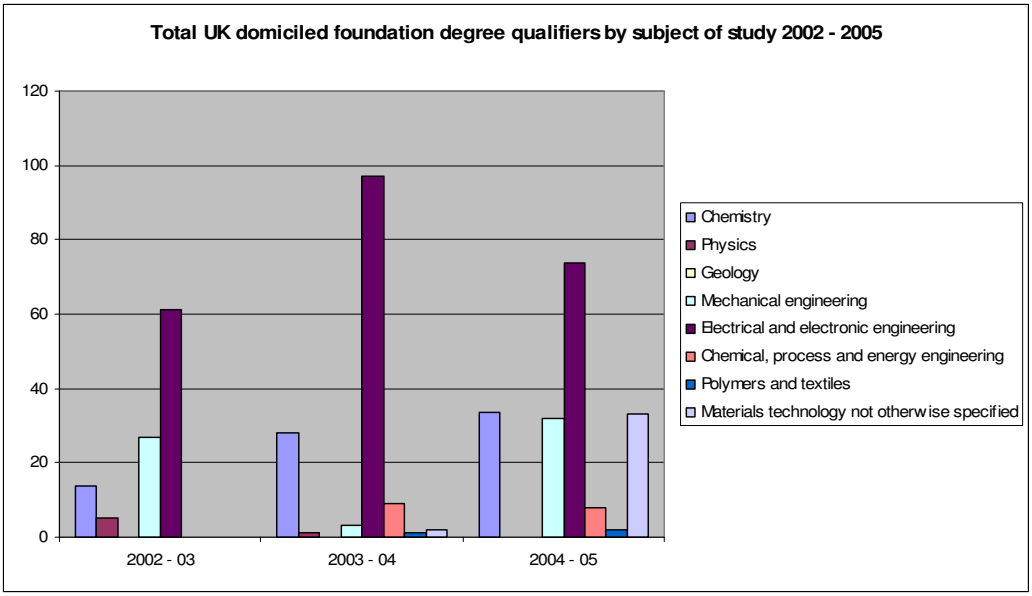


Table A10n: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	10	15	20
Physics			
Geology			
Mechanical engineering	5		
Electrical and electronic engineering	15	25	20
Chemical, process and energy engineering		0	
Polymers and textiles		0	0
Materials technology not otherwise specified			5

Table A10o: Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	5	15	15
Physics	5	0	
Geology			
Mechanical engineering	20	5	30
Electrical and electronic engineering	50	75	55

Subject	2002 - 03	2003 - 04	2004 - 05
Chemical, process and energy engineering		10	10
Polymers and textiles			0
Materials technology not otherwise specified		0	25

HND 1995 to 2002

Table A10p: Total UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	170	125	100	55	70	70	70
Physics	35	15	15	15	5	5	0
Geology	15	40	20	10	5	5	0
Mechanical engineering	435	375	380	325	265	305	330
Electrical engineering	355	335	250	195	165	165	125
Electronic engineering	355	395	290	295	285	305	365
Chemical engineering	15	0	10	20	5	15	0
Polymers and textiles	265	220	165	145	135	165	100
Other materials technology	80	30	45	20	15	10	65

Figure A10f:

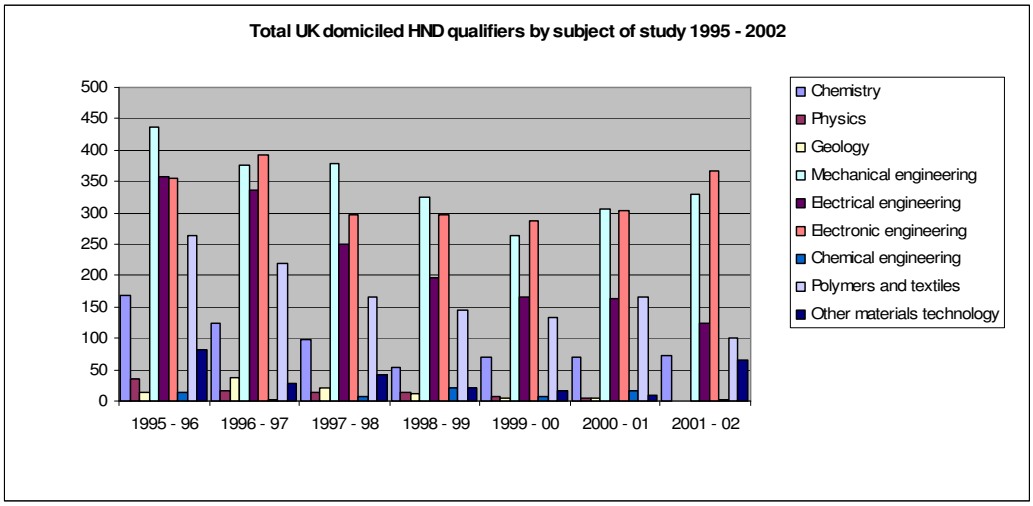


Table A10q: Total Female UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	60	50	45	15	25	30	30
Physics	5	0	0	5	0	0	0
Geology	0	10	5	0	0	0	0
Mechanical engineering	20	20	15	25	5	15	10
Electrical engineering	15	20	10	5	5	10	10
Electronic engineering	25	35	25	35	35	55	45
Chemical engineering	0	0	0	5	5	0	0
Polymers and textiles	185	155	115	85	80	110	70
Other materials technology	20	5	10	5	5	0	20

Table A10r: Total Male UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	105	75	55	40	45	40	40
Physics	30	15	15	10	5	5	0
Geology	10	30	15	10	5	5	0
Mechanical engineering	415	355	365	300	260	295	320
Electrical engineering	345	320	235	190	165	155	115

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Electronic engineering	330	360	270	260	255	250	320
Chemical engineering	10	0	5	20	5	15	0
Polymers and textiles	80	65	55	60	55	55	30
Other materials technology	65	20	30	15	15	10	45

HND 2002 to 2005

Table A10s: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	50	25	20
Physics	0	0	0
Geology	0	0	0
Mechanical engineering	345	255	200
Electrical and electronic engineering	365	345	305
Chemical, process and energy engineering	0	5	0
Polymers and textiles	70	70	65
Materials technology not otherwise specified	60	20	30

Figure A10g:

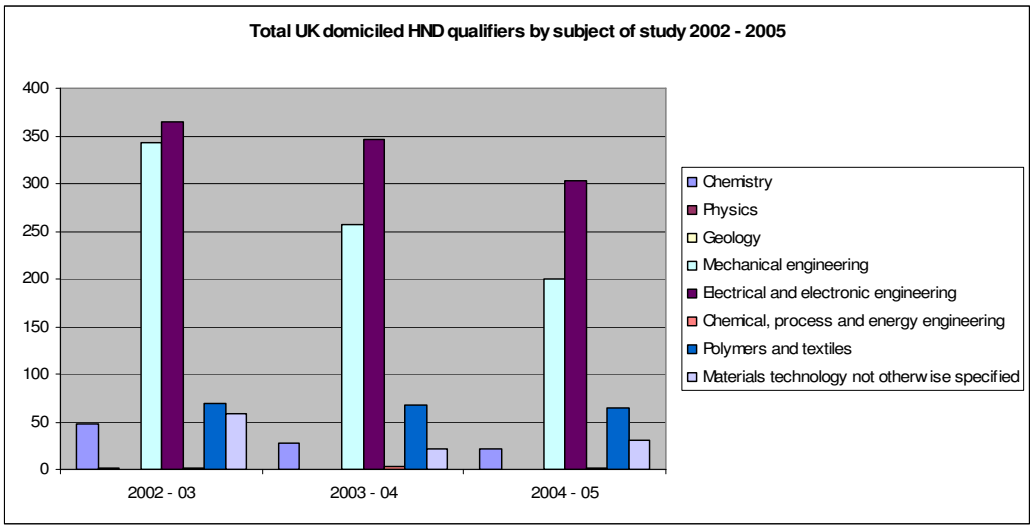


Table A10t: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	25	5	10
Physics			
Geology			
Mechanical engineering	15	10	5
Electrical and electronic engineering	25	35	25
Chemical, process and energy engineering	0	5	0
Polymers and textiles	45	60	55
Materials technology not otherwise specified	15	5	5

Table A10u:Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	25	20	10
Physics	0		
Geology			
Mechanical engineering	325	245	195
Electrical and electronic engineering	340	315	275

Subject	2002 - 03	2003 - 04	2004 - 05
Chemical, process and energy engineering	0	0	0
Polymers and textiles	25	10	10
Materials technology not otherwise specified	45	20	25

HNC 1995 to 2002

Table A10v: Total UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	235	200	160	205	160	135	125
Physics	630	600	600	545	460	470	435
Geology	0	0	0	0	5	5	10
Mechanical engineering	330	235	320	380	440	485	405
Electrical engineering	295	210	240	150	200	190	160
Electronic engineering	135	150	140	215	240	235	305
Chemical engineering	15	15	0	5	15	20	15
Polymers and textiles	95	90	65	75	60	65	35
Other materials technology	20	5	10	10	10	5	10

Figure: A10h:

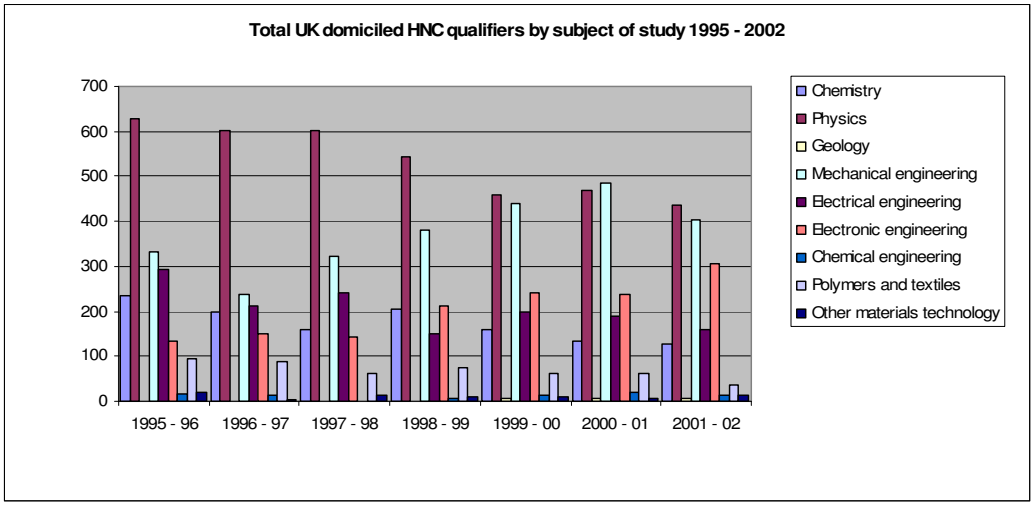


Table A10w: Total Female UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	90	90	75	105	80	50	55
Physics	0						
Geology					0	5	5
Mechanical engineering	15	10	10	10	10	10	15
Electrical engineering	10	10	10	5	5	5	10
Electronic engineering	0	10	10	15	15	15	20
Chemical engineering	0	0		0	0	0	0
Polymers and textiles	15	20	10	10	10	10	5
Other materials technology	0	0	0	5	0	0	0

Table A10x: Total Male UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	145	110	85	100	75	80	70
Physics	630	600	600	545	460	470	435
Geology					5	0	5
Mechanical engineering	315	230	315	375	430	470	390
Electrical engineering	285	205	230	145	195	185	145

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Electronic engineering	135	140	135	200	225	220	285
Chemical engineering	15	10		5	15	20	15
Polymers and textiles	80	65	55	60	55	55	30
Other materials technology	20	5	10	5	10	5	10

HNC 2002 to 2005

Table A10y: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	100	65	65
Physics	0	0	0
Geology	0	0	0
Mechanical engineering	395	375	285
Electrical and electronic engineering	463	425	445
Chemical, process and energy engineering	5	0	5
Polymers and textiles	20	10	10
Materials technology not otherwise specified	5	20	10

Figure A10i:

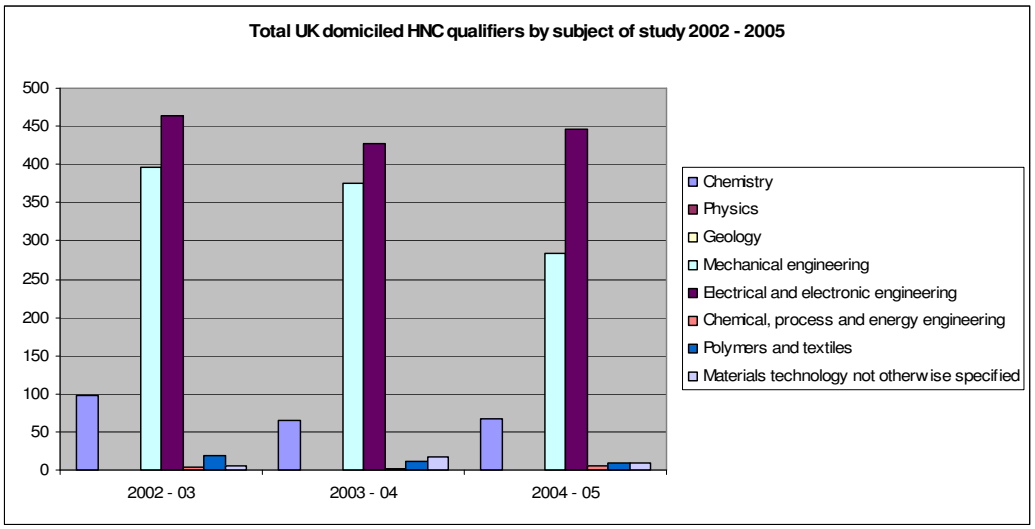


Table A10z: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	40	30	35
Physics			
Geology			
Mechanical engineering	15	15	10
Electrical and electronic engineering	25	15	25
Chemical, process and energy engineering	0	0	0
Polymers and textiles	5	0	0
Materials technology not otherwise specified	0	0	0

Table A10aa: Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	55	40	30
Physics			
Geology			
Mechanical engineering	385	360	275
Electrical and electronic engineering	440	410	420

Subject	2002 - 03	2003 - 04	2004 - 05
Chemical, process and energy engineering	5	0	5
Polymers and textiles	15	10	10
Materials technology not otherwise specified	5	15	10

Other undergraduate 1995 to 2002

Table A10ab: Total UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	870	895	895	875	850	755	625
Physics	635	605	615	545	465	475	445
Geology	15	10	60	25	30	10	40
Mechanical engineering	65	50	105	45	50	50	90
Electrical engineering	35	30	25	15	20	10	35
Electronic engineering	210	135	250	140	215	215	270
Chemical engineering	20	15	0	5	15	20	15
Polymers and textiles	30	20	35	15	35	30	25
Other materials technology	95	10	5	10	5	5	5

Figure A10j:

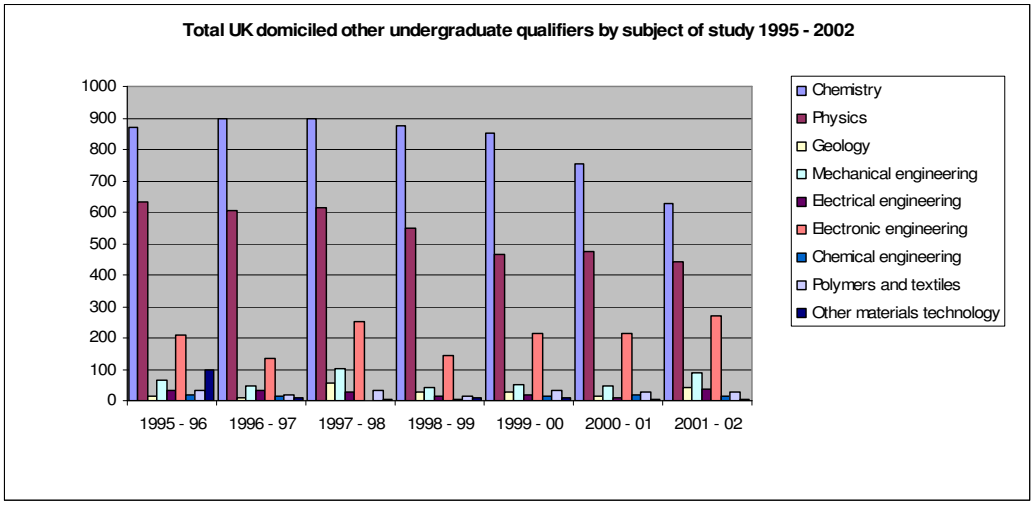


Table A10ac: Total Female UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	55	50	40	55	30	25	25
Physics	5	0	15	0	10	5	10
Geology	5	5	15	10	10	5	20
Mechanical engineering	5	5	5	5	0	5	5
Electrical engineering	0	5	5	0	0	0	0
Electronic engineering	15	20	10	5	15	5	10
Chemical engineering	0	5	0	0	0	0	
Polymers and textiles	15	10	20	5	15	10	15
Other materials technology	50	5	0	5	0	0	0

Table A10ad: Total Male UK domiciled qualifiers by subject of study 1995 – 2002

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Chemistry	815	845	855	825	815	730	600
Physics	630	600	60	545	460	470	435
Geology	10	5	40	15	20	10	20
Mechanical engineering	60	45	100	40	50	45	85
Electrical engineering	30	30	25	15	20	10	35

Subject	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Electronic engineering	195	120	245	135	200	215	260
Chemical engineering	15	10		5	15	20	15
Polymers and textiles	15	10	15	5	15	20	10
Other materials technology	45	5	5	5	5	5	5

Other undergraduate 2002 to 2005

Table A10ae: Total UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	195	235	310
Physics	35	65	110
Geology	30	60	90
Mechanical engineering	110	75	115
Electrical and electronic engineering	415	330	400
Chemical, process and energy engineering	10	10	15
Polymers and textiles	30	20	20
Materials technology not otherwise specified	20	45	45

Figure A10k:

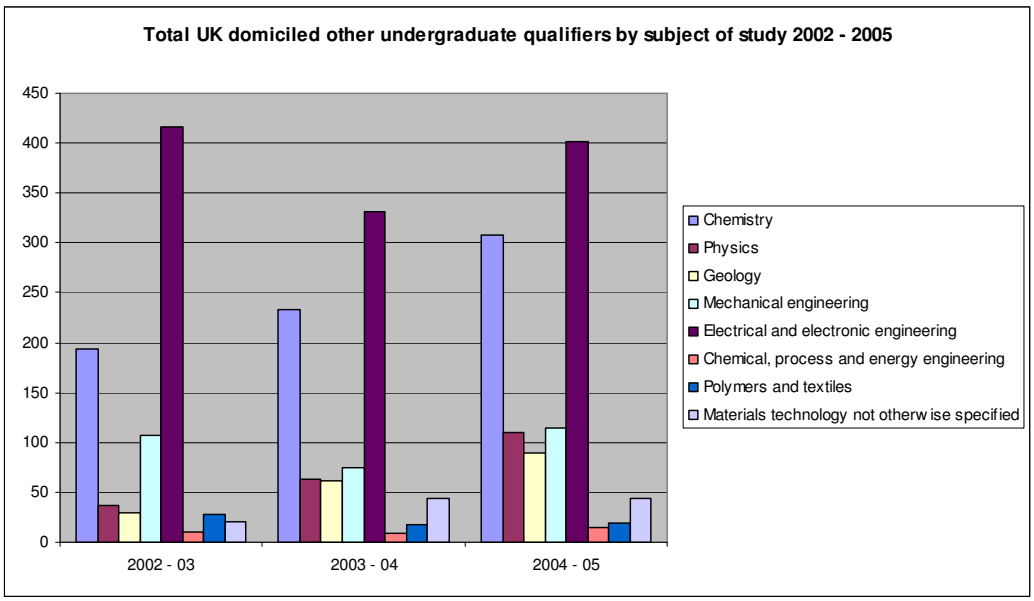


Table A10af: Total Female UK domiciled qualifiers by subject of study 2002 – 2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	75	105	175
Physics	10	10	20
Geology	10	30	45
Mechanical engineering	5	10	15
Electrical and electronic engineering	35	15	40
Chemical, process and energy engineering	0	0	0
Polymers and textiles	20	10	15
Materials technology not otherwise specified	5	15	15

Table A10ag: Total Male UK domiciled qualifiers by subject of study 2002 -2005

Subject	2002 - 03	2003 - 04	2004 - 05
Chemistry	115	125	135
Physics	30	55	90

Subject	2002 - 03	2003 - 04	2004 - 05
Geology	20	35	45
Mechanical engineering	105	65	95
Electrical and electronic engineering	380	315	365
Chemical, process and energy engineering	5	5	15
Polymers and textiles	10	5	5
Materials technology not otherwise specified	15	25	30

Appendix 11

UK domiciled first year students by subject classification
Source: HESA 25027 Item 1 – First year students 1995 – 2005

Chemistry 1995 to 2002

Table A11a: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1850	1550	1550	1305	1285	1130	1160
First degree	5020	4690	4630	4320	3780	3300	3165
Foundation degree	0	0	0	0	0	0	20
HND	280	160	170	140	130	105	95
HNC	365	295	285	245	210	140	160
Other undergraduate	125	170	95	290	250	260	310

Figure A11a:

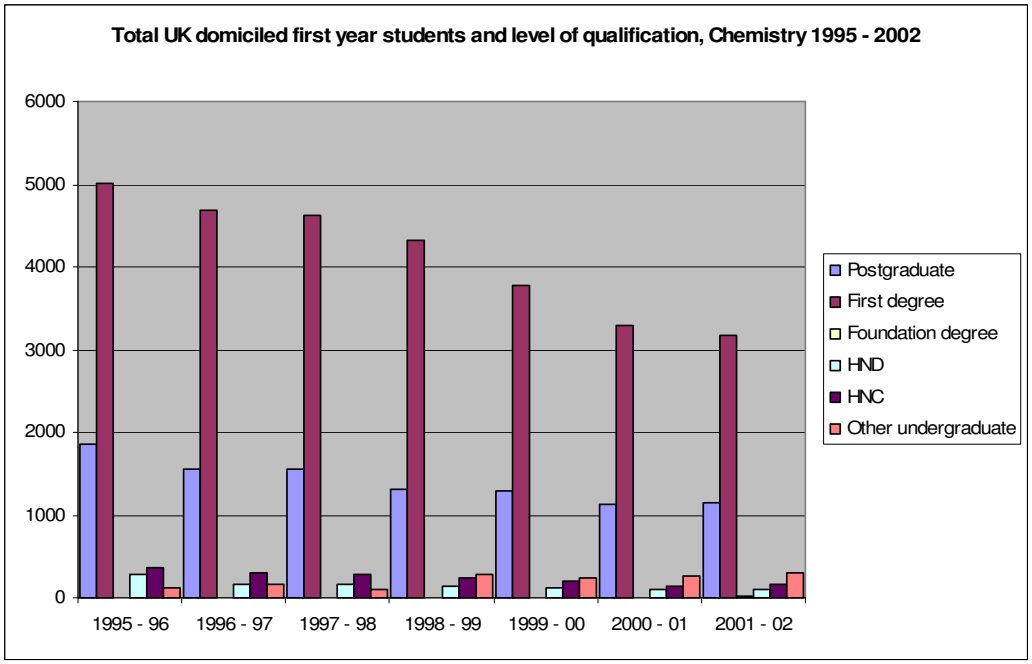


Table A11b: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	635	520	550	495	490	420	455
First degree	1835	1670	1690	1650	1535	1435	1395
Foundation degree							10
HND	90	50	50	55	50	45	35
HNC	145	135	130	110	85	55	75
Other undergraduate	55	60	40	100	110	120	110

Table A11c: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1215	1035	1000	810	800	710	700
First degree	3180	3025	2940	2665	2245	1865	1770
Foundation degree							10
HND	185	105	115	85	80	60	55
HNC	225	160	155	135	125	80	85
Other undergraduate	70	110	55	190	145	140	200

Chemistry 2002 to 2005

Table A11d: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	1160	1130	985
First degree	3700	3450	3430
Foundation degree	50	45	40
HND	40	30	5
HNC	100	60	60
Other undergraduate	355	360	325

Figure A11b:

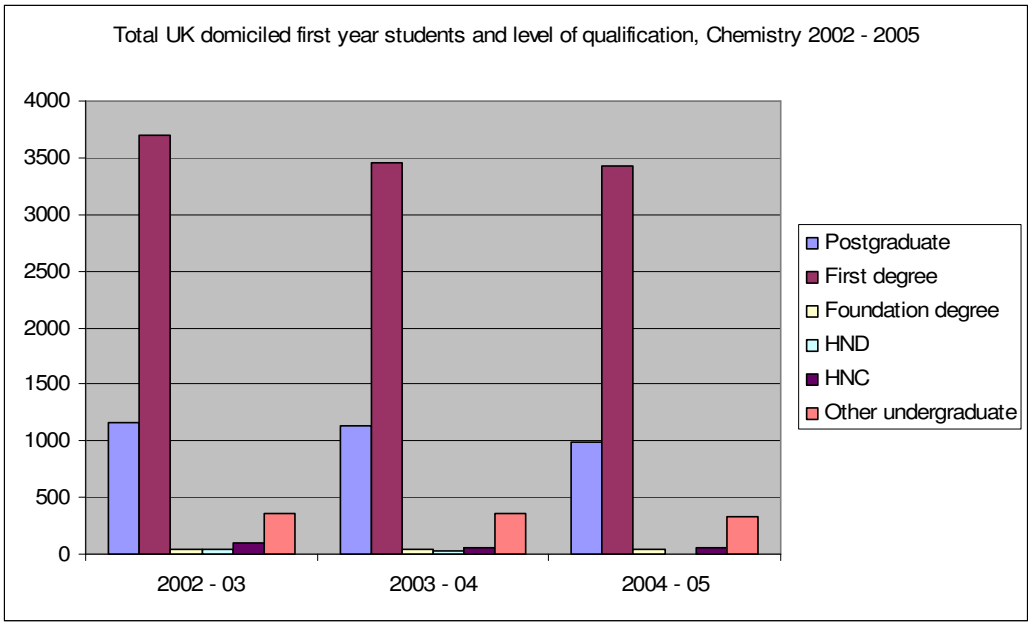


Table A11e: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	445	435	415
First degree	1630	1540	1445
Foundation degree	30	25	20
HND	15	15	0
HNC	40	25	25
Other undergraduate	150	200	185

Table A11f: Total Male UK domiciled first year students by level of study 2002 - 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	715	695	575
First degree	2070	1910	1985
Foundation degree	20	20	20
HND	25	10	5
HNC	60	30	35
Other undergraduate	205	160	140

Physics 1995 to 2002

Table A11g: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1050	735	820	815	740	645	735
First degree	3100	2980	2960	2910	2660	2405	2510
Foundation degree	0	0	0	0	0	0	0
HND	45	35	25	15	10	5	5
HNC	0	0	0	0	0	0	0
Other undergraduate	10	25	10	0	15	60	10

Figure A11c:

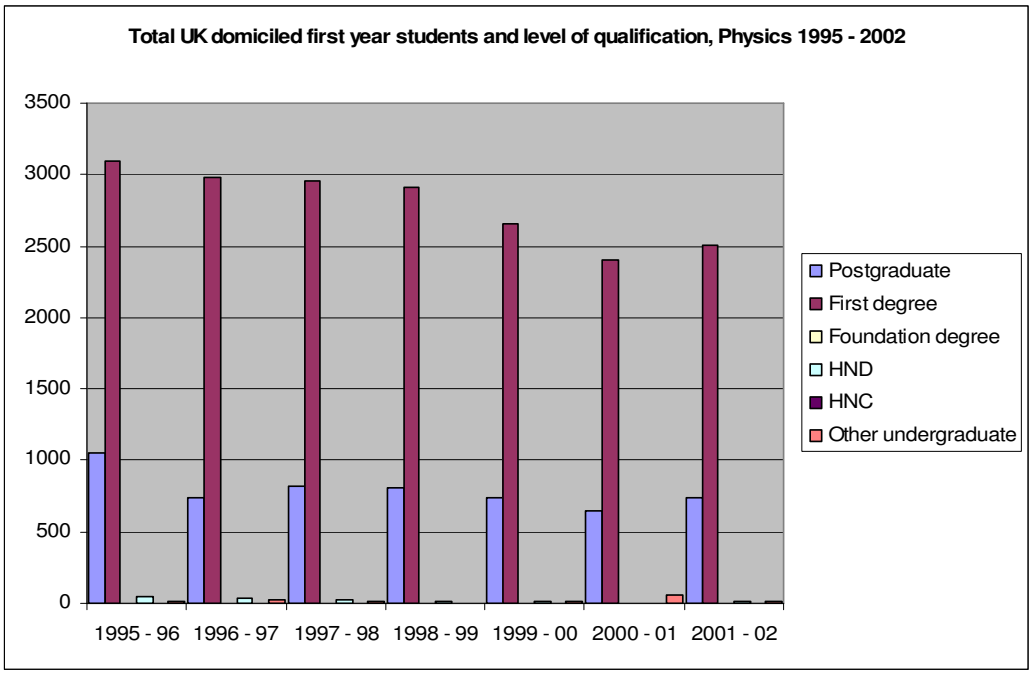


Table A11h: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	225	140	155	235	165	145	165
First degree	555	570	545	565	530	450	465
Foundation degree							
HND	5	5	5	0	0	0	0
HNC							
Other undergraduate	0	15	5	0	10	15	5

Table A11i: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	825	595	670	580	575	500	575
First degree	2540	2410	2415	2345	2130	1955	2045
Foundation degree							
HND	40	35	25	15	5	5	5
HNC							
Other undergraduate	10	10	10	0	5	45	5

Physics 2002 to 2005

Table A11j: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	785	795	740
First degree	2795	2755	3040
Foundation degree	25	5	5
HND	0	0	0
HNC	0	0	0
Other undergraduate	5	75	90

Figure A11d:

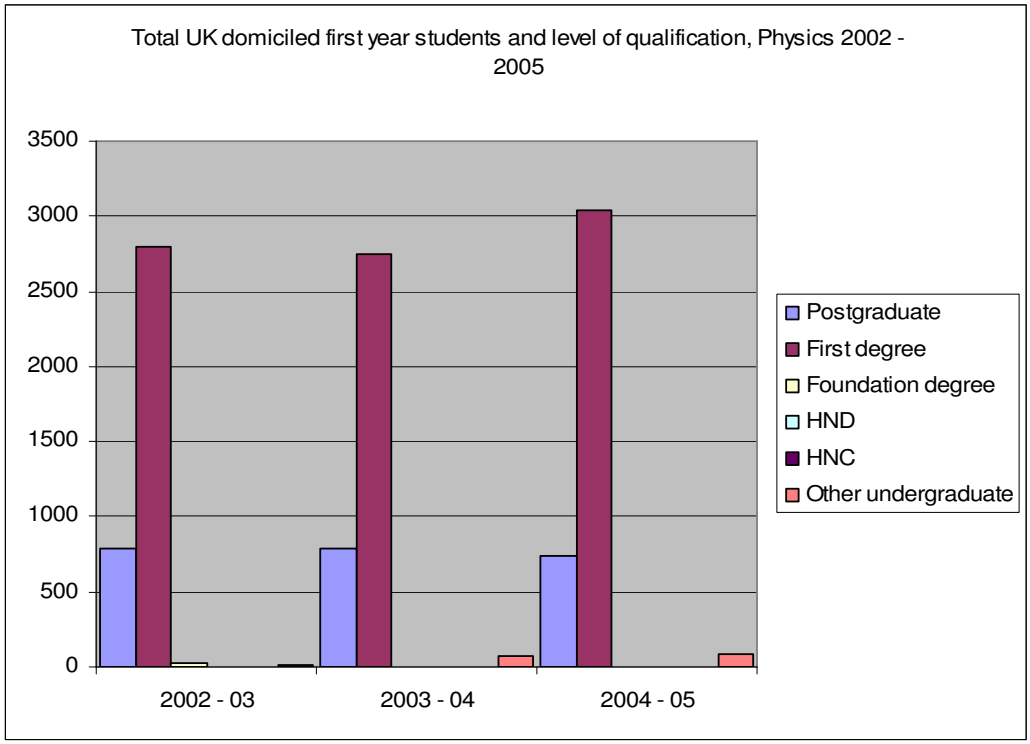


Table A11k: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	200	190	180
First degree	565	565	565
Foundation degree	5	0	0
HND			
HNC			
Other undergraduate	0	18	30

Table A11l: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	585	605	560
First degree	2230	2190	2480
Foundation degree	20	5	5
HND			
HNC			
Other undergraduate	5	60	60

Geology 1995 to 2002

Table A11m: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	575	450	485	490	455	420	380
First degree	1570	1375	1415	1405	1265	1240	1205
foundation degree	0	0	0	0	0	0	0
HND	30	25	25	15	5	0	15
HNC	0	0	10	5	10	15	5
Other undergraduate	160	285	185	105	310	290	265

Figure A11e

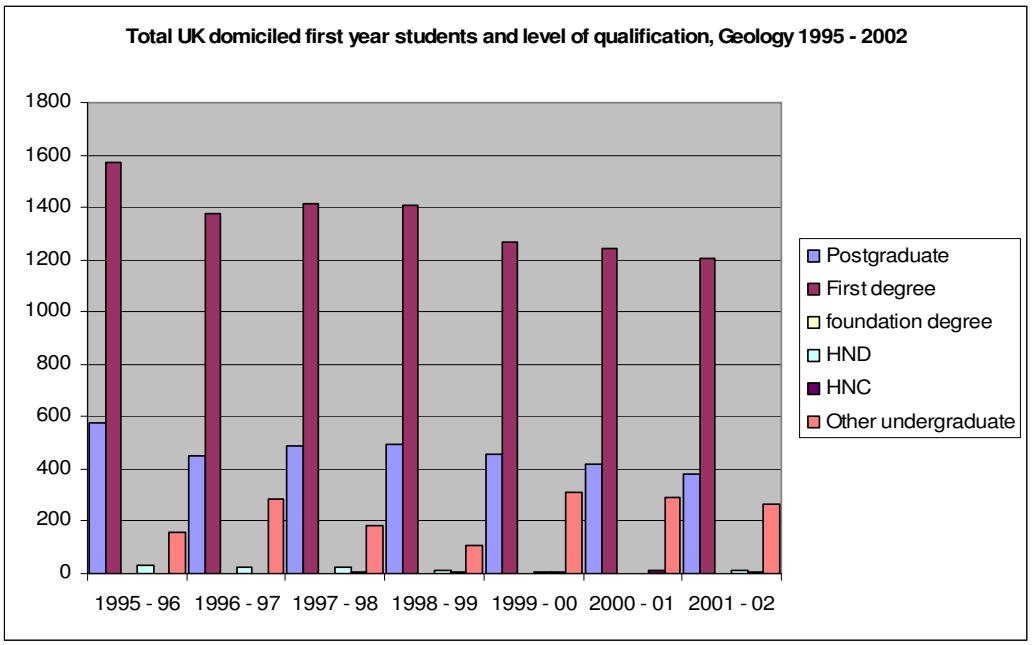


Table A11n: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	185	160	165	185	165	145	165
First degree	470	425	460	460	450	450	440
Foundation degree							
HND	5	5	0	0	0	0	5
HNC	0		5	0	5	5	0
Other undergraduate	90	170	105	65	165	180	125

Table A11o: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	395	290	325	305	295	275	220
First degree	1105	955	955	940	820	790	765
Foundation degree							
HND	25	20	20	15	5	0	10
HNC	0		5	5	5	5	5
Other undergraduate	70	115	80	40	150	110	135

Geology 2002 to 2005

Table A11p: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	440	425	410
First degree	1370	1580	1785
Foundation degree	0	0	0
HND	0	0	0
HNC	0	0	0
Other undergraduate	240	225	210

Figure A11f:

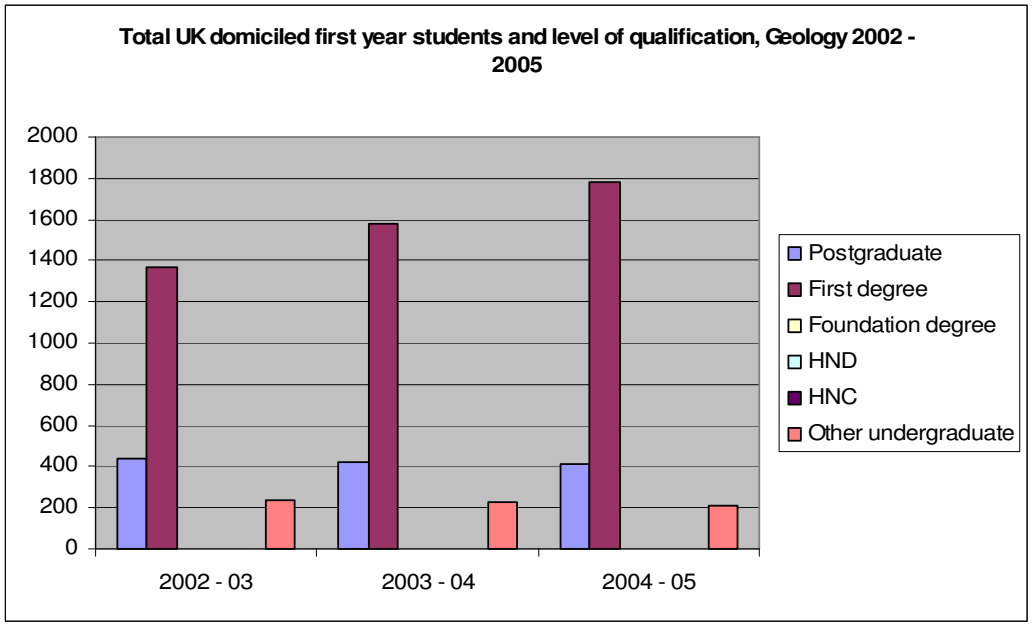


Table A11q: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	170	160	155
First degree	535	615	680
Foundation degree			
HND			
HNC			
Other undergraduate	120	115	100

Table A11r: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	270	265	255
First degree	840	965	1105
Foundation degree			
HND			
HNC			
Other undergraduate	120	110	115

Mechanical engineering 1995 to 2002

Table A11s: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	905	795	695	990	745	730	650
First degree	4530	4030	3880	4320	3910	3455	3430
foundation degree	0	0	0	0	0	0	40
HND	890	745	575	480	500	560	475
HNC	635	650	820	820	720	780	815
Other undergraduate	200	205	200	155	420	345	455

Figure A11g:

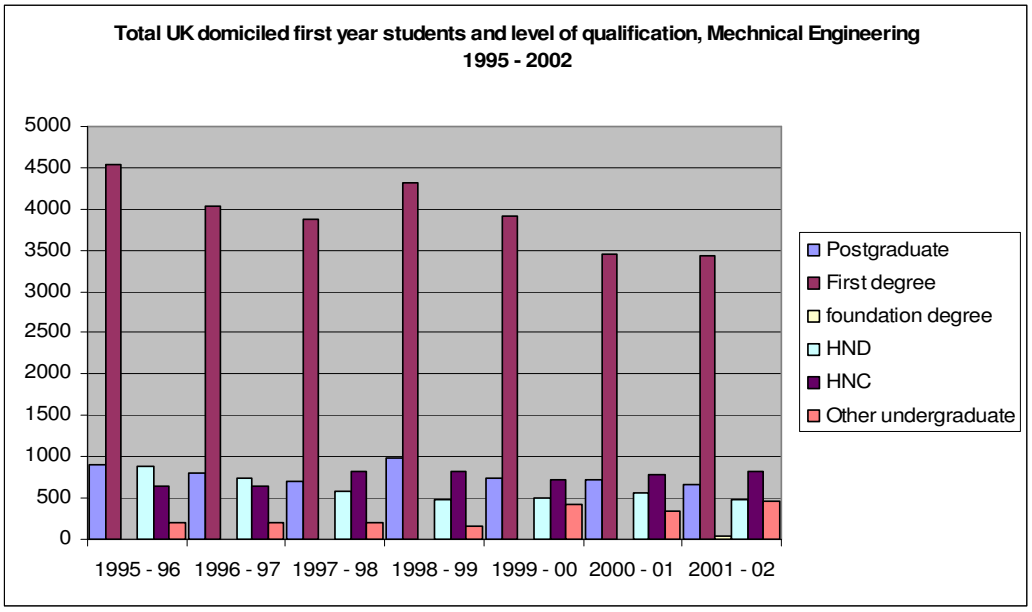


Table A11t: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	90	95	85	170	90	90	85
First degree	370	320	275	320	300	270	235
Foundation degree							5
HND	30	35	35	20	35	25	25
HNC	25	25	15	20	30	25	30
Other undergraduate	25	20	15	15	130	80	105

Table A11u: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	810	700	610	820	655	645	585
First degree	4160	3710	3605	4000	3615	3190	3190
Foundation degree							35
HND	860	705	540	460	465	540	455
HNC	610	625	800	800	690	750	785
Other undergraduate	180	185	185	140	290	265	350

Mechanical engineering 2002 to 2005

Table A11v: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	685	550	475
First degree	3540	3635	3730
Foundation degree	90	145	140
HND	505	300	325
HNC	625	520	505
Other undergraduate	30	70	70

Figure A11h:

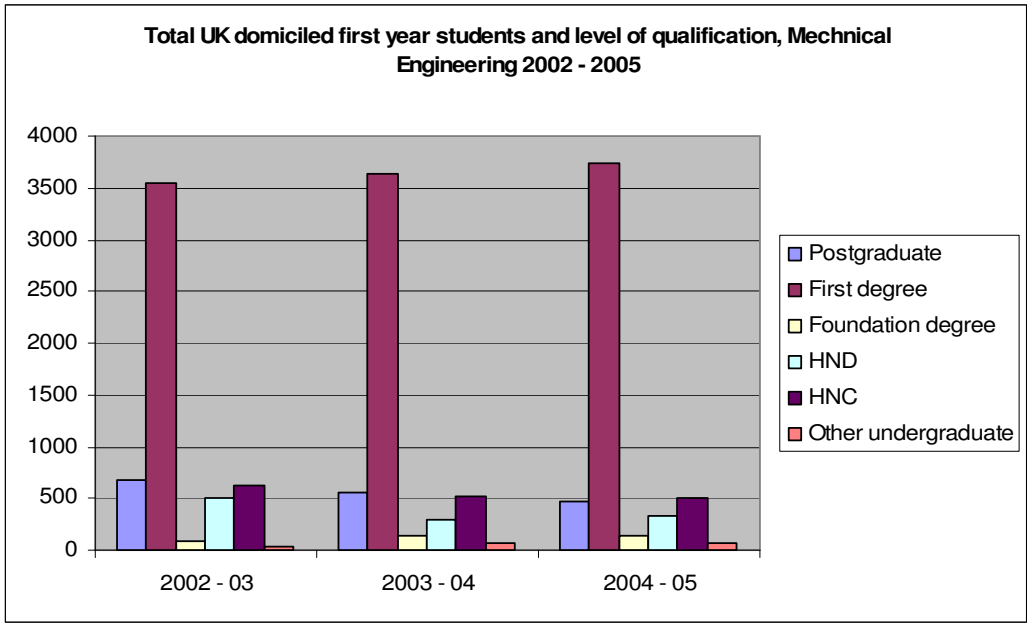


Table A11w: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	90	70	55
First degree	255	280	275
Foundation degree	10	5	5
HND	15	5	15
HNC	25	20	20
Other undergraduate	5	50	40

Table A11x: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	595	485	425
First degree	3285	3355	3455
Foundation degree	75	140	135
HND	490	295	310
HNC	605	500	485
Other undergraduate	25	20	30

Electrical engineering 1995 to 2002

Table A11y: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	415	305	315	320	260	225	315
First degree	1335	850	760	675	820	720	825
Foundation degree	0	0	0	0	0	0	30
HND	680	520	295	300	270	260	195
HNC	415	490	330	285	240	390	255
Other undergraduate	5	5	0	15	5	140	155

Figure A11i:

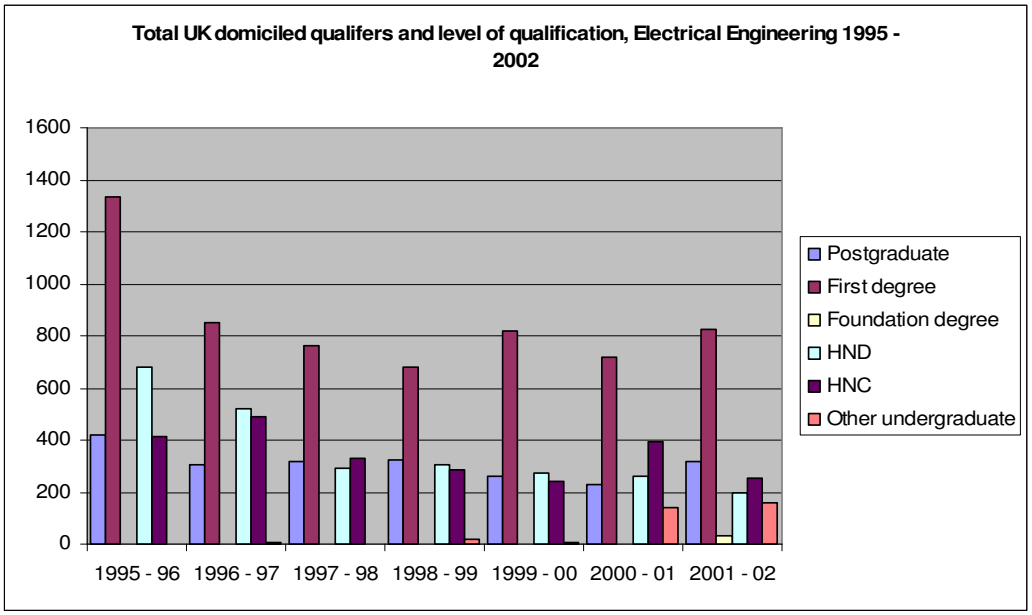


Table A11z: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	40	30	35	45	35	30	45
First degree	95	50	50	50	50	50	50
Foundation degree							0
HND	30	20	10	10	15	15	15
HNC	20	20	10	10	10	20	5
Other undergraduate	0	0	0	5	0	10	20

Table A11aa: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	375	275	280	275	225	200	270
First degree	1240	800	710	625	770	665	775
Foundation degree							30
HND	650	500	285	295	260	245	185
HNC	395	470	320	280	230	370	250
Other undergraduate	5	5	0	15	5	130	140

Electronic engineering 1995 to 2002

Table A11ab: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1420	1300	1175	1005	1030	1110	975
First degree	5045	4655	4435	4670	4940	5365	5885
Foundation degree	0	0	0	0	0	0	95
HND	760	545	510	575	695	655	610
HNC	415	350	390	430	445	470	560
Other undergraduate	395	255	340	245	180	190	285

Figure A11j:

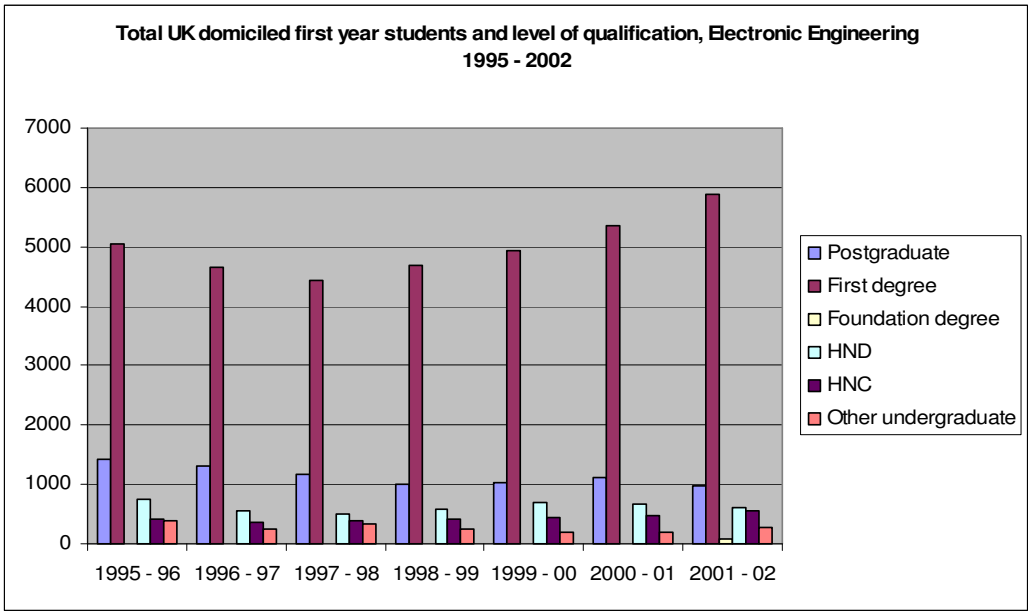


Table A11ac: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	155	165	145	120	185	190	145
First degree	385	330	390	400	510	565	645
Foundation degree							20
HND	45	30	50	70	80	70	45
HNC	15	15	20	30	25	20	30
Other undergraduate	35	20	25	25	15	10	25

Table A11ad: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1265	1140	1030	885	840	925	830
First degree	4665	4325	4045	4270	4430	4800	5240
Foundation degree							75
HND	715	510	460	505	615	590	565
HNC	400	335	370	395	425	445	530
Other undergraduate	365	235	315	215	170	180	260

Electronic and electrical engineering 2002 to 2005

Table A11ae: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	1250	1155	1025
First degree	6025	4795	4245
Foundation degree	175	100	210
HND	580	535	430
HNC	755	675	750
Other undergraduate	215	395	535

Figure A11k:

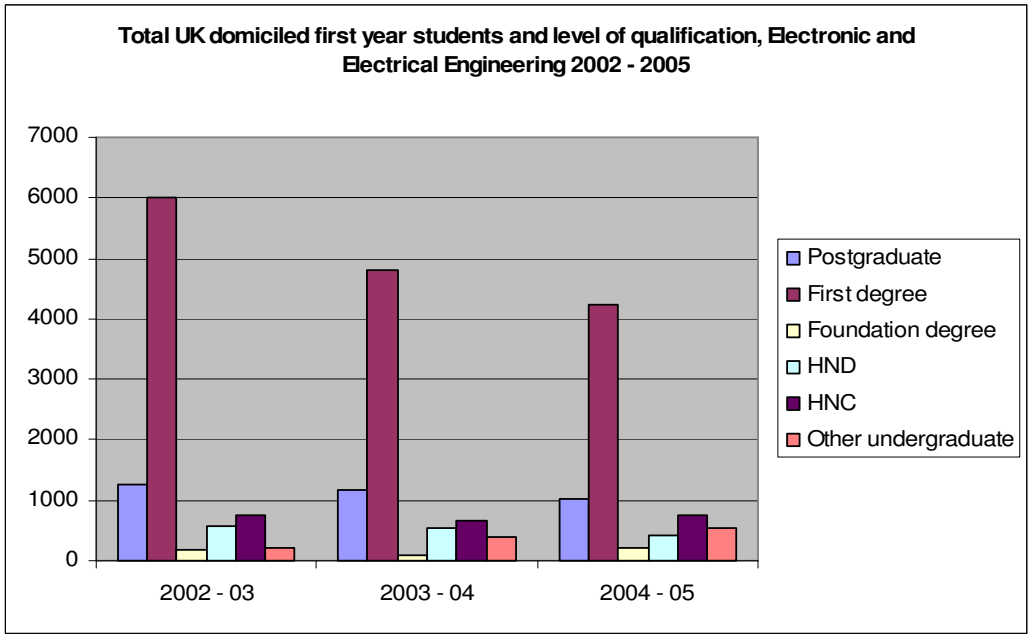


Table A11af: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	205	210	160
First degree	550	445	365
Foundation degree	25	15	30
HND	40	35	20
HNC	35	35	35
Other undergraduate	25	70	60

Table A11ag: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	1045	945	865
First degree	5475	4345	3880
Foundation degree	145	85	180
HND	535	500	410
HNC	720	640	715
Other undergraduate	190	330	480

Chemical engineering 1995 to 2002

Table A11ah: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	330	300	265	265	320	255	380
First degree	1090	915	985	890	835	685	640
Foundation degree	0	0	0	0	0	0	25
HND	25	15	45	20	15	10	5
HNC	15	5	5	40	20	20	10
Other undergraduate	25	10	30	20	10	10	10

Figure A11l:

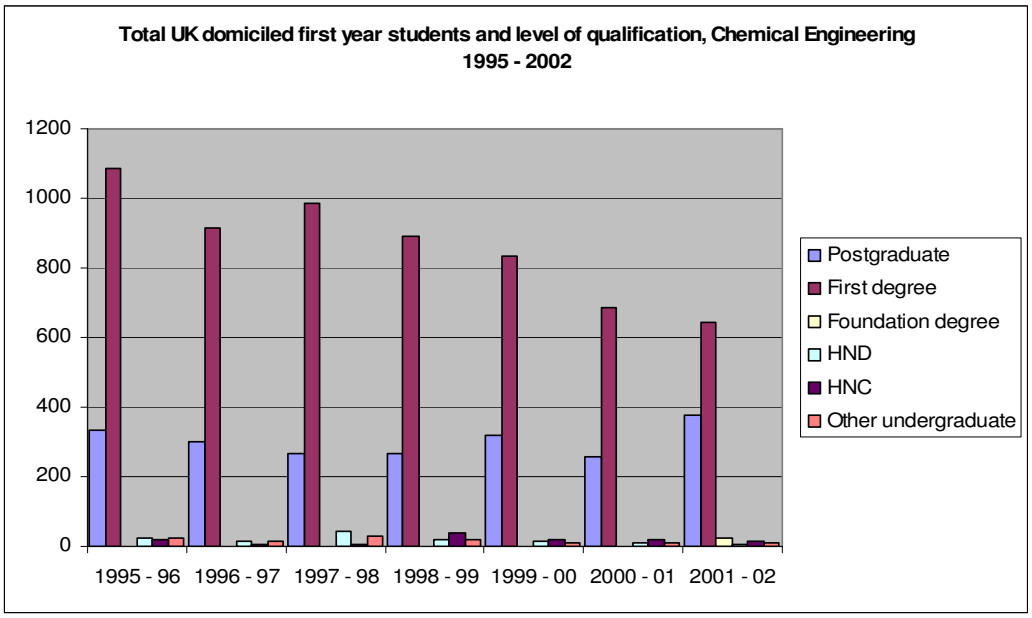


Table A11ai: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	85	85	75	70	95	75	110
First degree	250	210	210	215	185	160	160
Foundation degree							0
HND	0	5	5	5	5	0	0
HNC	5	0	0	0	0	0	0
Other undergraduate	5	5	0	0	5	0	0

Table A11aj: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	250	215	195	200	225	180	265
First degree	840	705	775	675	650	525	485
Foundation degree							25
HND	25	5	35	15	15	10	5
HNC	15	5	5	40	20	20	10
Other undergraduate	20	10	25	20	5	10	10

Chemical, process and energy engineering 2002 to 2005

Table A11ak: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	350	415	430
First degree	665	640	660
Foundation degree	10	20	15
HND	5	5	5
HNC	15	15	10
Other undergraduate	0	0	0

Figure A11m:

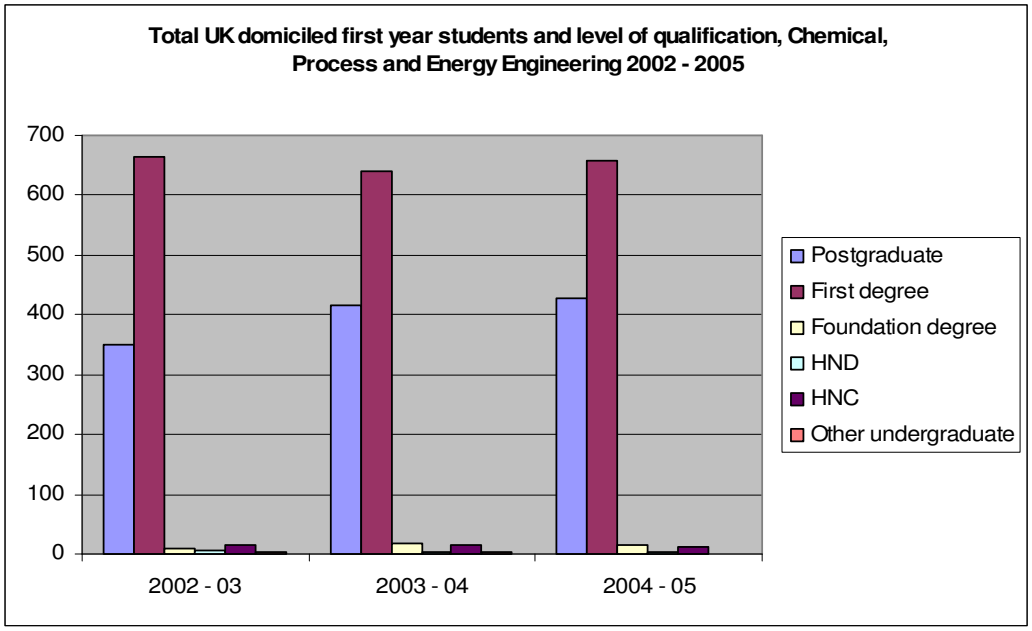


Table A11al: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	100	95	115
First degree	150	150	140
Foundation degree	0	0	0
HND	0	0	0
HNC	0	0	0
Other undergraduate	0	0	0

Table A11am: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	250	325	310
First degree	515	490	520
Foundation degree	10	20	15
HND	5	5	0
HNC	15	15	10
Other undergraduate	0	0	0

Polymers and textiles 1995 to 2002

Table A11an: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	130	155	115	150	145	120	120
First degree	1105	1035	820	800	700	770	730
Foundation degree	0	0	0	0	0	0	0
HND	370	200	235	165	185	205	150
HNC	110	100	85	60	45	65	25
Other undergraduate	20	70	80	70	50	65	75

Figure A11n:

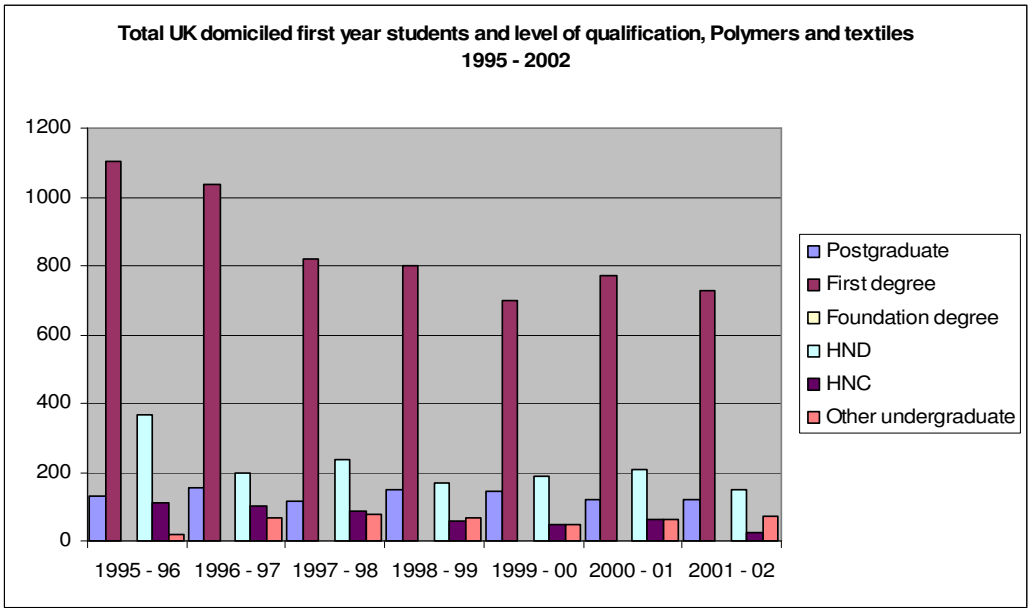


Figure A11ao: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	55	80	50	75	65	60	60
First degree	805	745	605	605	540	630	590
Foundation degree							
HND	255	115	120	85	105	135	90
HNC	30	25	20	15	5	5	5
Other undergraduate	5	20	20	20	15	25	25

Figure A11ap: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	75	80	65	75	80	60	60
First degree	300	290	215	190	160	140	140
Foundation degree							
HND	115	80	115	85	80	70	60
HNC	80	75	65	45	40	60	15
Other undergraduate	15	50	60	50	35	40	50

Polymers and textiles 2002 to 2005

Table A11aq: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	100	60	75
First degree	645	585	353
Foundation degree	0	5	5
HND	115	105	110
HNC	20	10	10
Other undergraduate	5	5	5

Figure A11o:

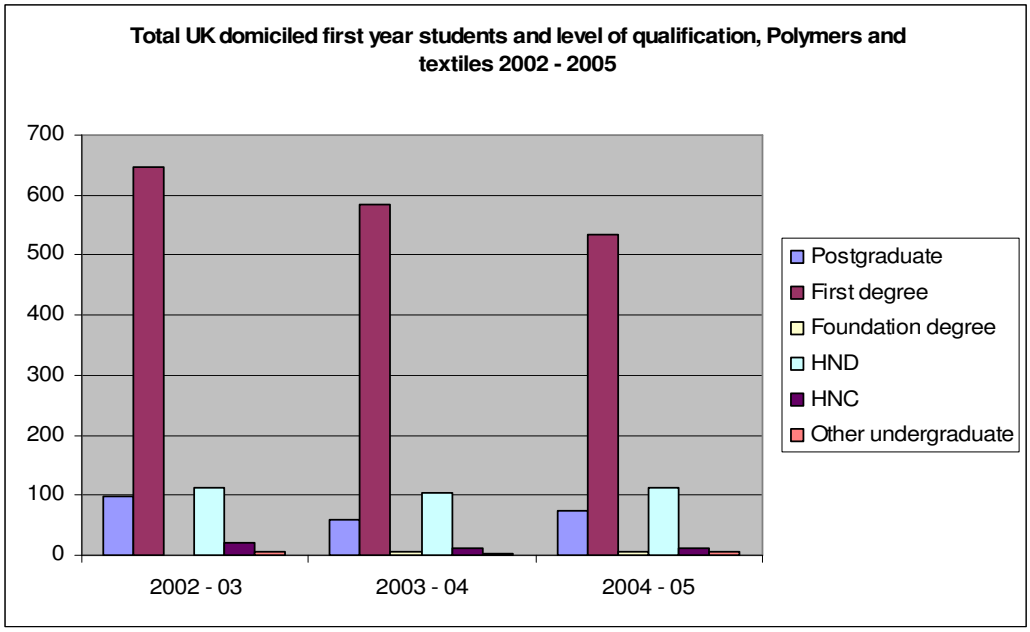


Table A11ar: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	55	40	45
First degree	560	510	490
Foundation degree		0	0
HND	85	85	90
HNC	5	0	0
Other undergraduate	0	0	5

Table A11as: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	40	20	25
First degree	85	75	45
Foundation degree		5	5
HND	30	20	20
HNC	15	10	10
Other undergraduate	5	5	0

Other materials technology 1995 to 2002

Table A11at: Total UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	255	320	270	260	195	205	195
First degree	510	430	410	390	300	215	255
foundation degree	0	0	0	0	0	0	0
HND	120	100	40	20	5	10	80
HNC	15	20	40	20	10	20	30
Other undergraduate	40	0	0	10	0	0	15

Figure A11p:

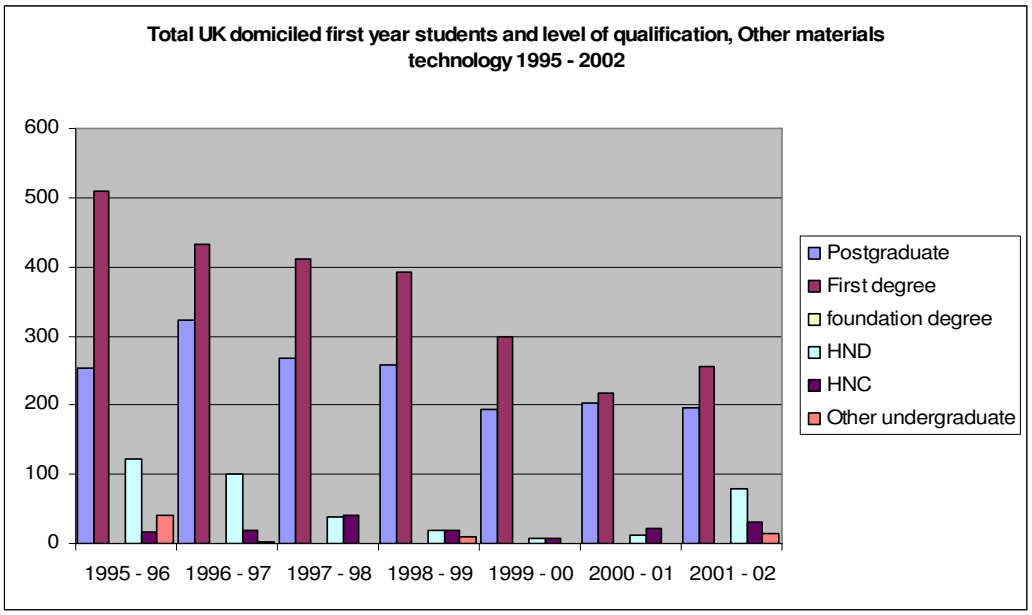


Table A11au: Total Female UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	60	115	95	95	40	75	65
First degree	120	90	80	95	90	55	75
Foundation degree							
HND	30	35	5	5	0	5	25
HNC	0	5	5	5	0	0	0
Other undergraduate	15	0	0	5			0

Table A11av: Total Male UK domiciled first year students by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	195	210	175	165	155	125	130
First degree	390	340	330	295	205	160	180
Foundation degree							
HND	95	65	30	15	5	10	55
HNC	15	15	35	15	5	20	30
Other undergraduate	25	0	0	5			15

Materials technology not otherwise specified 2002 to 2005

Table A11aw: Total UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 – 05
Postgraduate	195	225	225
First degree	395	385	380
Foundation degree	0	15	75
HND	40	45	45
HNC	15	15	15
Other undergraduate	35	10	25

Figure A11q:

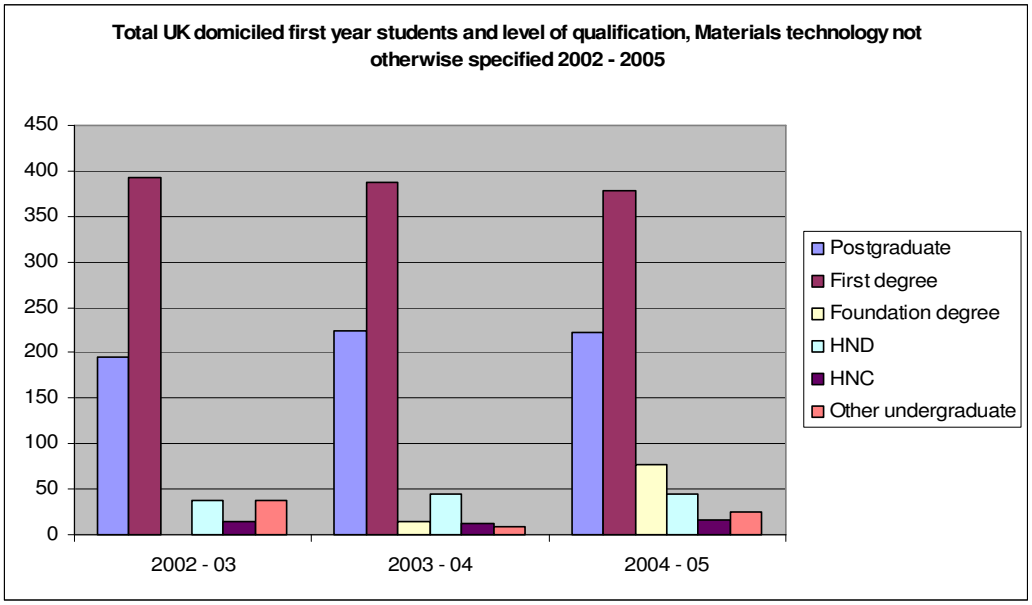


Table A11ax: Total Female UK domiciled first year students by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	70	85	80
First degree	120	110	130
Foundation degree		0	20
HND	5	10	10
HNC	0	0	0
Other undergraduate	10	0	5

Table A11ay: Total Male UK domiciled first year students by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	125	140	145
First degree	270	275	245
Foundation degree		15	55
HND	35	35	35
HNC	15	10	15
Other undergraduate	30	5	20

Appendix 12

UK domiciled qualifiers by subject classification
Source: HESA 25027 Item 2 – Qualifiers 1995 – 2005

Chemistry 1995 to 2002

Table A12a: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	1230	1230	1325	1220	1220	1100	990
First degree	3905	3550	3140	3425	3160	3075	2995
foundation degree	0	0	0	0	0	0	15
HND	170	125	100	55	70	70	70
HNC	235	200	160	205	160	135	125
Other undergraduate	130	120	110	135	100	70	85

Figure A12a:

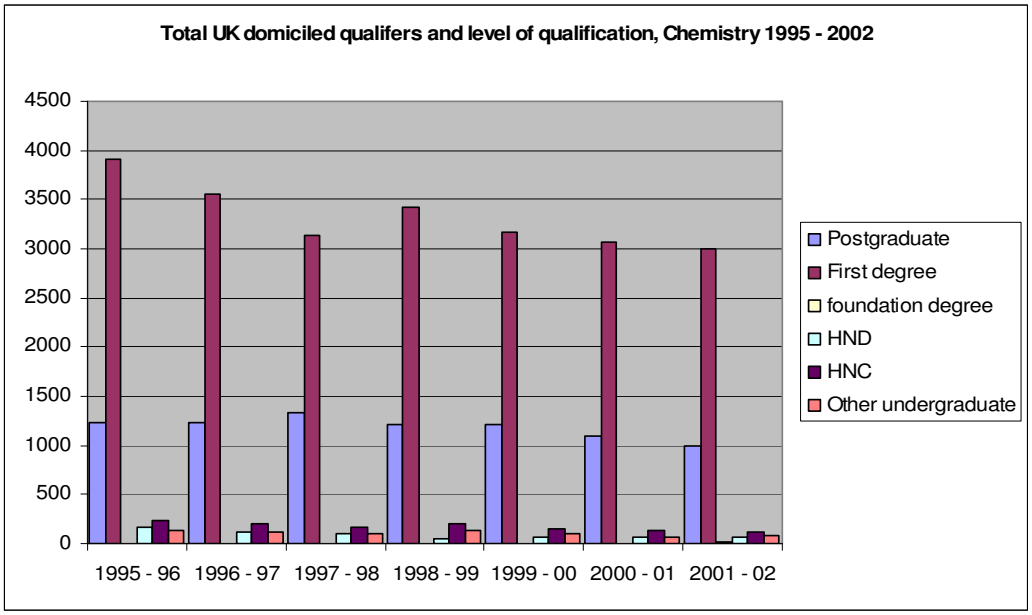


Table A12b: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	415	385	470	395	405	375	385
First degree	1440	1305	1240	1365	1235	1320	1235
Foundation degree							10
HND	60	50	45	15	25	30	30
HNC	90	90	75	105	80	50	55
Other undergraduate	55	50	40	55	30	25	25

Table A12c: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	815	845	855	825	815	730	600
First degree	2465	2245	1900	2060	1925	1755	1755
Foundation degree							5
HND	105	75	55	40	45	40	40
HNC	145	110	85	100	75	80	70
Other undergraduate	75	70	65	80	70	45	55

Chemistry 2002 to 2005

Table A12d: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	1020	1095	1005
First degree	2760	2550	2535
Foundation degree	15	30	35
HND	50	25	20
HNC	100	65	65
Other undergraduate	195	235	310

Figure A12b:

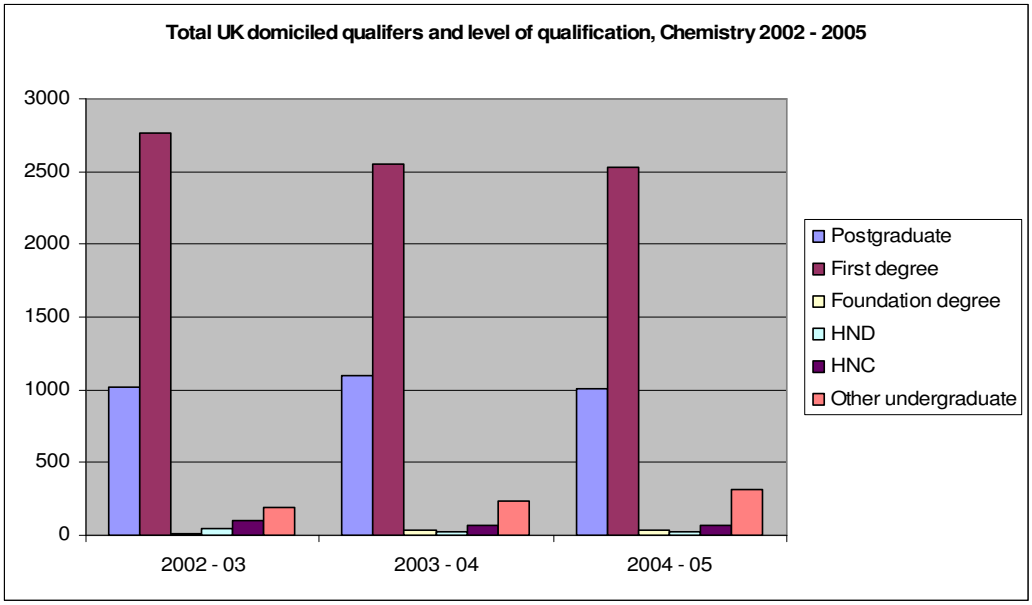


Table A12e: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	370	415	370
First degree	1240	1190	1210
Foundation degree	10	15	20
HND	25	10	10
HNC	40	30	35
Other undergraduate	75	105	175

Table A12f: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	650	685	635
First degree	1520	1360	1325
Foundation degree	5	15	15
HND	25	20	10
HNC	55	40	30
Other undergraduate	115	125	135

Physics 1995 to 2002

Table A12g: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	785	755	775	695	590	585	560
First degree	1800	2260	2105	2140	2130	2255	2070
foundation degree	0	0	0	0	0	0	5
HND	35	15	15	15	5	5	0
HNC	5	0	0	0	0	0	0
Other undergraduate	35	25	55	30	35	25	15

Figure A12c:

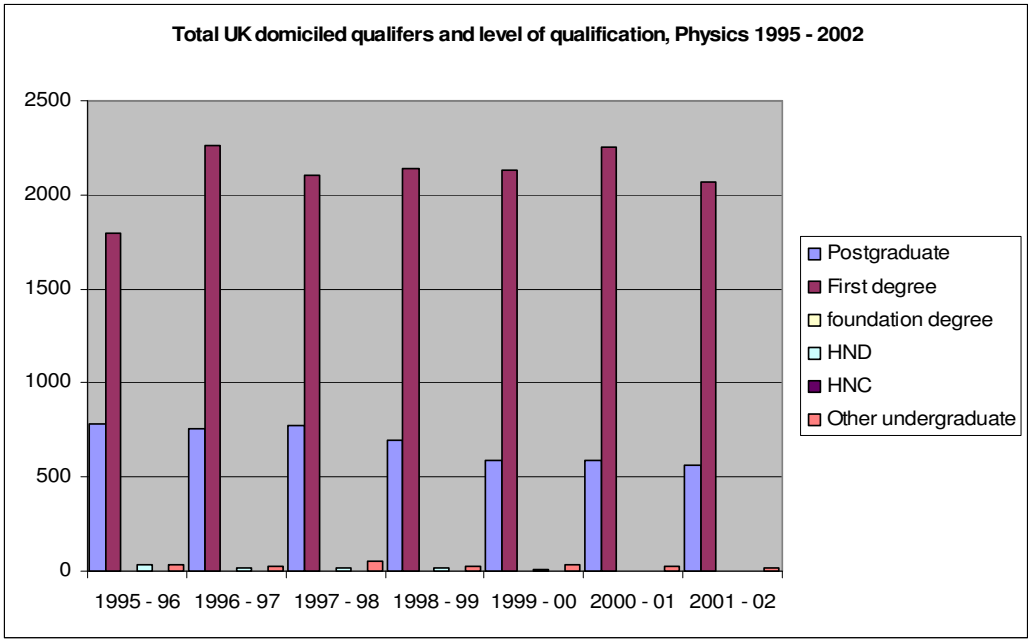


Table A12h: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	160	150	175	150	135	120	125
First degree	355	420	415	430	445	435	435
Foundation degree							0
HND	5	0	0	5	0	0	0
HNC	0						
Other undergraduate	5	0	15	0	10	5	10

Table A12i: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	630	600	600	545	460	470	435
First degree	1445	1840	1690	1705	1680	1820	1630
Foundation degree							5
HND	30	15	15	10	5	5	0
HNC	0						
Other undergraduate	30	20	40	25	30	20	10

Physics 2002 to 2005

Table A12j: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	625	610	610
First degree	2055	1995	2085
Foundation degree	5	0	0
HND	0	0	0
HNC	0	0	0
Other undergraduate	35	65	110

Figure A12d:

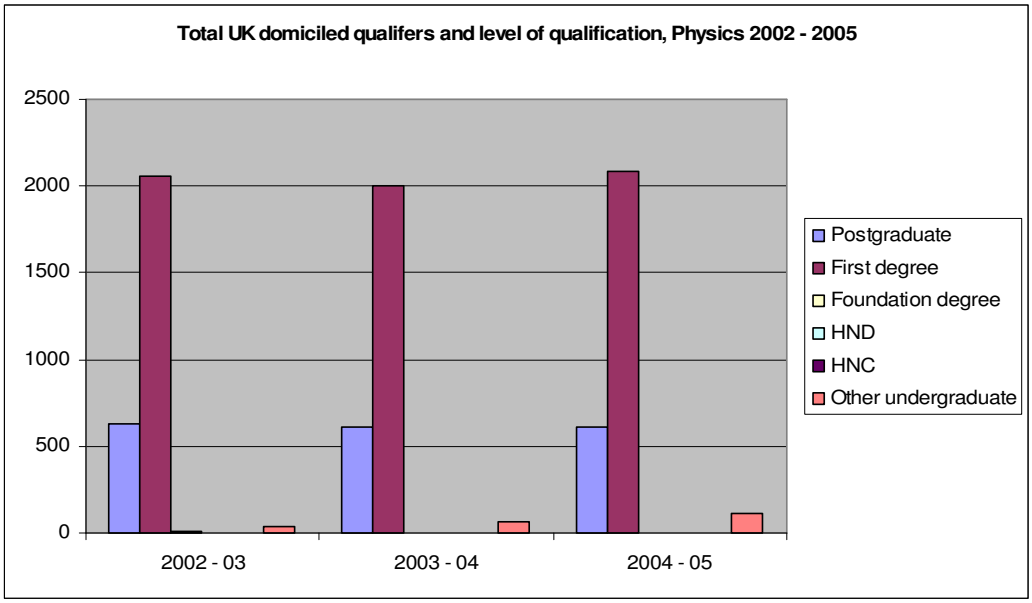


Table A12k: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	150	150	155
First degree	470	460	435
Foundation degree	0	0	
HND	0		
HNC			
Other undergraduate	10	10	20

Table A12l: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	480	460	455
First degree	1580	1535	1645
Foundation degree	5	0	
HND	0		
HNC			
Other undergraduate	30	55	90

Geology 1995 to 2002

Table A12m: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	440	405	430	405	400	400	385
First degree	1275	1310	1190	1095	1175	1115	1100
foundation degree	0	0	0	0	0	0	0
HND	15	40	20	10	5	5	0
HNC	0	0	0	0	5	5	10
Other undergraduate	15	20	60	25	30	10	40

Figure A12e:

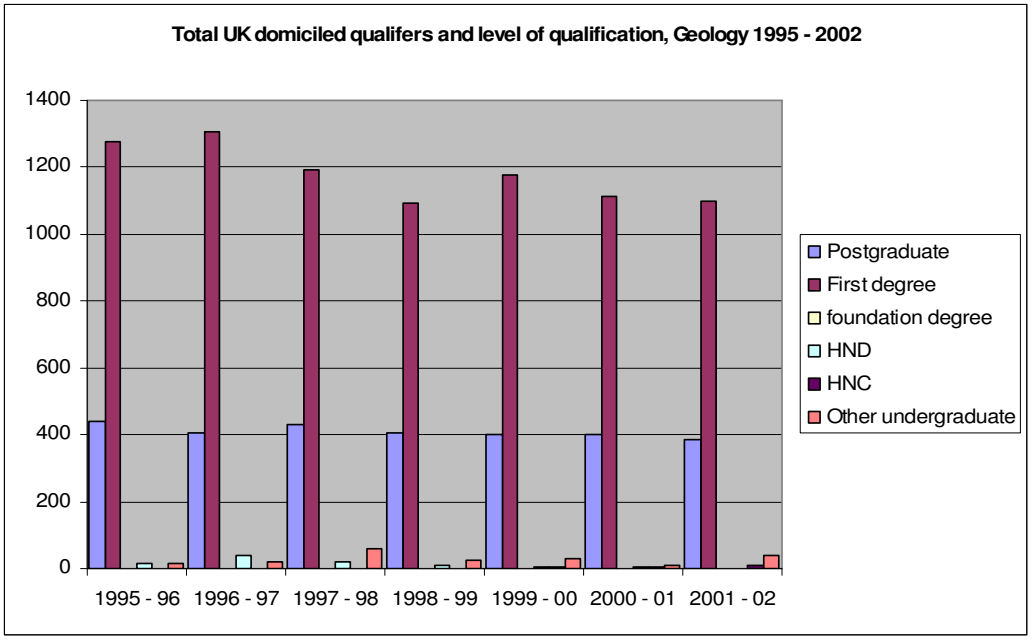


Table A12n: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	110	110	135	135	150	145	130
First degree	385	370	405	350	390	385	415
Foundation degree							
HND	0	10	5	0	0	0	0
HNC					0	5	5
Other undergraduate	5	5	15	10	10	5	20

Table A12o: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	330	295	295	270	250	255	255
First degree	892	935	790	745	790	730	685
Foundation degree							
HND	10	30	15	10	5	5	0
HNC					5	0	5
Other undergraduate	10	15	40	15	20	10	20

Geology 2002 to 2005

Table A12p: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	390	415	360
First degree	1135	1145	1125
Foundation degree	0	0	0
HND	0	0	0
HNC	0	0	0
Other undergraduate	30	61	90

Figure A12f:

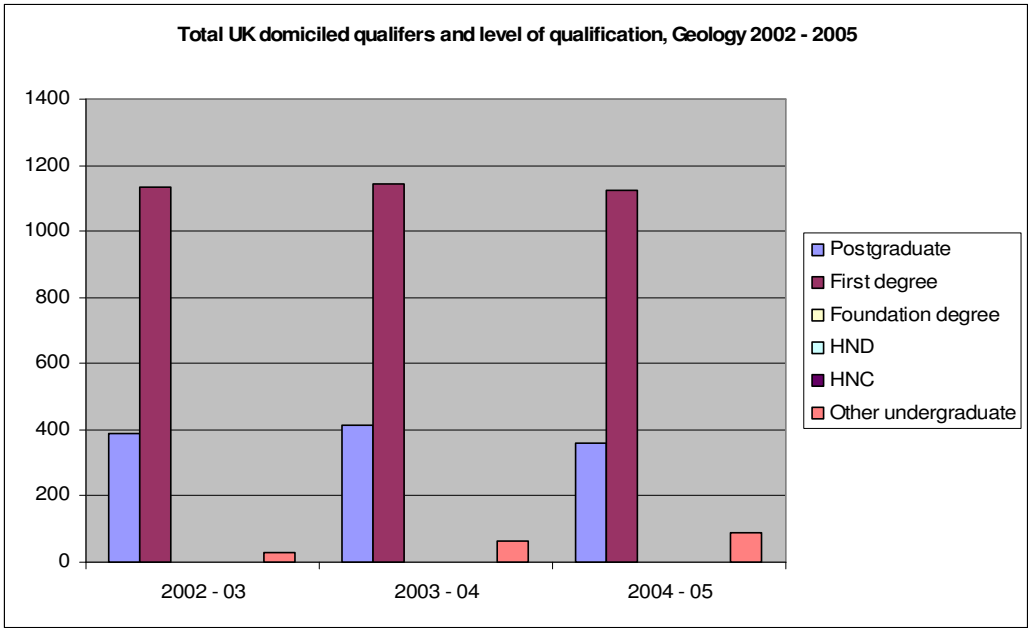


Table A12q: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	150	155	125
First degree	430	440	455
Foundation degree			
HND			
HNC			
Other undergraduate	10	30	45

Table A12r: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	240	260	235
First degree	700	705	670
Foundation degree			
HND			
HNC			
Other undergraduate	20	35	45

Mechanical engineering 1995 to 2002

Table A12s: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	440	510	520	525	490	540	415
First degree	2735	2595	2720	2530	2535	2675	2720
foundation degree	0	0	0	0	0	0	0
HND	435	375	380	325	265	305	330
HNC	330	235	320	380	440	485	405
Other undergraduate	65	50	105	45	50	50	90

FigureA12g:

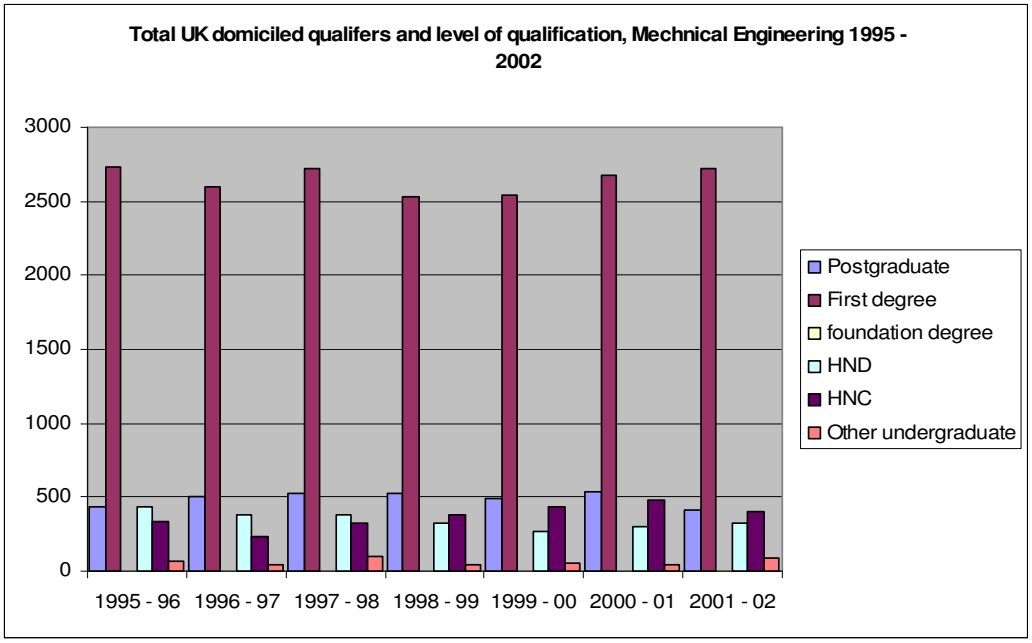


Table A12t: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	45	55	65	55	45	70	40
First degree	255	205	220	230	200	210	215
Foundation degree							
HND	20	20	15	25	5	15	10
HNC	15	10	10	10	10	10	15
Other undergraduate	5	5	5	5	0	5	5

Table A12u:Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	395	450	460	465	440	465	380
First degree	2480	2390	2500	2300	2335	2460	2505
Foundation degree							
HND	415	355	365	300	260	295	320
HNC	315	230	315	375	430	470	390
Other undergraduate	60	45	100	40	50	45	85

Mechanical engineering 2002 to 2005

Table A12v: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	455	435	425
First degree	2630	2640	2635
Foundation degree	25	5	30
HND	345	255	200
HNC	395	375	285
Other undergraduate	110	75	115

Figure A12h:

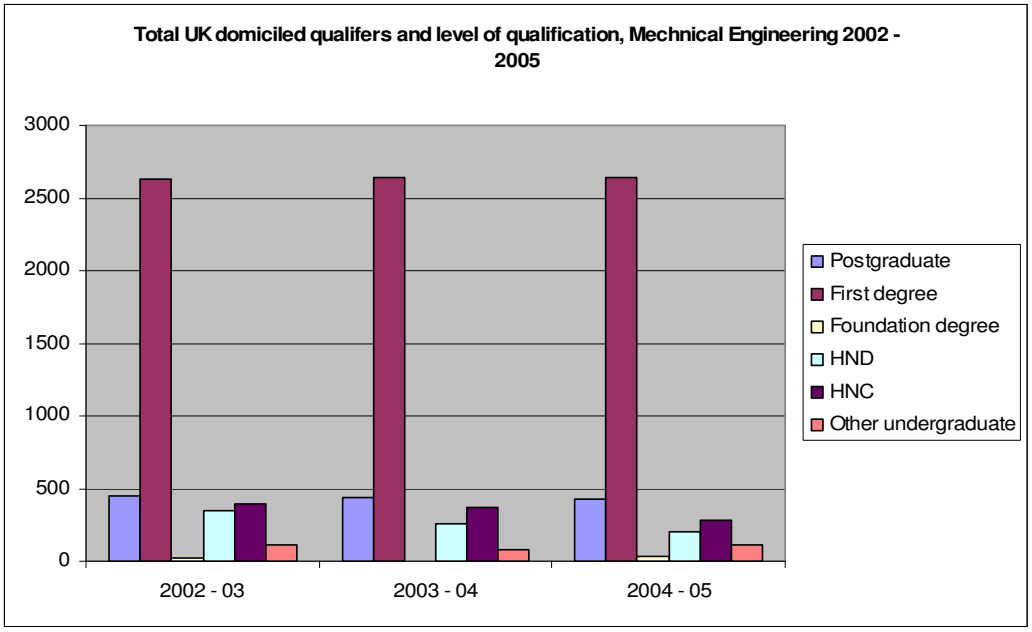


Table A12w: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	45	60	50
First degree	235	235	205
Foundation degree	5	0	0
HND	15	10	5
HNC	15	15	10
Other undergraduate	5	10	15

Table A12x: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	410	375	375
First degree	2395	2401	2430
Foundation degree	20	5	30
HND	325	245	195
HNC	385	365	275
Other undergraduate	105	65	95

Electrical engineering 1995 to 2002

Table A12y: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	235	245	270	265	200	205	190
First degree	815	565	600	580	590	640	630
foundation degree	0	0	0	0	0	0	0
HND	355	335	250	195	165	165	125
HNC	295	210	240	150	200	190	160
Other undergraduate	35	30	25	15	20	10	35

Figure A12i:

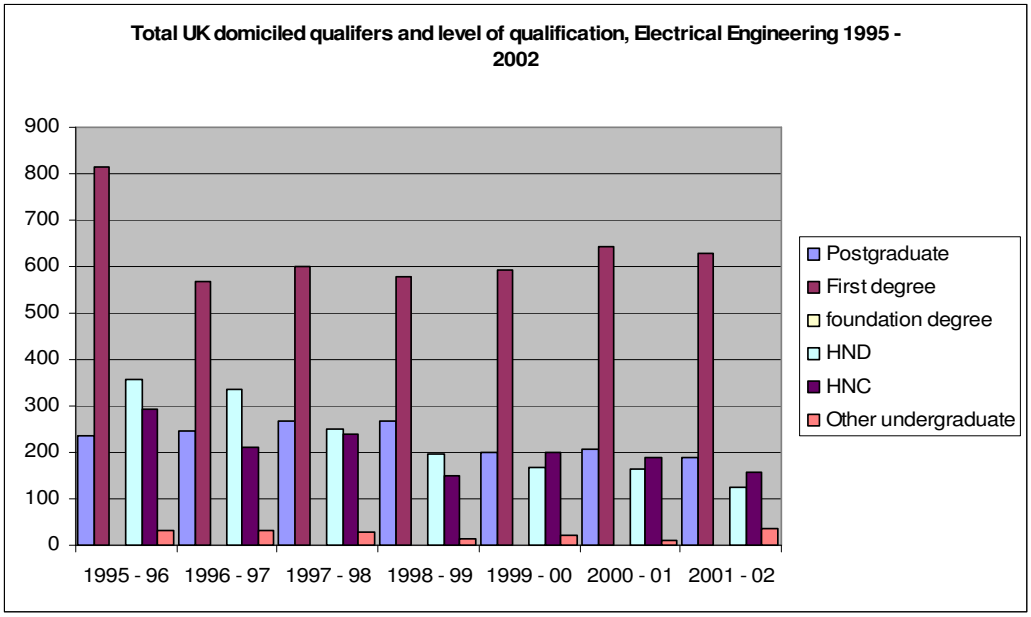


Table A12z: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	25	20	30	40	30	25	25
First degree	60	40	45	45	30	50	50
Foundation degree							
HND	15	20	10	5	5	10	10
HNC	10	10	10	5	5	5	10
Other undergraduate	0	5	5	0	0	0	0

Table A12aa: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	210	225	240	225	170	180	165
First degree	755	525	555	535	560	590	580
Foundation degree							
HND	345	320	235	190	165	155	115
HNC	285	205	230	145	195	185	145
Other undergraduate	30	30	25	15	20	10	35

Electronic engineering 1995 to 2002

Table A12ab: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	790	905	790	840	705	740	735
First degree	2980	2890	2785	2800	2690	2810	3095
foundation degree	0	0	0	0	0	0	0
HND	355	395	295	295	285	305	365
HNC	135	150	140	215	240	235	305
Other undergraduate	210	135	250	140	215	215	270

Figure A12j:

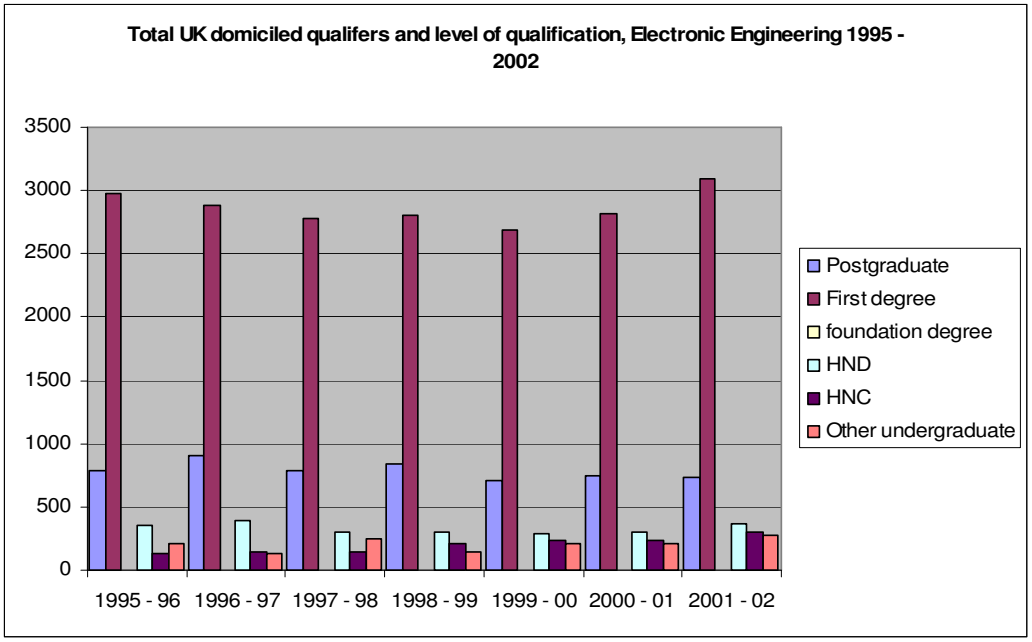


Table A12ac: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	90	110	100	135	140	110	130
First degree	225	235	220	220	215	250	330
Foundation degree							
HND	25	35	25	35	35	55	45
HNC	0	10	10	15	15	15	20
Other undergraduate	15	20	10	5	15	5	10

Table A12ad: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	705	795	685	705	565	635	605
First degree	2755	2655	2565	2580	2470	2565	2765
Foundation degree							
HND	330	360	270	260	255	250	320
HNC	135	140	135	200	225	220	285
Other undergraduate	195	120	245	135	200	215	260

Electronic and electrical engineering 2002 to 2005

Table A12ae: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	885	910	900
First degree	4095	3940	3565
Foundation degree	60	95	75
HND	365	345	305
HNC	465	425	445
Other undergraduate	415	330	400

Figure A12k:

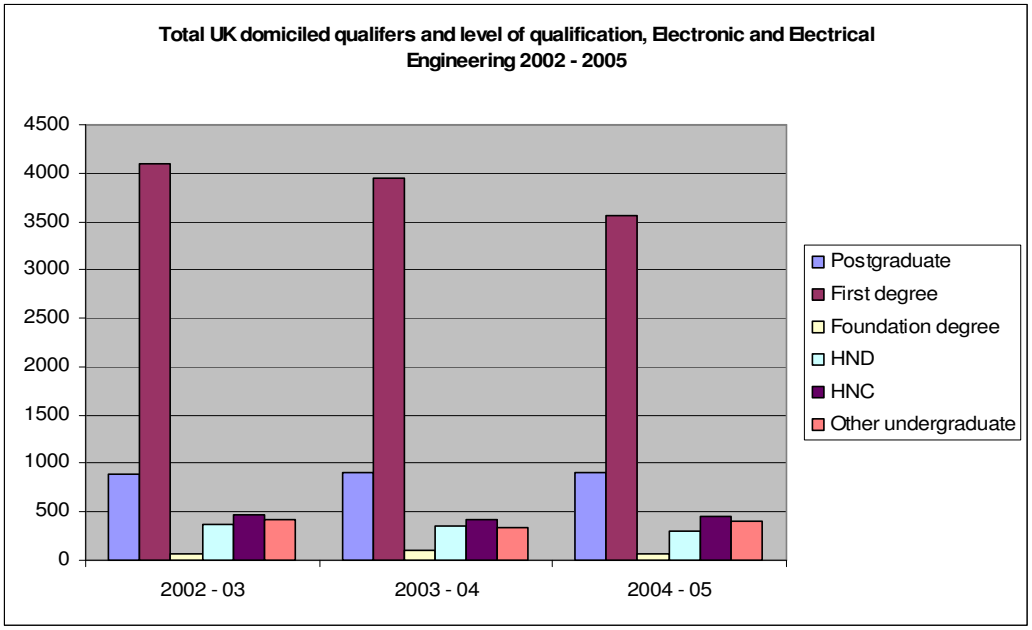


Table A12af: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	150	160	175
First degree	455	430	360
Foundation degree	15	25	20
HND	25	35	25
HNC	25	15	25
Other undergraduate	35	15	40

Table A12ag: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	735	750	730
First degree	3640	3510	3210
Foundation degree	50	75	55
HND	340	315	275
HNC	440	410	420
Other undergraduate	380	315	365

Chemical engineering 1995 to 2002

Table A12ah: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	225	260	255	265	240	280	205
First degree	950	900	845	805	760	795	715
foundation degree	0	0	0	0	0	0	0
HND	15	0	10	20	5	15	0
HNC	15	15	0	5	15	20	15
Other undergraduate	15	5	10	15	10	5	0

Figure A12l:

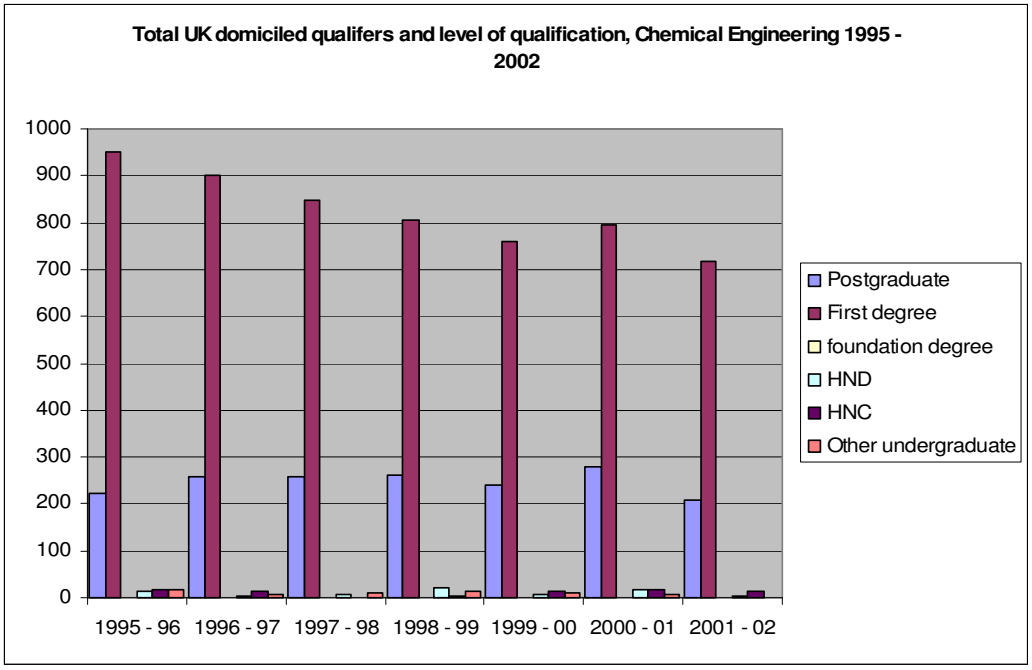


Table A12ai: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	50	65	70	75	65	85	50
First degree	215	195	175	190	180	195	185
Foundation degree							
HND	0	0	0	5	5	00	0
HNC	0	0		0	0	0	0
Other undergraduate	0	5	0	0	0	0	

Table A12aj: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	170	195	185	190	175	195	155
First degree	735	710	670	615	580	600	530
Foundation degree							
HND	10	0	5	20	5	15	0
HNC	15	10		5	15	20	15
Other undergraduate	15	5	10	15	10	5	

Chemical, process and energy engineering 2002 to 2005

Table A12ak: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	245	260	270
First degree	575	540	535
Foundation degree	0	10	10
HND	0	5	0
HNC	5	0	5
Other undergraduate	10	10	15

Figure A12m:

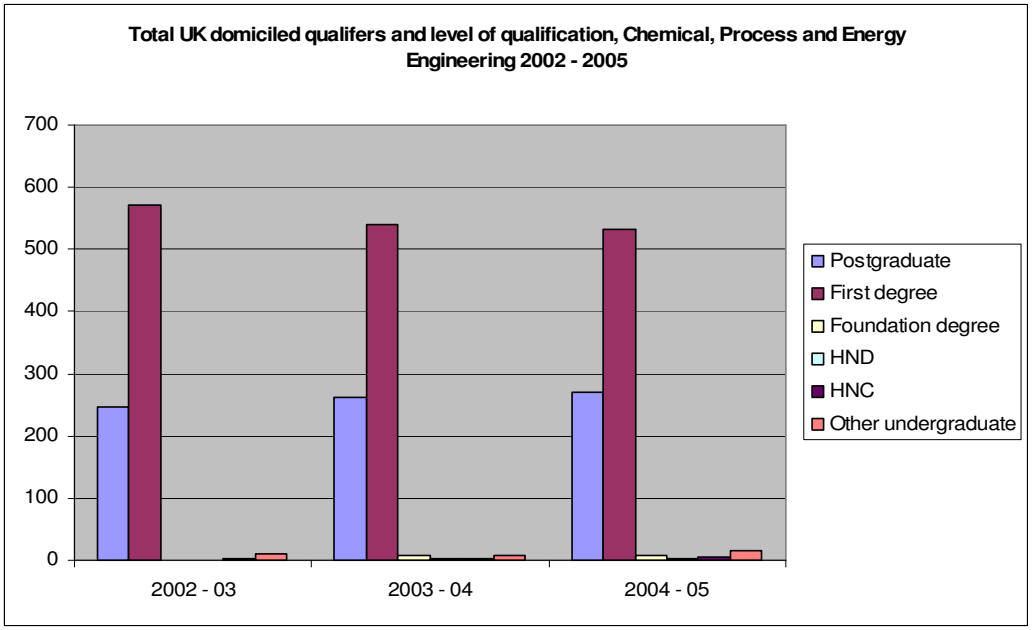


Table A12al: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	65	90	80
First degree	155	130	125
Foundation degree		0	0
HND	0	5	0
HNC	0	0	0
Other undergraduate	0	0	0

Table A12am:Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	180	175	185
First degree	420	410	405
Foundation degree		10	10
HND	0	0	0
HNC	5	0	5
Other undergraduate	5	5	15

Polymers and textiles 1995 to 2002

Table A12an: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	55	85	75	85	95	55	70
First degree	690	730	710	590	765	615	550
foundation degree	0	0	0	0	0	0	0
HND	265	220	165	145	135	165	100
HNC	50	85	45	40	30	50	35
Other undergraduate	30	20	35	15	35	30	25

Figure A12n:

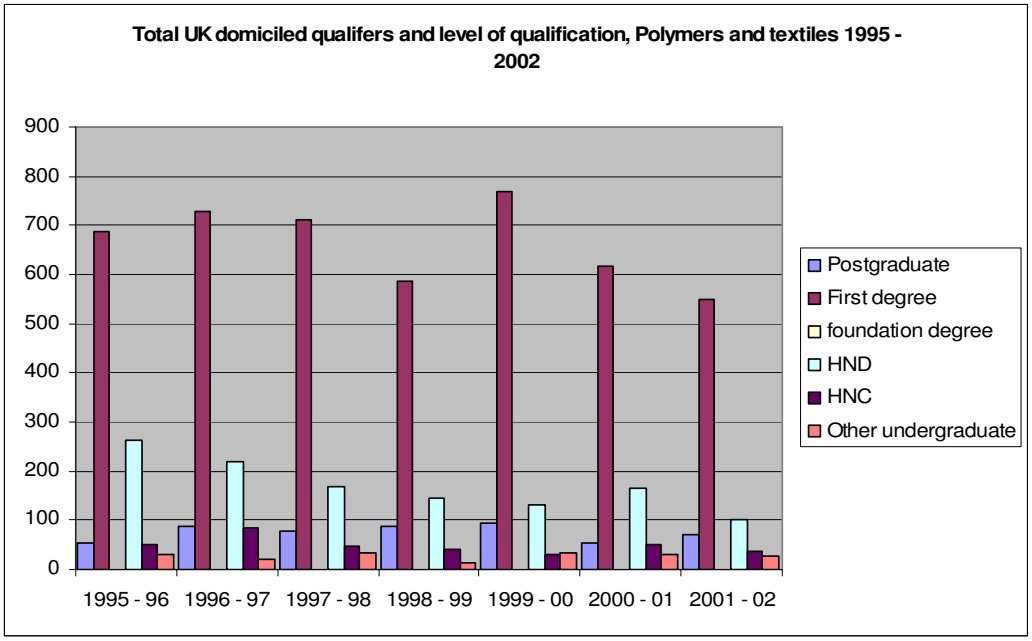


Table A12ao: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	25	50	30	40	65	20	30
First degree	505	510	525	435	625	465	420
Foundation degree							
HND	185	155	115	85	80	110	70
HNC	15	20	10	10	10	10	5
Other undergraduate	15	10	20	5	15	10	15

Table A12ap: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	30	35	45	50	30	35	40
First degree	180	220	190	155	145	150	130
Foundation degree							
HND	80	65	55	60	55	55	30
HNC	35	65	35	25	20	45	30
Other undergraduate	15	10	15	5	15	20	10

Polymers and textiles 2002 to 2005

Table A12aq: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	75	50	50
First degree	435	275	275
Foundation degree	0	0	0
HND	70	70	65
HNC	20	10	10
Other undergraduate	30	20	20

Figure A12o:

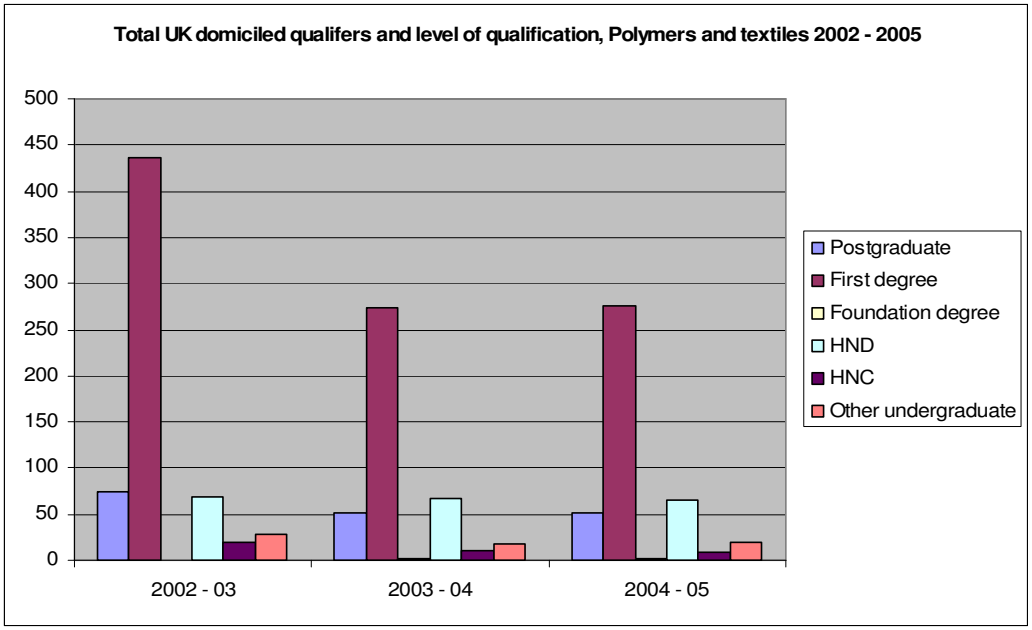


Table A12ar: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	45	20	25
First degree	370	230	230
Foundation degree		0	0
HND	45	60	55
HNC	5	0	0
Other undergraduate	20	10	15

Table A12as: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	30	30	25
First degree	65	45	45
Foundation degree		0	0
HND	25	10	10
HNC	15	10	10
Other undergraduate	10	5	5

Other materials technology 1995 to 2002

Table A12at: Total UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	165	270	225	205	155	165	130
First degree	400	360	305	315	315	290	325
foundation degree	0	0	0	0	0	0	0
HND	80	30	45	20	15	10	65
HNC	20	5	10	10	10	5	10
Other undergraduate	95	10	5	10	5	5	5

Figure A12p:

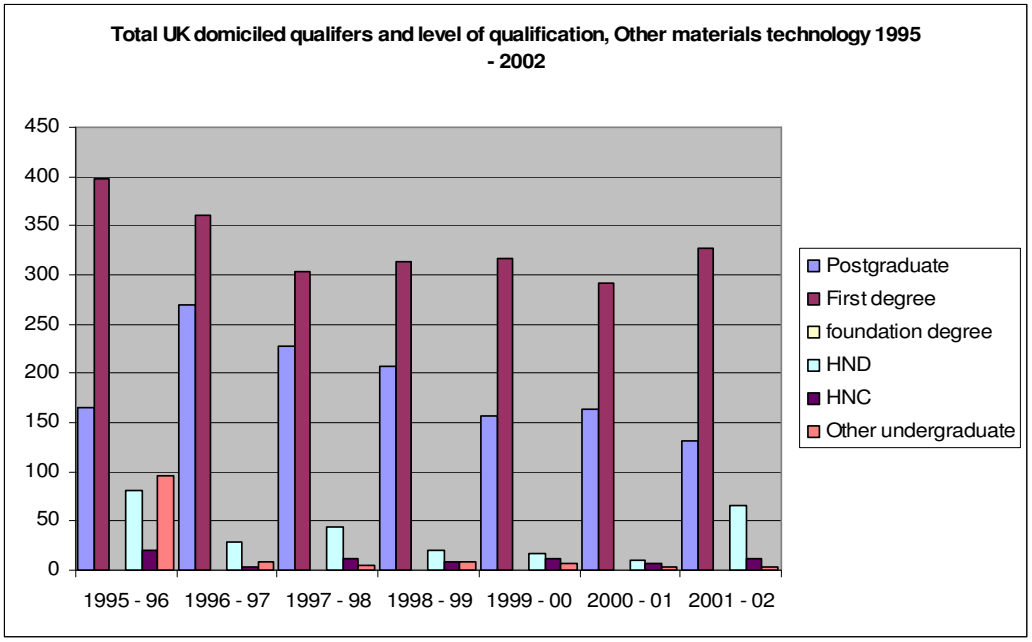


Table A12au: Total Female UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	55	105	70	80	50	45	45
First degree	110	70	60	55	65	80	110
Foundation degree							
HND	20	5	10	5	5	0	20
HNC	0	0	0	5	0	0	0
Other undergraduate	50	5	0	5	0	0	0

Table A12av: Total Male UK domiciled qualifiers by level of study 1995 – 2002

Level of qualification obtained	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 00	2000 - 01	2001 - 02
Postgraduate	110	165	155	125	105	115	85
First degree	290	290	240	260	250	215	220
Foundation degree							
HND	65	20	30	15	15	10	45
HNC	20	5	10	5	10	5	10
Other undergraduate	45	5	5	5	5	5	5

Materials technology not otherwise specified 2002 to 2005

Table A12aw: Total UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	190	150	150
First degree	365	400	365
Foundation degree	0	0	35
HND	60	20	30
HNC	5	20	10
Other undergraduate	20	45	45

Figure A12q:

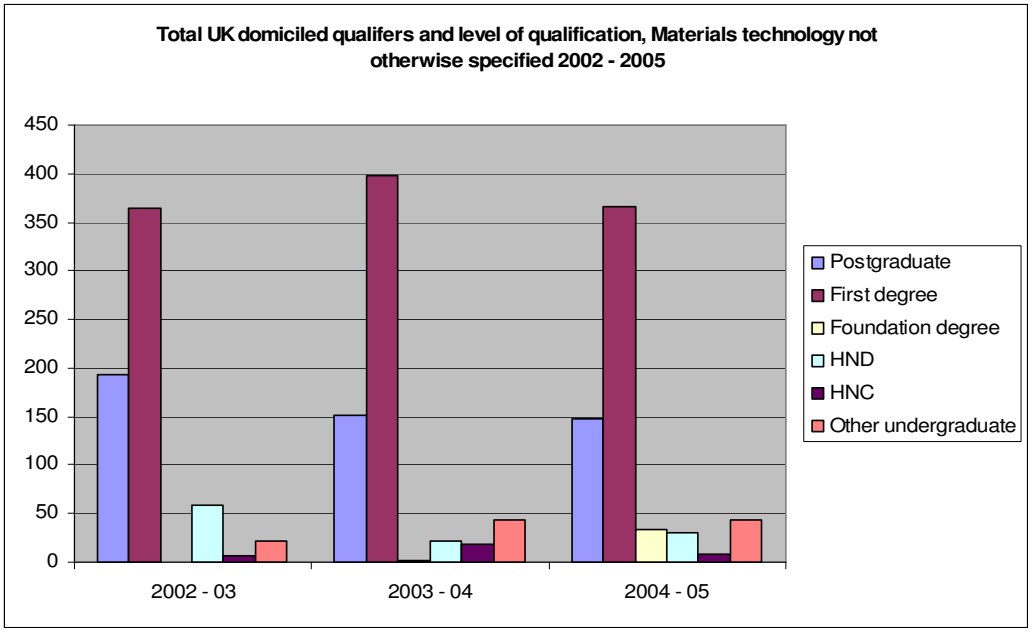


Table A12ax: Total Female UK domiciled qualifiers by level of study 2002 – 2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	55	50	45
First degree	130	140	120
Foundation degree		0	5
HND	15	5	5
HNC	0	0	0
Other undergraduate	5	15	15

Table A12ay: Total Male UK domiciled qualifiers by level of study 2002 -2005

Level of qualification obtained	2002 - 03	2003 - 04	2004 - 05
Postgraduate	55	50	45
First degree	130	140	120
Foundation degree		0	5
HND	15	5	5
HNC	0	0	0
Other undergraduate	5	15	15

Appendix 13

Destinations of HE level leavers – gender breakdown
Source: HESA 25027 Item 3 – Destinations 2003/2004

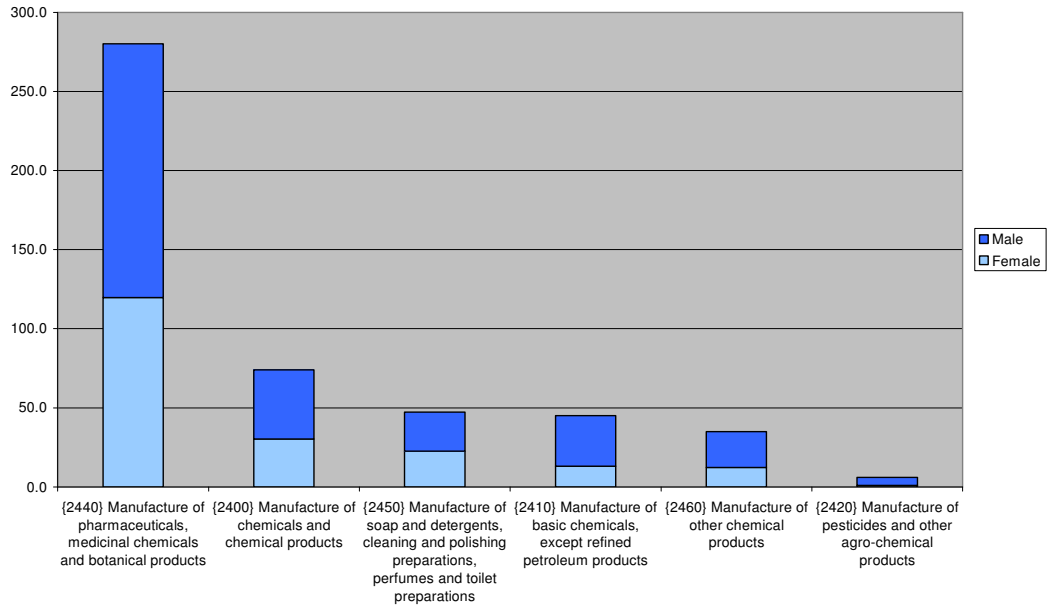
Gender splits

Chemicals

Table A13a: Gender splits by destination - Chemicals

Standard Industrial Classification	Female	Male	Total
(2440) Manufacture of pharmaceuticals, medicinal chemicals and botanical products	120	160	280
(2400) Manufacture of chemicals and chemical products	30	45	75
(2450) Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	25	25	45
(2410) Manufacture of basic chemicals, except refined petroleum products	15	30	45
(2460) Manufacture of other chemical products	15	25	35
(2420) Manufacture of pesticides and other agro-chemical products	0	5	5
Total	**205**	**290**	**485**

Figure A13a: Gender splits by destination - Chemicals

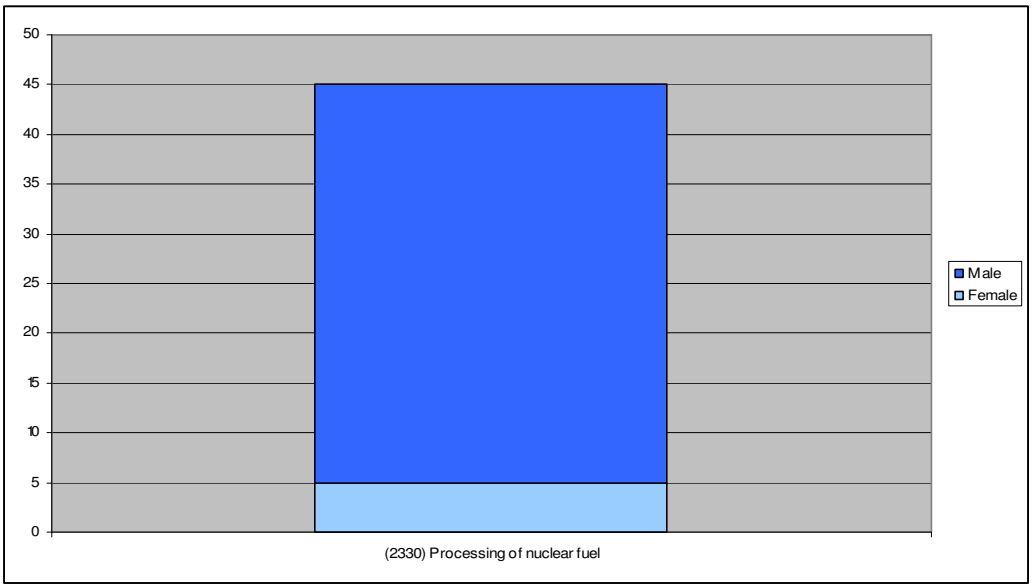


Nuclear

Table A13c: Gender splits by destination - Nuclear

Standard Industrial Classification	Female	Male	Total
(2330) Processing of nuclear fuel	5	40	45
(2300) Manufacture of coke, refined petroleum products and nuclear fuel	0	0.0	0
Total	**5.0**	**40**	**45**

Figure A13c: Gender splits by destination - Nuclear

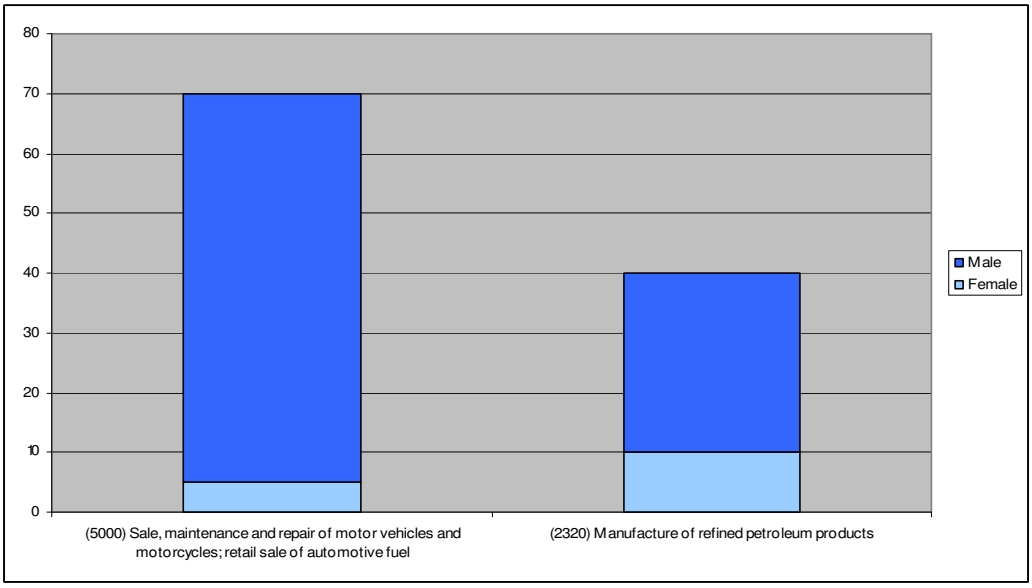


Petroleum

Table A13d: Gender splits by destination - Petroleum

Standard Industrial Classification	Female	Male	Total
(5000) Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	5	65	70
(2320) Manufacture of refined petroleum products	10	30	40
(2300) Manufacture of coke, refined petroleum products and nuclear fuel	0	0.0	0
(2310) Manufacture of coke oven products	0.0	0	0
Total	**15**	**95**	**110**

Figure A13e: Gender splits by destination - Petroleum

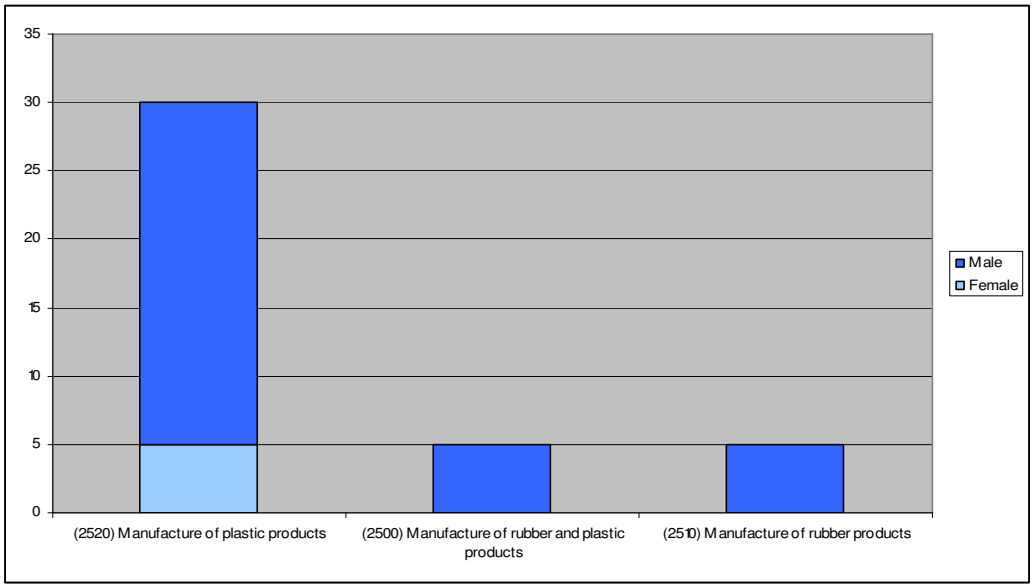


Polymers

Table A13e: Gender splits by destination - Polymers

Standard Industrial Classification	Female	Male	Total
(2520) Manufacture of plastic products	5	25	30
(2500) Manufacture of rubber and plastic products	0	5	5
(2510) Manufacture of rubber products	0	5	5
Total	5	35	40

Figure A13e: Gender splits by destination - Polymers



Appendix 14

Full Listing of CoVEs

Table A14a: Full listing of CoVEs with relevance to the Cogent sector

Region	Lead Provider	Title of CoVE	SSC
NW	Alliance Learning	Engineering Fabrication/Welding	SEMTA
SE	Aylesbury Training Group	Engineering Practice & Productivity	SEMTA
SE	Aylesbury Training Group	Cycle Engineering	SEMTA
NW	BAE Systems Marine Ltd (Barrow in Furness)	Marine Engineering	SEMTA
NW	BAE Systems PLC	Aeronautical Engineering	SEMTA
GL	Barking College	Centre for Engineering & Manufacturing Excellence	SEMTA
SE	Brooklands College	Core Engineering	SEMTA
SW	Brunel Training Group Ltd	Brunel Training Group Advanced Engineering CoVE	SEMTA/Summitskills/ Proskills/Euskills
WM	Burton College	Advanced Manufacturing	SEMTA/Cogent
SE	Central Sussex College	Instrumentation, Automation & Control	SEMTA
SE	City College Brighton & Hove	Heritage Restoration & conservation Engineering	SEMTA
SE	City College Southampton	Marine Industry	SEMTA/Cogent
SW	City of Bristol College	Aeronautical Engineering	SEMTA
SW	Cornwall College	Marine Engineering & Technology	SEMTA
YH	Derwent Training Association	North Yorkshire Advanced Engineering Technology Training Partnership	SEMTA
WM	Dudley College of Technology	Black County Centre for Advanced Technology	SEMTA
EE	EAGIT (Engineering) Ltd	Engineering	SEMTA
SE	East Berksire College	Motor Trade Skills for Industry	SEMTA
NW	GEN II Engineering & Technology Training Ltd	Nuclear Engineering & Technology	Cogent
SW	Gloucestershire College of Arts & Technology	Advanced Engineering	SEMTA
EM	Grantham College	Multi Skilling & Maintenance	SEMTA
NE	Hartlepool College of Further Education	Technical & Design Engineering	SEMTA
WM	Herefordshire Group Training Association Ltd	Engineering Design, Manufacture & Maintenance Learning Centre	SEMTA

Region	Lead Provider	Title of CoVE	SSC
SE	IPS International Limited	Advanced Maintenance Engineering	SEMTA
YH	Keighley College	Fabrication & Welding	SEMTA
NW	Laird Foundation	Marine Engineering	SEMTA
EE	Lowestoft College	Compact (Offshore Engineering)	SEMTA
NW	Macclesfield College	European Centre for Aerospace Training	SEMTA
WM	Midland Group Training Services Ltd	Multi-skilled Management of Electrical Systems	SEMTA
NE	NETA Training	Engineering Construction	SEMTA
NE	New College Durham	Multi Skilled Systems Maintenance Engineering	SEMTA
NE	Newcastle College	Aerospace & Allied Engineering Technologies	SEMTA
WM	Newcastle under Lyme College	Electrical/Electronic Engineering	SEMTA
SW	North Devon College	Manufacturing & Manufacturing Support Services	SEMTA
EM	North Nottinghamshire College	Fluid Power Technology	SEMTA
EM	North Nottinghamshire College	Airport Operations & Aircraft Engineering	SEMTA
NW	North Trafford College of FE	Manufacturing - Chemicals	SEMTA/Cogent
SE	Northbrook College Sussex	Skill Air Engineering	SEMTA
EE	Peterborough Regional College	Manufacturing skills, operations & development.	SEMTA
SW	Plymouth College of Further Education	High Technology Engineering	SEMTA
WM	Polymer Training Ltd	Polymer Centre	Cogent
NE	Redcar & Cleveland College	Specialised Engineering for the Process & Manufacturing Industries	SEMTA
EM	Rolls-Royce PLC - Derby College	Lean Engineering Manufacture	SEMTA
YH	Rotherham College of Arts & Technology	Manufacturing, Materials & Engineering in South Yorkshire	SEMTA
EE	Sentra Training Services Ltd	Engineering Manufacture, Production & Maintenance	SEMTA
NE	South Tyneside College	National Nautical Centre of Excellence	SEMTA
WM	Sutton Coldfield College	Integrated manufacturing Technology	SEMTA
SW	Swindon College	Automotive Manufacturing/Engineering	SEMTA
NW	Tameside College	Engineering	SEMTA
WM	Telford College of Arts & Technology	Engineering & Maintenance Skills for Manufacturing Process Industries	SEMTA
NW	Training 2000 Ltd	Engineering Manufacture & Maintenance	SEMTA

Region	Lead Provider	Title of CoVE	SSC
EM	Tresham Institute of Further & Higher Education	Motorsport & Performance Engineering	SEMTA
NE	Tyne Metropolitan College	Mechatronics	SEMTA
WM	Warwickshire College, Royal Leamington Spa, Rugby & Moreton Morrell	General Engineering	SEMTA
EM	West Nottinghamshire College	The Engine - Advanced Design & Manufacturing Centre	SEMTA
SW	Yeovil College	Advanced Engineering	SEMTA

Appendix 15

Training Provision England and Wales

Chemical

Table A15a: Training provision in England and Wales - Chemicals

Training Provider	Course Title
Cambridge Seminars	Engineering (Chemical/Petroleum) University Foundation
HTS Consultants	Combined Production Chemicals and Microbiology Oilfield Production Chemicals Chemical Application Combined Production Chemicals and Microbiology
Institution of Chemical Engineers (ICHEME)	Chemical Engineering for Other Engineers Engineering Project Management Chemical Engineering for Scientists Layer of Protection Analysis Practical Distillation Technology Pressure and Temperature Control
Institution of Chemical Engineers (ICHEME)	Process Contracts
Royal Society of Chemistry	Chemistry 4 Chemical Engineers Concepts of Chemical Engineering for Chemists
Scientific Update LLP	Essential Aromatic Heterocyclic Chemistry Optical Resolutions Organocatalysis Design of Experiments and Optimisation in Organic Synthesis A Chemist's Guide to Chemical Engineering The Design, Development and Scale-Up of Safe Chemical Process Chemical Development and Scale-Up in the Fine Chemical and Pharmaceutical Industries
Scientific Update LLP	Organic Synthesis All you need to know about Process Validation Advanced Aromatic Heterocyclic Chemistry Aspects of Chemical Purification and Process Separation Technology Catalytic Cross Coupling Reactions in Aromatic and Heteroaromatic Synthesis Fundamental Chemical Processing for Bulk Drugs and Intermediates Good Manufacturing Practices in Chemical Development Mising and Selectivity of Chemical Processes Chemical Process
TTE Management & Technical Training	Chemical Warehouse Safety and Freight Management
TTE Training Ltd	Chemical Reaction
Wyggeston and Queen Elizabeth I College	Chemical Calculations

Table A15b: section deleted

Nuclear

Table A15c: Training provision in England and Wales - Nuclear

Training Provider	Course Title
DGP International Ltd	Basic Radiological Protection Radioactive Waste Management The Ionising Radiations Regulations (1999) and their Interpretation The Nuclear Site Licence and Linkage to the Design and Safety Process Radiation Physics and Radiation Protection Classified Persons Radiological Protection Supervisor Radiological Consequence Analysis Radiological HAZAN Production
European Languages Centre	Nuclear Power Industry - Specialised Programme with General English
Flagship Training Ltd	Nuclear Engineering
	Nuclear Industry Acquaint Course Intermediate Nuclear Technology Course Nuclear Briefings for Senior Management Nuclear Introductory Course
Instinct Training Ltd	Atomic Structure Biological effects of Ionising Radiations Chain Reactions Chemistry - Nuclear power plant theory series Control of Ionising Radiations Detection of Ionising Radiations Fission Heat Transfer Fluid Properties and Flow - Nuclear Power Plant Theory Series Interaction of radiation with matter Materials Science - Nuclear Power Plant Theory series Radioactivity Reactor Core Heat Transfer Reactor Kinetics - Temperature Feedback In-Service Effects on Radioactivity Steam Cycles - Nuclear Power Plant Theory Series
Instinct Training Ltd	In-Service Effects on Radioactivity Atomic Structure Biological effects of Ionising Radiations Chain Reactions Chemistry - Nuclear power plant theory series Control of Ionising Radiations Detection of Ionising Radiations Fission Interaction of radiation with matter Materials Science - Nuclear Power Plant Theory series Radioactivity Reactor Core Heat Transfer Reactor Kinetics - Temperature Feedback Biological Effects of Ionising Radiations Control of Ionising Radiations

Training Provider	Course Title
	Detection of Ionising Radiations Heat Transfer Fluid Properties and Flow - Nuclear Power Plant Theory Series Interaction of radiation with matter Neutron Flux Distribution Neutron Kinetics Neutron Kinetics at Low Power Nuclear Reactions Radiological Calculations Radiological Quantities and Units Reactor Core Heat Transfer Reactor Kinetics - Temperature Feedback
Nuclear Training Services Ltd	Alpha Radiochemistry Certificate Environmental Radiochemistry Certificate Neutron Detection and Counting Certificate Neutron Detection and Measurement Certificate Radioactivity - Introductory Certificate Combined Gamma-Ray Spectrometry Certificate Environmental Radiochemistry Certificate Gamma Spectrometry - Introductory Certificate Practical Gamma-Ray Spectrometry Certificate Uncertainty Budget - Workshop Certificate Reactor Technology
RWE NUKEM	Basic Radiation Protection Radiation Protection Supervisor Radiation Protection Supervisor Refresher

Petroleum

Table A15d: Training provision n England and Wales - Petroleum

Training Provider	Course Title
Borough College London	Petroleum Industry
Cambridge Seminars	Engineering (Chemical/Petroleum) University Foundation
Centre for Professional Development	Petroleum Engineering Petrochemical Engineering
Energy Institute	Investment Profitability Studies in the Petroleum Industry Global Natural Gas Developments and Opportunities: (Contrasting Roles for Pipeline LNG GTL Gas-to-Power and Petrochemicals
Energy Institute	Petroleum Industry Economics and Markets: Global and Regional Issues Safety in Refinery and Petrochemical Plant Operation Financial Management of International Petroleum Contracts
Entrac Petroleum Ltd	Basic Petroleum Engineering Introduction to Reservoir Technology Introduction to the Petroleum Industry Petroleum Economics Advanced Distillation Technology Process Control OPEC and the Future Prospects of the International Oil Industry Petroleum Refinery and Distillation: Fundamentals
European Languages Centre	The Petroleum Industry - Specialised Programme with General English
MYB Training	Understanding the International Petrochemicals Business - Technology Markets and Economics
North Trafford College	Liquefied Petroleum Gas Gas Engineering and Fuel Technology for Companies
Oxford Princeton Programme	Automotive Diesel Fuels Fundamentals of Petroleum Refining Gasoline Technology Overview of Physical Trading of Petroleum Products Total Risk Management in the International Oil and Derivative Markets Fundamentals of Petroleum Refining Understanding International Petrochemicals - Technology Markets and Economics
TWI North	Refinery and Petrochemical Plant Damage Mechanisms
Warash Maritime Centre	Petrochemical Training (Crude Oil Washing) Petrochemical Training (Inert Gas Systems) Petrochemical Training (Inert Gas and Crude Oil Washing) Petrochemical Training (Liquid Cargo Operations Simulator) Petrochemical Training (Specialised Tanker Training Programme) - chemical Petrochemical Training (Specialised Tanker Programme) - Liquified Gas Petrochemical Training (Specialised Tanker Training

Training Provider	Course Title
	Programme) - Oil Petrochemical Training (Training the Trainer) Petrochemical Training (Transport of dangerous goods by sea)

Polymers

Table A15e: Training provision in England and Wales - Polymers

Training Provider	Course Title
ABAQUS U.K. Limited	Modelling Rubber and Viscoelasticity with ABAQUS
Burton College Burton College	Plastics Injection Moulding Online Polymers Injection Moulding
City College Brighton and Hove	Casting with Latex
Independent Polymer Technology Ltd	Polymer Technology (Introduction)
Independent Polymer Technology Ltd	Polymer Training (Introduction)
Kingsway Centre	Mechanical Maintenance Engineering Certificate
London Metropolitan Polymer Centre - London Metropolitan University	Practical Skills in Polymer Processing and Testing Computer Design Rheology Plastic Product Design and Manufacture Introduction to Plastics Technology Introduction to Rubber Technology Introduction to Injection Mould Design Principles of Injection Moulding Principles of Polymer Science Advanced Injection Mould Design Practical Skills in Polymer Processing and Testing Adhesives Science and Technology Rubber Compound Design Rubber Processing and Product Manufacture Plastic Properties and Material Selection Advanced Plastics Product Design
Polymer IRC	Polymer Science and Technology *(5 day – 5 Modules)* Basic Polymer Science (Day 1) Polymer Characterisation and Analysis (Day 2) Polymer Chemistry (Day 3) Polymer Engineering (Day 4) Polymer Physics (Day 5) Polymer Dynamics and Macromolecular Rheology Introduction to Polymer Composites
Polymer Training Limited	Basic Processing Techniques (Injection Stretch) Blow Film Technology Part 2 Blow Film Technology Part 3 Blow Moulding Appreciation Blow Moulding Technology Part 2 Blow Moulding Technology Part 3 Extrusion Technology Part 2 Extrusion Technology Part 3 Injection Modelling Appreciation Injection Modelling for profit Injection Modelling Technology Part 1

Training Provider	Course Title
	Injection Modelling Technology Part 2 Injection Modelling Technology Part 3 Injection Modelling Technology Part 4 Materials Handling and Preparation Mould Mounting Mould Tool Maintenance Product Designs with Plastic Product Development - Mould Design 1 Product Development - Mould Design 2 Safe Mould Change Procedures Polymer Industry Appreciation Materials Appreciation
Rapra Technology Limited	Exploring Plastics Extrusion New Product development Management for Polymer Products Plastics Injection Mould Design
Rapra Technology Limited	Plastics Injection Moulding Technology (Theory and Practice) Plastics and Materials and Products Rubber Industry (Introduction) Rubber stamping techniques Co Extrusion and multilayer Structures Plastics and the plastics Industry (Introduction) Polymer Analysis as a Tool for characterisation and problem solving Rubber Technology (Introduction) Thermoplastic Elastomers (TPE) Understanding Polyurethanes (Their formulations and applications) Introduction to Plastics Technology Understanding Silicone Rubber Statistical Process Control Robust Design using Taguchi Methods An Overview of Six Sigma Failure Mode and Effects Analysis (FMEA) Problem Solving and the 7 Basic Tools Customer Focus using QFD Six Sigma Green Belt Programme How to Manage health and Safety Responsibilities Co-rotating Twin Screw Extrusion
Saxon Training Limited	Advanced Pneumatics
Scientific Update LLP	Essential Concepts of Polymer Chemistry Essential Strategies for Carbon-Carbon Bond Formation
The Polymer Centre - University of Sheffield	Basic Polymer Science Polymer Characterisation and Analysis Introduction to Polymer Composites Introduction to Polymer Nanotechnology
TTE Training Ltd	Instrument Pipework Joints and Jointing

Appendix 16

Table A16a: Training provision in Scotland

Training Provider	Short Duration - Course Titles
ABB Engineering Services, Edinburgh	Assessment and Control of Electrostatic Ignition Hazards Pressure Relief - A Proven Approach
Bell College HE Institute, Hamilton	Mould Design 1 (IM) Mould Design 2 (IM) Injection Moulding Appreciation Injection Moulding Technology Part 1 Injection Moulding Technology Part 2 Safe Mould Change Procedure Injection Moulding Technology Part 3 Mould Mounting
MetTECH, Grangemouth	PUWER - Power Press Legislation Industrial Control Systems Pneumatics Hydraulics Engineering Skills Enhancement Introduction to Electronics Soldering Technology Overhead Crane Ops CAB - Penant or Radio Cranes Basic - Experienced Overhead Crane Ops CAB - Penant or Radio Cranes Basic - Novice Overhead Crane Ops CAB - Penant or Radio Cranes Refresher Trng Lifting and Slinging Operations

General Questions

First we have a set of general questions to set the background scene to put the interview findings the context.

1. What is the main activity at this site?
   What is the main product or service of this establishment?
   What exactly is made or done at this establishment?
   What material or machinery does that involve using?

2. Is this location the only site for the company?

   If no ask,
   2a. Is objective setting undertaken: wholly on site; external from site; or does the site have some level of input?

3. What are the key goals and objectives for the company at this location in the short, medium and longer term?

   By short term we mean in the next 12 months, medium term the next two to five years and longer term five to ten years.

4. In which nation does the ownership of this company lie? *i.e. is the company UK owned, US owned, EU based or elsewhere?*

5. How many people work from this location?

   Please include: people who work at this site; those who work remotely (ie offshore, work from home etc) but take direction from this site; full-time and part-time employees; those on temporary / fixed-term contracts; trainees and contract / agency workforce.

6. What proportion of the workforce are contract / agency workers?

7. Over the last 12 months has the total workforce at this site increased, decreased or stayed the same?
   7a. Has this been focused in any specific occupational areas of the workforce?

8. Is the market for your product / service predominantly local, regional, national or international?

   If International ask,
   8a. Roughly, what percentage of your sales are exported?

9. The following three questions are based on differing scales of 1 to 5. Where would you place this establishment if…

9a. A score of one indicates, compared to others in your industry in the UK and abroad, the competitive success of your company's products or services is wholly dependent on price. A score of five that success does not depend on price

Wholly price dependent	1	2	3	4	5	Not at all price-dependent

9b. A score of one indicates that this establishment competes in a market for a standard or basic quality product or service and a score of five that you compete in a market for premium quality products or services

Standard or basic quality product or service	1	2	3	4	5	Premium quality product or service

9c. A score of one indicates that, compared to others in your industry in the UK and abroad, this establishment very rarely leads the way in terms of developing new products, services or techniques. A score of five that you often lead the way in developing new products, services or techniques.

Very rarely lead the way in developing new products or services or techniques	1	2	3	4	5	DK	Often lead the way in developing new products or services or techniques

10. Is your company implementing, or are about to implement, plans to move into new, higher quality product / service / process area? *By this we mean is the company changing / developing the product or service it delivers to move into higher value added markets?*

11. With reference to your answers to the previous questions (9 & 10) does your existing workforce have the skills / knowledge required to meet these business strategies?

11a. If not, what actions does your company need to take to develop / acquire these skills?

12. How does your company measure productivity?

13. Do you benchmark productivity against other companies:

13a. in your industry / other industries

13b. in your region / nationally / internationally?

14. Does your company have Investors in People status or is your company working towards achieving IiP?

Specific Occupations & Skills

I now want to ask you in more detail about your workforce and the current and future skills requirements for specific occupational groups. 15. What is your core group of employees – excluding managers? *By core we mean the group of employees who are crucial and central to the delivery of the goods / service that your company provides.* • Job Role: • Descriptor of activities: • Number of employees in this role:	**I would now like to repeat the questions we have just gone through focussing on a different group of employees.** 16. What is your largest group of employees – excluding managers? • Job Role: • Descriptor of activities: • Number of employees in this role:	**I would now like to go through these questions one last time this time focussing upon managers and leaders within your company. I will refer in this section to "Management" and "Management Skills / Knowledge" to cover both "Management and Leadership" and "Management and Leadership Skills / knowledge"** 17. Number of employees in management / supervisory roles? • Team Leaders: • First Line Managers: • Middle Managers: • Senior Managers:

A.	What qualifications do job holders have in this position? *(See appendix 1)*
B.	What skills level do you expect these job holders to operate at? *By level we mean relating back to the qualification / VQ levels (see appendix 1)*
Skills Supply - Recruitment	
C.	Have you recruited to these positions in last 12 months?
D.	What were the drivers behind this recruitment? *For Example:* *Replacement of retiring job holders* *Replacement of promoted job holders* *Replacement of leavers (transfer to other operation / leaving)* *Expansion of demand for job role (why has this expanded?)*

	New job role *Other*
E.	What do you anticipate will be the drivers behind any recruitment, over the next 1 – 3 years?
F.	From which backgrounds do your recruits into these positions come from? *Prompt around:* *School leavers, college leavers, graduates, (as appropriate)* *Apprenticeships* *Internal promotion / upskilling* *Recruitment from within industry* *Recruitment from other industries, if so from which industries do you tend to recruit from?*
G.	What difficulties, if any, have you faced in meeting your recruitment targets? *If skills related difficulties are cited, probe with:* • Which skills / knowledge are most commonly lacking in applicants for these positions? • Do these relate to any particular group of applicants *School leavers, college leavers, graduates, (as appropriate)* *Apprenticeships* *Internal promotion / upskilling* *Recruitment from within industry* *Recruitment from other industries* • To what causes do you attribute to this problem? *If lack of applicants is cited, probe with:* • What causes do you attribute to this problem?
Skill Development/Demand - Internal	
H.	Over the last 1-3 years what new skills or knowledge did your employees in this job role need to develop as a result of: • Development of / investment in new technology? • Introduction of new working practices eg process improvement, multiskilling? • Legislative or regulatory requirements? • Introduction of new products and services? • Other reasons?

<table>
<tr><td>I.</td><td>Over the next 1-3 years what new skills or knowledge do you expect employees in this job role will need as a result of:
• Development of / investment in new technology?
• Introduction of new working practices eg process improvement, multiskilling?
• Legislative or regulatory requirements?
• Introduction of new products and services?
• Other reasons?</td></tr>
<tr><td>J.</td><td>What are the most important types of skills that some, or all, of your employees in this job role will need to upgrade over the next 1 – 3 years?</td></tr>
<tr><td>K.</td><td>For Core and Largest Group of Employees please ask:
In specific terms, what are the most important types of technical or practical skills that some, or all, of your employees currently in this job role will need to upgrade over the next 1 – 3 years?

Allow freeflow answer, then Prompt using:
See Appendix 2 for Core Employees and Largest Group of Employees referring to the relevant column for the operating level of employee

For Managers and Supervisors please ask:
In specific terms, what are the most important types of management and leadership skills that some, or all, of your employees currently in these job roles will need to upgrade over the next 1 – 3 years?

Allow freeflow answer, then Prompt using some or all of the following as appropriate:
What are the most important types of skills that your managers / leaders need to upgrade in terms of the following and is the need in each case most pressing at Team Leader, First Line, Middle or Senior Manager Level?
<table><tr><td>• Managing own Personal development?</td><td>e.g. manage self, personal development & develop personal networks.</td></tr><tr><td>• Managing the Organisation?</td><td>e.g. Develop / implement plans, Manage risk, Provide leadership, Compliance with legal, regulatory, ethical and social requirements, Develop the culture of the organisation.</td></tr><tr><td>• Managing Change?</td><td>e.g. Encourage innovation. Lead, plan, and implement change.</td></tr></table></td></tr>
</table>

		• Managing People?	*e.g. Develop working relationships, recruitment, selection, retention & development, Managing activities.*
		• Managing Finances, Technology and Health & Safety?	*e.g. Budget management, Promoting use of technology, Health & safety responsibilities self and staff.*
		• Managing Activities?	*e.g. Manage project(s), business processes, Marketing, Customer services, Improve organisational performance*

L.	How best do you think this skills upgrading would be met? For example would formal training be required or would this be done through informal means? *If proposing to use formal training:* • Do you know which courses you will invest in? • Title of course or qualification: • Name and type of provider: *for example: in-house, FE, HE, Private Training Provider?* • Location of provider: • Why this method of intervention? ➢ *appropriate content/location/delivery method/duration* ➢ *impact on productivity/profitability/morale/recruitment/retention* ➢ *value for money/cost* ➢ *ability to address current and future skills needs* *If not proposing to use formal training:* If not planning any formal training, how will skill upgrading needs be met?
Once questions complete for Core Employees, repeat for Largest Group of Employees then repeat for Managers & Supervisors	

General Key / Core Skills

We are now moving on to generic skills areas. Please consider your overall workforce for the following questions

18. What proportion, if any, of your total workforce possess poor literacy or numeracy skills?
    - 18a. Does your company access any basic literacy and numeracy training for any employees?
    - 18b. If not, how are these needs met?

19. What proportion, if any, of your workforce speak English as a second language?
    - 19a. Is there a need for English as a Second Language training for any of your workforce?
    - 19b. Does your company access any English as a second language training for any employees?
    - 19c. If not, how are these needs met?

20. Does your workforce have the IT skills they require to be effective in their job roles?
    - 20a. If not, in which areas would upskilling be beneficial and in which occupations?

Training provided/accessed

21. Does your company fund any formal off the job training or development (i.e. away from the individual's immediate work position)?

    If yes,

    - Which occupations receive off the job training and in what areas *(see appendix 3)*?
    - Which types of training provision do you use:
      Provider type ie HE, FE, commercial, trade / professional association, in-company unit.
    - If possible, provider name(s) & location(s):

22. What influences your decisions on how off the job training is to be delivered?
    Eg what influences your decision to provide some training in-house instead of using an external provider?

23. Can you describe your company's training evaluation process?

24. What do you think of the training provision on offer (including those you are currently accessing as described for q18)?

Consider in terms of:

- content, delivery method, location, duration
- impact on the business
- value for money
- ability to meet your needs now and in the future

25. What qualifications or training do you particularly value, and why? What qualifications are not valued and why?
    Categorise by type: HE, FE, private, in-house if possible

26. How do you access information about industry specific training and qualifications?

27. Do you feel there is adequate information to guide you in making the best choices for industry specific training & development?
    If answer is no, probe further to find out:
    What format would you ideally like to receive information and guidance:
    - *web based eg SSC website or learndirect?*
    - *brokerage service?*

28. Do you access any external funding sources to help pay for employee training and development?
    Not for extensive discussion at this point. Funding sources include LSC, skillseekers,NETP etc.

29. Do you arrange any on the job training? If so, Have you used any of these methods?
    If yes,
    Which of the following methods have you used and for employees in which job roles *(see appendix 3)*
    - *Self directed learning using for example: On-line learning, CD Roms, Intra/Extranet etc*
    - *On the job training provided by a manager/supervisor/fellow worker*
    - *Learning a new job while on the job and being overseen by a more experienced worker, supervisor or manager*
    - *Training on the job delivered by suppliers*

30. Are there any areas of skill needs and available training and development that are causing your company a problem?

Future Training Needs

31. Can you describe your process for identification of training needs?
eg appraisals, linking business objectives to job roles, competence assurance system etc

32. To what extent it is likely that employees will be able to acquire all the new skills and knowledge they require through on the job learning, information sharing or through self study in the next 12 months?

33. In terms of training your current workforce and your potential future workforce, what changes to qualifications and external training provision will be required to meet your future needs?

34. Do you expect to see any changes in the entry qualifications you set for new recruits to your business?
Prompt for current and future for M&L, technical and operator

35. Are there any other issues in relation to training or qualifications that we haven't touched on that you would like to raise?

Thank you for completing this interview.
Can we come back to the business to discuss these issues further? Yes / No

Appendix 18

Report on the Assessment of Current Provision SSA Phase 2

Prepared by 5S Consulting Ltd.

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1 Introduction

This short project forms a part of Cogent's Sector Skills Agreement Phase two commitment to identify trends and needs in human resource development in its constituent industries.

The purpose of this project has been to establish:

- How employers decide what good quality training provision is ('scoping mechanism')
- By industry, at an operational level, the types of training (public and private) that are valued by employers and the reasons why
- What training provision is lacking
- What training support employers would like to see developed
- Opinions on whether current provision provides learners with not only the knowledge, but the skills they require to be operational and which types of training do this well
- The types of provision valued at entry to employment and those that are valued as CPD.

The research was aimed at gathering information from employers at around four operational levels, roughly comparable with NVQ levels 2 to 5. The extent to which this was possible in part depended on the breadth of expertise in the working groups.

The research also embraces both in-house, private and public training provision, including HE and FE.

The methodology for gathering data in the available time period was to establish 'expert' workshops that engage HR professionals from a representative cross section of companies in each industry.

It was originally envisaged that there would be one workshop per industry; the industries are Chemicals, Oil and Gas, Nuclear, Petroleum and Polymers. Cogent undertook to recruit attendees to these.

Workshops were run on the following dates at the Cogent offices in Warrington
13 February - Chemicals
20 February – Polymers
23 February – Nuclear

There was insufficient support from the Oil and Gas industry hence dialogue with this industry has been deferred. Also, in the Petroleum industry it was not possible to convene a group on the given date and instead a series of telephone interviews with key individuals in the industry were carried out instead between the 2nd and 13th March.

The framework for the investigation to be carried out in the workshops was agreed in advance with Cogent and is at Annex 2.

Telephone interviews followed a similar format but were necessarily rather

shorter. The framework for telephone interviews is at Annex 3.

It was recognised from the outset that the findings could be a snapshot of the industries covered rather than a comprehensive analysis. Also that representation at the workshops, although broad might exclude some important segments in each industry. However, what was reassuring was the consistency of evidence and opinion that emerged within each industry.

While there was a high degree of consistency within industries, there were some significant differences between them.

In the commentary on training provision, only particular examples have been quoted as a comprehensive survey of provision is contained in an allied report for Cogent.

2 Responses to enquiry

Chemicals Industry

Training needs

Contextual issues	Key skills are a major issue with employers and initiatives such as the Education and Training Links Group Challenge programme sets out to address this. There is a problem with the image of the industry to school leavers. Generally, employment in manufacturing appears to be discouraged in schools. Few school leavers have an accurate perception of the industry and this is exacerbated by the lack of knowledge about the industry in the teaching profession. Recruitment policy tends to be driven by feedback from the shop floor.
Exploring Industry Drivers	
Markets	The industry is very diverse, so it is difficult to generalise. Although some of the older processes are in decline or have transferred out of the UK market because of higher labour costs, some are still performing extremely well, but serving niche markets. If trends can be detected it is for increasing specialistion in the UK market, concentration on high value-added processes and a move away from old technologies, particularly those which pose major environmental hazards.
Technology	Very diverse, increasingly highly automated and remotely operated.
Regulation	Very complex and very demanding in the UK environment.
How work is organised	The chemicals industry is very diverse and it is difficult to generalise regarding trends. However, within an increasingly global economy there is plenty of evidence to suggest that progressively the labour intensive components in the supply chain will be moved to low labour cost economies wherever this is feasible. This does not necessarily mean a whole industry will move, as there are often commercial advantages in keeping some components in the supply chain close to the market place and some close to the source of raw materials.

Skills Shortages? The primary skills shortages are for electricians and mechanical and instrument technicians.

Skills Gaps?

- Carrying out tasks specific to the work role — Technologies are advancing all the time and in consequence the re-skilling of the workforce in new techniques and on new plant and equipment is a continuing process. Fewer and fewer jobs are physically demanding, more jobs require a greater breadth of knowledge and multi-tasking is the norm rather than the exception.
- Managing tasks specific to the work role — Personal attributes are recognised as very important but there are no suitable benchmarking systems that allow these to be dealt with in a consistent way.
- Contributing to the management of the organisation — This did not emerge as an issue and was not discussed

Training supply

Contextual factors Many companies in the industry are cost-driven and this has the adverse effect of limiting investment in training.

Experience of workshop members is that for some time (since the CIA had a direct role in promoting training issues in the industry) no-one in the state industry, including schools, Colleges, LLSCs and other funding agencies has been listening to what the industry has been saying about its training and skills needs.

Generally, training provision for the industry is thought to be reducing. This is partly the result of advances in technology reducing jobs in the industry and also long term labour retention, and partly to do with a lack of growth in the industry in the UK.

Group Training Associations (GTAs) are an important part of the training supply mix for many companies in this industry. However, most are located in the North of England and the Midlands, rather than the South or in Wales or Scotland.

In some respects they replicate role of CoVEs in other industries.

Who provides training now?

- Operative

  There is still significant demand for skills at this level and although in some sub-sectors the skills requirements have been drifting up. It is not universally the case.

- Skilled

  There is a Chemical Manufacturing and Processing Modern Apprenticeship framework in place for this industry

  Group training providers have an important role to play in providing flexible training responses through the delivery of discreet training modules. The Centre for Assessment of Technical Competence Humber (CATCH)[1] was quoted as an example of a centre offering rapid up-skilling opportunities at N/SVQ levels 2 and 3

- Technician

  There are a range of HNC/HND programmes available in Chemistry in England and Scotland but with much more limited availability in Wales and Northern Ireland.

  The University of Sunderland, Nottingham Trent University and the University of Teesside offer Foundation Degrees relevant to this industry.

  In-house provision is run using company devised programmes or those adapted from courseware provision by others.

  Distance learning appears not to be widely used.

- Professional/ managerial

  Chemistry related degree, postgraduate and doctoral programmes are widely available in the UK, though their specific relevance to employment in the industry can be very limited.

  Professional bodies, particularly the Institution of Chemical Engineers runs a range of relevant CPD programmes.

  There are also some specialist training providers such as TTE that run targeted CPD and updating programmes.

[1] www.chemicals-yorkshire.com

How do employers judge they are getting what they are paying for?	Directly, major companies pre-test apprentices. This is a normal practice and is based on test batteries. Indirectly, evidence from Key/Core skills assessment s can be helpful. However, GCSEs are not generally a good indicator. At higher levels, subject relevance of studies is important, but general aptitude, attitude and behaviour and other achievements are taken into account.
What are new entrants lacking (and who is to blame)?	Industry awareness is lacking at all levels. It would be helpful to promote programme exchanges between companies so that trainees might get a broader picture of how the industry works.
What provision is lacking?	Options in schools for pupils to follow courses relevant to a career in this industry are very limited. A 'hen and chickens' model for training provision, perhaps within a supply chain framework, would prove attractive for the industry providing the risks of litigation can be minimised. Generally, almost all jobs in the industry require higher levels of personal accountability, responsibility and personal presentation and behaviour than they did, say ten years ago. Behavioural, motivational and attitudinal development is largely absent from most school, college and university programmes – yet these are just as important as Key/Core skills. Access to technical certificates to support apprenticeship scheme. Training in the area of recycling and design for recyclability. Composites are poorly catered for away from the south coast marine industry HE training opportunities for the industry have contracted as part of a general decline in HE Chemistry provision.
What quality standards need to be improved?	There is a confusion in industry qualifications between the time it takes to train in the skills required on the job – which can be quite short – and the time it takes to develop consistency and maturity in application – which may take 3-4 years, but may be much shorter. The rigidity of current apprentice training programmes sometimes fail to

recognise this. Competence should be recognised when achieved.

The industry needs to develop HRD systems that are more 'joined-up' i.e. they link the recruitment, induction, appraisal and CPD systems together and incorporate these in a Personal Development Record and Reporting system format that enables training providers to get a much clearer picture of individual learning needs – but conversely also makes learning facilitators and providers much more accountable for targeted delivery of skills.

Workshop members were keen to see major improvements in FE provision. Specifically, to see colleges respond more quickly to requests for support; to be more willing to tailor training supply to specific employer and individual needs. Participants would like to see some de-regulation of the college environment to enable them to work more closely with industry and be more accountable to employers. Wellacre Technology College in the North West was quoted as an example of good practice reaching down to schools level.

What would employers like to see developed?

Generally, employers want to see more new entrants making this industry their first career choice. In this respect there must be ways of making a career in this industry more aspirational. Suggestions included promoting a 'fame academy' and identifying with interesting role models through the media.

Employers want to see the right mix in training supply between the colleges, the group training associations and their own in-house resources. Colleges have the potential to perform better than they currently do. They are normally well organised but often fail to match delivery with expectations. There should therefore be more encouragement given to the development of service level agreements with colleges.

GTAs are more likely to have the specialist plant and equipment required that ensures that trainees have access to relevant kit to train and practice on. However GTAs could play a larger role with schools, particularly in providing motivational 'taster' programmes.

The relationship between schools and colleges might be strengthened to avoid duplication and allow each to play to their strengths.

Employers have the responsibility for induction training and for the consolidation of on-the-job technical skills.

Is cost a problem?

Comments suggest indicates that external financial support, where it is available, lacks visibility, comes from too many different sources, is difficult to apply for and decision making on awards, particularly through LSCs is highly variable.

There is the perception that Government support for training is driven by priorities related to social inclusion rather than by the UK's competitiveness agenda or industrial priorities.

What funding is being drawn down is focussed at N/SVQ level 2, whereas the growth area for skills in the industry is at Level 3.

How and where can Cogent help?

Those at the workshop acknowledged that the primary role of Cogent is to provide the competence assurance framework for the industry.

Cogent also has an important lobbying job to be done with Government to attract more training resources into the industry and in particular to influence careers choices and curriculum in schools. Failure to do this risks Cogent being seen as an agent of Government rather than an advocate of the Chemicals industry

Cogent needs to support the industry in improving the image of the industry and raising the profile of vocational training in schools. There is a need to look at the training of trainers and instructors in the industry, particularly in FE.

Cogent has a clear role in helping the industry procure funding for training from public sources. There is a need for more central contracts with LSC.

There was seen to be an important role for Cogent to help the industry expand its competence assurance framework and CPD provision. CPD at present lacks any clarity and what does exist has no effective evaluation.

Polymers Industry

Training needs

Contextual issues

There is a problem for this industry in the definition of SMEs. Most companies in the industry actually employ very few people – which make them SMEs, but their turnover and capital value makes them some of the UK's largest companies.

There was a strong feeling that the Government should do more to promote the manufacturing industry as a destination of choice for school leavers. This reinforces evidence from other manufacturing industries.

Exploring Industry Drivers

- Markets

There are many changes taking place in the market place. A number of long-established processes, particularly those with high manpower and fuel costs, are moving to cheaper manufacturing bases elsewhere in the world. These include electronics and mobile phones. However, in the innovative areas of aerospace, medical technologies, construction and packaging there are exciting growth prospects. The automotive industry remains strong but is very price sensitive. The mid and long term situation is far from predictable because base product producers, particularly in the Middle East are manipulating markets through differential pricing.

- Technology

The industry does have a labour reduction strategy. Some industries are ideally suited to 'lights-out-manufacturing' as the advances in robotics technology make this feasible. However, moves in this direction are hampered by the lack of the higher level skills required to introduce the necessary systems.

- Regulation

Health and safety legislation in the UK is the most rigorous in the world, and the most costly to implement. Also, legislation aimed at producers to take responsibility for end-of-life disposal and re-cycling costs for vehicles, electronic equipment and packaging is having a major impact on most employers in the industry.
Although the industry performs below the industry average in the UK on industrial accidents, these are not technology related and are predominantly slips, trips and falls.

There is also a new EU directive (REACH) that is

	concerned with additives in plastics that may limit product recyclability or cause longer term health and/or environmental problems. Employment law in the UK is hurting small companies.
• How work is organised	The polymer industry still has the potential to reduce labour as integrated manufacturing systems move towards 'lights out' processes.
Skills Shortages?	Polymer process technologists and technicians. Systems design for those who design polymer processing systems including robotic manufacturing. Electrical and electronic engineers. Material scientists. In management areas, there are shortages in sales and marketing professionals. The best graduates are not being attracted into the industry because of its poor image. The difficulty in getting training of the right quality for technicians means that poaching is often the only option. Schools do not encourage students to take up apprenticeships; hence there is a lack of applicants. However the poor image of the industry also contributes to this.
Skills Gaps?	
Carrying out tasks specific to the work role	Discussion here related mainly to the calibre of new entrants and the time taken to bring them up to full performance standard.
Managing tasks specific to the work role	This did not emerge as an issue and was not discussed.
Contributing to the management of the organisation	There is seen to be the need to attract more market oriented people into senior management. There is also a lack of depth in leadership skills at senior levels. New entrants do not show any loyalty to the organization.

Training supply

Contextual factors

There have been fewer apprentices in the past 5 years as a result of contracting UK capacity and more streamlining of jobs.

Provision of training supply around the UK is very patchy, particularly in the South East and East Midlands

Comparative evidence from Germany and France suggests that they have much better supply of process technicians because of the quality and status of their training routes.

The supply of technical training is fine. Cogent must resist the temptation to encourage the establishment of new centres. This is not driven by protectionism, after all PTL has assisted in the development of centres in Mansfield, Durham and Glasgow in recent years, along with Manchester and Surrey (both of which collapsed). The problem is that any increase in provision must be met with a proportional increase in uptake or the current centres will also collapse. PTL, South West Durham Training, West Notts College and possibly Bell are all losing money on their polymer provision.

Who provides training now?

- Operative

Basic job skills delivered internally by line managers and in-house training staff. More specialised skills delivered internally by private contracted providers.

There are progression problems between Levels 2 and 3

- Skilled

Apprenticeships for Polymer Processing and Engineering in place for this industry it is considered to be easier to work with external providers such as FE colleges. Northampton College was quoted as an example of a typical provider that, with pressure and support from employers, is able to turn out good trainees.

Skills enhancement programmes are underway for engineering craftsmen to upgrade them to technicians via an HND route.

At all levels the qualification system needs adaptation to encourage progression through ‘bolt-on’ modules. Partly

	this is the result of historic problems with BPTA (now PTA) and SASL the awarding body. The Polymer Centre in West Midlands is the only Centre of Vocational Excellence for the industry, hence few in FE are championing the polymer training cause.
• Technician	West Nottinghamshire College runs a Foundation Degree for the polymers industry. Generally there is a lack of targeted polymer training provision within the FE sector. As a result, most industry specific training must be done in-house and/or through private training contractors. The latter are often used to cover health, safety and environmental issues. Distance learning appears not to be widely used. In particular it is a struggle to get adequate technician training to meet needs. Much of the specialist technician training is therefore done in-house. External providers are used in dealing with health, safety and environmental training, manufacturing methodologies and specialist techniques. Training by the providers of new plant and equipment is also done but it is fairly limited, is only useful at the startup stage and skills become diluted over time.
• Professional/ managerial	There is a limited range of polymer specific 1st degree programmes in the UK, though at postgraduate level the range is much wider. This means that many graduate entrants will enter employment with a qualification in Chemistry or another science and upgrade their qualification to a more specific award while in employment. There is generally a very limited investment in management training. Part of the problem is getting satisfactory supervisory training provision. Generally there is a lack of targeted provision for the industry in HE. Most of the quality provision is at postgraduate level. 1st degree graduate entrants are only partly prepared on entry. They are encouraged to progress to higher degree levels and also to actively engage in CPD. The principle here being that professionals have a personal responsibility for their own Continuing Professional

	Development. The professional bodies, of which there are several including, IME, RSC, IPE and IoM do not exert much direct influence on training or CPD in the industry. Only perhaps the IoM (Institute of materials) could take on a leadership role as they have, for example, in the field of materials innovation. Some Universities do have good links with the industry including Loughborough, Bradford, Queens Belfast, Napier and Strathclyde.
How do employers judge they are getting what they are paying for?	Little consistency in responses to this question. No evidence that employers use any particular benchmarking system. Mostly views are impressionistic rather than based on the systematic collection and comparison of evidence.
What are new entrants lacking (and who is to blame)?	Lack of key/Core skills is a big problem and exists at all entry levels. Numeracy is a serious problem and literacy levels are even worse. New entrants also are seriously lacking in their ability to present themselves well. In part this is because the industry is well down the list of choices for school and college leavers. In part it is because technology is not a feature of the National Curriculum.
What provision is lacking?	There is a lack of connectivity between FE and the industry and a general shortage of course availability. The problem with training in academic institutions is one of access, in some cases the content has not kept pace with industry, and as might be expected, the emphasis is on knowledge. Few of the teaching universities have modern industrial scale equipment in any quantity and PTL (for example) has provided facilities for some universities in recent years to at least give students a few days practical experience. The issue here is encouraging partnership. Work is required at HNC/D or Foundation degree level. Burton and West Notts college has created a programme but uptake is poor. London Met are producing a programme. There is a need for the framework to be industry driven as opposed to supplier driven if it is to be relevant to the industry. There is a role for SASL to take the lead on technical certificates in particular. There appears to be a new desire at SASL to take this forward.

What quality standards need to be improved?	Technician exchange programmes within the EU expose the serious weaknesses in UK technician training practice. BTEC National Certificate is dated and needs significant revision. The problem here is that current volumes do not make it attractive for BTEC.
What would employers like to see developed?	Reality is that large companies do train but lose many trained people to the smaller companies. If this were acknowledged and looked at positively a 'hen-and-chickens' approach might be introduced that establishes more formal training networks. Some business skills training is done, for example at Trafford Park. However, it would be useful if some more specific management development programmes for the polymers industry might be developed with institutions such as Ashridge College. Broader range of technical certificates to support apprenticeship programme (evidence - breakdown in apprenticeship system/low levels of recruitment/ closure of college courses) A focus on programmes that consider the interface between polymers and application, Programmes on environmental and recycling issues, possibly in conjunction with WRAP and BPF.
Is cost a problem?	The industry sees training as adding value rather than cost. While external financial support for training is not a driving issue, the industry does feel that it is missing out on Government support. Experience indicates that support, where it is available, lacks visibility, is spasmodic, comes from too many different sources, is difficult to apply for and decision making on awards, is somewhat variable. Effort is required to get training programmes for this industry on to LSC funding schedules

How and where can Cogent help?

The priority for Cogent is to help the industry address skills shortages of polymer processing technologists and technicians.

Secondly, Cogent needs to support the industry in improving the image of the industry and promoting careers with schools, careers advisers, colleges and universities.

With schools, there is a need to revisit the prominence given to materials science in the National Curriculum

There is a lack of knowledge among employers about training products and companies need guidance on where to go for grants. With a myriad of providers, the value of the programme depends on the provider. The issue here is ensuring that there is someway in which the employer can select with confidence.

Cogent has a role in developing mechanisms that help employers. A one-stop-shop that dealt with these issues would be very helpful.

Cogent and perhaps PTL (as the CoVE) together need to engage with the HE sector to identify and promote excellence of training provision at higher levels.

Cogent needs to see how it might contribute to improving leadership training and a market oriented culture at senior management level.

Nuclear Industry

Training needs

Contextual issues

There are seven subdivisions of the Nuclear industry. Defence Systems and Regulation were excluded from this study.

Employment in Science, Engineering & Technical roles is about 45% graduates and about the same proportion of craftsmen and technicians. Of the graduates, some 60% are engineers, 20% physicists and the remainder from other science disciplines

Exploring Industry Drivers

- Markets

There is the long term possibility that current policy on nuclear power generation may change and recent government statements indicate some softening of the present position. A major shift is in progress towards decommissioning of more than half the existing power stations and much of the process plant, which will be shutdown for decommissioning within 10 years.

- Technology

There is continuing safety casework to be done and some current shortages. This requirement varies over time - but is expected to continue even if for de-commissioning it may tail off.

- Regulation & Safety

This is a highly regulated industry and the regulatory authorities expect all personnel to carry the appropriate level of qualifications.

Health, safety and environmental practices are very rigorously monitored by HSE. This extends to all related service providers.

As a result of demanding standards of compliance and training the industry has an extremely good safety record.

At the interface between generation and distribution of power, and where there are on-site construction and refurbishment programmes underway the cultural differences can be seen between those familiar with a safety critical environment and those who are not. As a result the work of all non-nuclear contractors is very closely monitored.

• How work is organised	The nuclear industry has probably reached the limits of labour force reduction. Safety is a dominant consideration and limits some of the economies of labour that might otherwise be possible.
Skills Shortages?	Control Instrumentation technicians and some craft engineer disciplines are at a premium in the market place. They command premium salaries because of the shortage. Similarly there is a considerable shortage of Health Physics Monitors. Here however there are some doubts as to whether the qualifications currently demanded are appropriate for the job they do. Operationally they are critical and a growing national shortage could have drastic consequences. Competent Project Planners (P3 systems) are also in short supply, particularly because of the complex IT software they are expected to deal with. In other management areas there is a problem attracting procurement and finance professionals as not only are these very complex and demanding jobs by normal standards, but also the profile of the nuclear industry deters many people. For similar reasons, Project Managers are not being attracted into the industry. At craft level there are emerging shortages with fitters and welders at several sites because there has been under-recruitment in the past on some sites and because the job is changing as the sites go into decommissioning on others.
Skills Gaps?	
Carrying out tasks specific to the work role	It is characteristic of the industry that few people leave voluntarily. The result is an aging workforce and more than usual emphasis on upgrading training as opposed to training new entrants.
Managing tasks specific to the work role	Project Management is recognised as a serious gap in the industry. As the sites turn from operations to decommissioning the staff, especially engineers, have to work increasingly in programme and project management role. Those that are being recruited generally lack experience at the scale of programme management that the nuclear industry operates. In the same context, they do not necessarily have the engineering systems design knowledge at the level that is central to their task.

Contributing to the management of the organisation	Work roles are defined in great detail including management duties. No specific issues were raised. However the LMI has shown a need for greater management and leadership skills.

Training supply

Contextual factors	One of the characteristics of the nuclear energy industry is that a very high proportion of those employed are graduates. This results in attitudes and values and a cultural environment rather different than other Cogent industries. At every level great emphasis is placed on professionalism. Another important feature is that for a number of years in the UK it has been regarded as an industry in planned decline. However, recent statements and inferences from Government quarters suggest that this may not in fact be the case. Many point to the success in France for example in creating a highly efficient nuclear power industry as the dominant source of electric power for the grid.

Who provides training now?

• Operative	There are very few employed in the industry at the basic operative level, except in the fuel production part of the fuel cycle. The majority of these are trained in house and have little transferable skill.
• Skilled	Many doubt the relevance of N/SVQs to this industry because of the heavy bias towards technical and knowledge based skills. However, apprenticeships in the industry are expanding. There is a Nuclear Technology CoVE in the North West and several relevant CoVEs around the country. At Mitsui, for example a number of apprentices are moving on to higher levels of training. On an industry wide basis there is a continuing upskilling strategy in place through the Skills in Engineering Joint programme. However the downside of this is that it creates skills shortages at lower levels.
• Technician	There are hardly any HNC or HND nuclear qualifications. Technicians are trained in nuclear applications by their employers.

There is a general shortage of C&I technicians in the industry (an across-the-board issue for Cogent).

Distance learning appears not to be widely used.

- Professional/ managerial

Few will enter the industry with any specific knowledge of the nuclear industry, though graduates from Manchester or Birmingham's Reactor Physics, MTech or MEng programmes may well have followed a specialist pathway. None will have had any exposure to the nuclear environment, which means that all need intensive on-site induction and specific skills training.

There is a planned new BEng course in Nuclear Engineering at Lancaster University and 15 other universities in the UK teach some nuclear component or module in their Bachelors courses.
There are few specifically nuclear qualifications except at postgraduate level.

The Nuclear Technology Education Consortium brings together most relevant university and research institutes together to provide a fairly comprehensive postgraduate training course framework in a short fat modular MSc programme.

There is CPD provision available for the industry through the Institute of Nuclear Engineering and the Society of Radiological Physicists.

Graduates are encouraged to achieve Chartered status. Professional institutions do not influence career development in the nuclear industry to any significant extent. Size is an obvious reason for this.

Within the Engineering Council's report on standards for professional engineering competence, there are recommendations designed to include the industry at Chartered and Incorporated Engineer level.

With regard to CPD generally, most sites have established appraisal systems that trigger continuing job specific training needs. The individual normally assumes responsibility for identifying the appropriate resource and sorting out supply that the employer normally funds.

Where CPD relates to needs beyond the job and for career enhancement the situation is indistinct and generally depends on individual negotiation

How do employers judge they are getting what they are paying for?	In most areas, there is no common framework of standards; each major operator has set its own. It is difficult to criticise training providers for inappropriate provision if they have not been given a skills framework for the industry from which to plan their inputs.
What are new entrants lacking (and who is to blame)?	It is a lack of suitable new entrants that is the problem for this industry. Partly this is an image problem. Cogent believes there is an issue of too few students taking science and engineering subjects post GCSE.
What provision is lacking?	As a result of the Nuclear Oversight Assessment (NOA) there are some new initiatives on training underway from September 2006. This will involve FE Colleges and training centres. Specific training for project management in the industry is required and it may be beneficial to open a dialogue with the Association of Project Managers (used by several major employers already) on this industry
What quality standards need to be improved?	The concept of a 'Skills Card' is attractive to this industry, particularly for those in peripatetic contracting and inspection roles. It would be a much more reliable way of checking that individuals coming on to sites were specifically qualified for the tasks they are required to carry out.
What would employers like to see developed?	There are opportunities to make better use of existing training resources. In many respects the nuclear sites In the UK are not in actual competition with each other. This might provide the opportunity for more co-operative/ collaborative working and also draw in trainees from other critical areas in the supply chain. The concept of a Nuclear Skills Academy is attractive, not only to create a centre of excellence, but also to promote the image of the industry. More innovative and consolidated training facilities are available in the USA e.g. at the Hammer Training Facility at Washington State. An equivalent facility in the UK is one possibility that should be explored. The alternative is to allocate training responsibilities for specific topics to different sites. Although the Universities have an important role to play, they cannot do it all.

Is cost a problem?

Cost cannot be allowed to be a problem for this safety critical industry. Funding is therefore not critical to decision making on training support.

National LSC contracts are also in place which simplifies the bureaucracy

There have been resourcing problems for suppliers resulting from the withdrawal of publicly funded courses for Health Physics Monitors and Radiation Protection Advisors. This has probably contributed to current labour shortages.

Structural changes are required on the supply side that will cost providers and others serious money. However, rationalization of the training provision under a Skills Academy should provide more cost effective training in the long run.

However, funding can be a significant problem for those who have a contracting role within the industry, particularly in the context where the funding bodies do not understand the issues.

How and where can Cogent help?

Cogent needs to support the industry in improving its image with schools, careers advisers, colleges and universities.

With schools, there is a need to revisit the presentation of the industry and how related science subjects are dealt with in the National Curriculum.

Cogent also has a role in supporting supply side contractors, specifically by providing the appropriate standards framework. Also by securing quality by endorsing best practice through the CoVE and others. Training for this industry is a scattered resource and Cogent could help to make more efficient use of if it by establishing co-operative networks and also mechanisms for improving availability of course information.

On distance learning for this industry; although there is some material produced by British Energy, and on process controls, VLE and MLE there is the need to make more progress in this area.

Petroleum Industry

Training needs

Note: Telephone interviews focussed primarily on companies on the downstream distribution and sales side of the petroleum business.

Contextual issues

Jobs are concentrated on tanker drivers and sales operatives in retail sites.

There are technicians involved but increasingly jobs such as pump maintenance, site maintenance and vehicle repair and maintenance are being outsourced.

Technicians involved on refinery sites have an evolving role as new fuels come on stream

Advances in technology and changes in marketing strategies has meant that there is often little difference in the skills and responsibilities required of an operative on a petrol outlet site and that in a supermarket.

The increasing shift to 24-hour working is clearly going to place some stresses on the workforce. This is indicative of the intensely competitive market in which the industry operates where margins are small and saving labour is one of the few cost saving opportunities open.

Exploring Industry Drivers

- Markets

There is reasonable stability in the market place for petroleum products and changes in the oil market do not per se have much impact on employment in the downstream areas.

There are very few non-specialist independents, so Most changes result from competition for market share and the transference of ownership of sites between the majors.

New forecourt power sources including Hydrogen, LPG and Biodiesel will not have a significant impact on the demand for labour or skills.

- Technology

Fuel technology changes such as low sulphur content fuel, only really effect technicians and maintenance engineers, not operatives

Technological advance has been rapid in the industry and most sites are for the most part fully automated in regard

to main systems.

Most forecourts do not now offer any form of vehicle servicing or advice other than fuel, air and water and sometimes an automated car wash. The result has been the technical de-skilling of most employees.

- Regulation

There are established and demanding regulations governing forecourt operations and health and safety is at a premium. In addition an increasing number of sites now offer food and beverage services as well as retail groceries and off licence sales. In many respects this aspect of site operations has become more complex from a legal and health and safety standpoint than the fuel sales side.

The responsibilities of the operatives in these mixed sales environments is however often quite limited as the product display, re-supply, inventory and associated equipment maintenance elements involved is often outsourced to specialist contractors.

Regulations affecting refinery sites have been in place for some time and there are no major changes envisaged. However it is clear that enforcement action regarding health, safety and environmental management is increasing, hence on –site staff must really keep on their toes.

- How work is organised

Forecourt operations have a reputation as being low skill jobs and undemanding of employees. The virtual elimination of the vehicle professional from forecourt sites and the major shift into food retailing and catering has caused many employers to re-consider the appropriateness of this image, though it is probably only the food retailers who have moved into fuel sales that have tackled the cultural shift necessary to raise the image of these operative jobs.

Generally, the industry is beginning to improve team working as it imports skills from other industries such as retailing and logistics.

Fuel distribution operations have also been affected by technology to the extent that fewer decisions are required of the driver regarding delivery volumes, billing, vehicle routing and vehicle maintenance. Although vehicles have become more complex their operation has in many ways been simplified and made less physically demanding.

Generally there is a trend towards the wider use of

consultants to deal with specialist problems and also to outsource most specialist operations including particularly plant maintenance

The effect of a long-serving stable workforce has been to change recruitment strategies to bring in older as well as younger recruits

Skills Shortages?

The industry has an aging workforce among distribution staff including tanker drivers.

Specifically, there are shortages of process engineers, particularly in the refinery areas many of whom are attracted by higher wages in other related industries such as polymers and chemicals.

Safety engineers are also at a premium and they are well aware of their market worth

Generally, there are thought to be upcoming problems recruiting suitable young craftspeople and technicians.

One of the reasons for the increasing the outsourcing of plant and equipment maintenance functions is the growing shortage of skills in these areas.

Some employers are continuing to recruit maintenance apprentices for their major plant processes. Here there is the continuing risk that they will be head-hunted by competitors who do not train.

Skills Gaps?

- Carrying out tasks specific to the work role

As the industry has a relatively stable labour force upgrading training is always an issue, particularly, as non-fuel activities on the forecourt change.

Customer service is a priority for the industry but there is still a hill to climb when compared with the best of retail practice.

- Managing tasks specific to the work role

Colleges and universities are not producing students with the skills to operate effectively in the work environment.

- Contributing to the management of the organisation

This was not raised as an issue.

Training supply

Contextual factors

Most training provided is on-site. This is primarily a cost consideration.

Employers are generally responsible for induction training and general job-skills training.

Specialist training, such as first aid and IT skills is either outsourced to colleges or to specialist private training providers.

Some distance learning is used.

Because of the distribution of employees around the UK most courses run below their potential and there is the opportunity to train for others as well at marginal cost.

There are very few graduates employed in downstream operations outside the national and regional sales offices.

Who provides training now?

- Operative

Some organisations use recruitment agencies to sift out suitable staff using an agreed job specification.

Mostly provided in-house and concentrated on Key/Core Skills and relevant N/SVQ modules.

- Skilled

There are no Apprenticeships for this industry.

For petroleum related crafts, training is usually based on an initial induction programme followed by the delivery of relevant training modules.

For non-petroleum craft areas, staff are recruited ready trained.

There is some interest in Apprenticeships on the refinery side and TTE have been influential here.

HSE believe there are serious flaws in the N/SVQs designed for this industry, as they don't address the full range of hazards and risks.

• Technician	For technicians, normally refinery based, the target in some companies is for 100% attainment of the relevant N/SVQ. In others, the N/SVQ framework is not very much liked. It appears that the N/SVQ framework for this group in particular needs to be reviewed In addition there have been in-house, NVQ like, training modules developed by some companies to cover all specific types of plant on site. Some employers are not satisfied with the performance of local colleges of FE who appear not to understand their needs – particularly in relation to HND/HNC programmes
• Professional/ managerial	Some employers are struggling to recruit graduates of sufficient quality. Many have a lack of chemical engineering knowledge, have limited technical capability and do not have the right work attitudes. Total has recently introduced a three year graduate development programme to address this issue. However the general quality of available graduates is not considered good. There has been better success with graduates from overseas, particularly Pakistan, in meeting requirements. In terms of management training, some companies deal with provision here on a global basis and there are collaborations with leading UK institutions such as the London Business School CPD at senior level is often run in conjunction with professional institutions and one interviewee was, for example, accredited by the Institution of Chemical Engineers and the Institution of Mechanical engineers to run in-house CPD programmes.
How do employers judge they are getting what they are paying for?	There was no discussion on this matter.
What are new entrants lacking (and who is to blame)?	The primary problem is with school leavers who lack both basic skills and particularly the right attitudes towards work. There is much less of a problem with gradates who primarily are coming from a chemical engineering discipline.

What provision is lacking?	For this industry, most non-technical provision required is available on the open market through FE and private training providers. What is on offer is generally not contextualised to the downstream petroleum industry and generally the industry lacks leadership and leverage to do much about this.
What quality standards need to be improved?	There is a recognition that standards of customer care need some improvement.
What would employers like to see developed?	An interactive website that lists training providers by key industries, key contacts and rates their performance within the industry – perhaps with a satisfaction rating like E-bay. The opportunity to share training facilities and resource costs with others would be welcomed – but in the absence of an active professional or trade association with a commitment to training, it needs facilitating.
Is cost a problem?	Support with training costs is not a particular problem but Cogent could help by improving the transparency of procedures for making applications for grant aid. Funding support is very uneven and it is needed particularly to improve site management skills for forecourt operations. When applications have been made for this specific job role they have not been taken seriously. Funding for training within the whole supply chain is important. There needs to be some joining up of resources with contractors as well as the major employers to ensure consistency in quality standards.

How and where can Cogent help?

For some employers in this industry, this is their first contact with Cogent. This project is an opportunity for them to establish their credentials

Cogent could be particularly helpful in establishing a network of trainers within the industry to share ideas and best practice.

Cogent must address the weaknesses in some of the N/SVQs in this industry and also look at the cost-efficiency of their implementation.

Cogent could also assist the industry to better understand its own needs by establishing a training needs analysis of the downstream side.

Cogent might also like to advise on how best to build a career development strategy for the downstream industry.

Cogent could help the industry by using its website to identify training suppliers that meet recognised quality standards (which they might set with industry employers), to advertise course availability and to broker collaborative training provision.

3 Interpretation of findings and conclusions

Introduction

This brief overview of training supply issues in four of Cogent's key industries has been based on separate 3 hour meetings with senior HRD professionals from the Chemicals, Polymers and Nuclear industries and on 30 minute telephone conversations with senior HR staff from the downstream Petroleum industry.

Those involved were from major companies; hence the views of SMEs have not been canvassed. However, large companies dominate all these industries and it is probable that the views expressed are reasonably representative of those in the industry as a whole.

While this has been a very small canvass from which to draw conclusions, the congruence of opinions expressed within each workshop group suggests that the issues that have emerged are the most important ones.

In terms of responses between industries, there was much in common between Chemicals and Polymers, but Nuclear and downstream Petroleum are each distinctively different.

Common issues

All of the industries are capital intensive; hence labour costs are a relatively small proportion of total operating costs. Also, all of the industries are safety critical and obliged to maintain high standards of competence in areas such as health, safety and environmental management. In consequence, a significant investment in training is a requirement not a choice and the availability of Government support makes little real difference to what companies actually spend. That is not to say that they do not welcome additional support.

All of the industries believe that they suffer from a poor 'image' problem in the labour market, particularly in schools. This is attributed in part to the Government's lack of interest in promoting UK manufacturing industry and in particular to a refusal in schools to promote vocational training routes in manufacturing at 16 because it undermines their ranking in league tables. There are also additional presentational problems in each industry. None are regarded as 'Green' or leading edge and there are many mis-perceptions about what jobs in them entail. In consequence, participants believed that they were struggling to attract school leavers and graduates in sufficient numbers and of a sufficiently high calibre and were also losing many trained people to more attractive organisations.

All of the industries believe that to establish its credentials Cogent must help them address this image problem and raise the profile of their industry in the eyes of potential recruits.

Ironically, the reason why recruitment is becoming a serious problem for most industries is that they have been very successful in retaining labour – which is a good thing and indicative of good working conditions but which has the downside of creating an aging workforce many of whom are soon to retire.

Surprisingly, many of the large organisations are not well networked in terms of training and HR Development. Whether this is the consequence of competitive pressures or of the constantly changing ownership in some industries, was not clear. However, all participants thought they had much to learn and gain from each other and suggested that the development of such networks could be a key role for Cogent to play.

The types of networks discussed went well beyond that of regular forums for information exchange. There was recognition that there are qualitative problems with training supply and also inefficiencies in training delivery which effective network arrangements could help to address. Again, the potential role of Cogent as a facilitator emerged very strongly.

Turning to the issue of training supply, there are evidently significant shortages in process engineers, technicians and craftsmen that affect all industries. The shortages are such that wage inflation and poaching of trained staff is going on within and between industries.

Process engineering is a broad field and the shortages are evident right up to the most senior levels. There are also shortages of specialists who design process engineering systems including particularly robotics and related automated systems. These are thought to be holding back new product development in the chemicals and polymers industry.

Relationships between the industries and the Further and Higher Education system are very patchy. While there are bright spots in both FE and HE where relationships are very good, for the most part there is little connectivity and a degree of mistrust regarding the quality standards the colleges and universities (at 1st degree level) are achieving. In part this is because a very high proportion of training in these industries is done on site by in-house trainers or private contractors, and in part because the demands of employers are often too specialised for colleges to deal with. Group Training Associations are thought to be more effective but only operate in limited areas in England. At postgraduate and doctoral level the connections and networks are a lot better as the industries rely on selected universities to assist them with CPD programmes.

Although a number of professional bodies, particularly in engineering and scientific disciplines, have members within the industries surveyed, none exercises any dominant influence on training. However, in many cases their CPD frameworks are used by employers as a valid benchmark for maintaining competence.

There was a significant absence of comment in the workshops about management and supervisory training, although the previous LMI surveys revealed concerns that these are skill-gap areas. Whether this is because companies feel they have got this about right or whether it is the production processes that dominate the training agenda was not clear. Some mention was made about the need for senior management to be more market oriented and for improvements to be made in leadership training

Annex 1 Framework for Analysis

What are the key questions that need to be asked?

- **Breaking down the question**

Assessing the provision of training is a complex process as there are many factors influencing both the questions and the answers. It helps therefore to break the question down into components in order that proper focus can be given to the real issues.

Work based performance comprises three main sets of activity:
- Carrying out tasks specific to the work role
- Managing tasks specific to the work role
- Contributing to the management of the organisation

Competence in one area does not automatically infer competence in either of the others, yet weakness in any area generally damages the credibility of the practitioner as a competent person. Thus a training provider, who does a brilliant technical training job, can be perceived, as incompetent if they fail to recognise and address the trainees needs in task and organisational management roles.

- **A Framework for Analysis**

The project brief sets out the following areas of enquiry. The matrix below indicates where we shall be seeking answers

Key Questions	***Skills domain***	***Level (2/3/4/5)***	***Criteria for assessment***	***What is the evidence of this***
• **How employers decide what good quality provision is ('scoping mechanism')**	Developing technical knowledge & skills			
	Developing leadership and organisation skills			

Key Questions	*Skills domain*	*Level (2/3/4/5)*	*Criteria for assessment*	*What is the evidence of this*
	Developing core behaviours & attitudes			
			Type/ Mode of training / provider	***What is the evidence of this***
• **By industry, at an operational level, the types of training (public and private) that are valued by employers and the reasons why**	Technical functions			
	Leadership and organisation functions			
	Behaviours & attitudes			
			Content/ scope	***What is the evidence of this***
• **What provision is lacking**	Technical skills			
	Leadership and organisation skills			
	Behaviours & attitudes			
			Gaps	***What is the evidence of this***
• **What employers would like to see developed**	Technical skills			
	Leadership and organisation skills			
	Behaviours & attitudes			

Key Questions	*Skills domain*	*Level (2/3/4/5)*	*Criteria for assessment*	*What is the evidence of this*
			Imbalance between Knowledge & Skill	***What is the evidence of this***
• **Opinions on whether current provision provides learners with not only the knowledge, but the skills they require to be operational and which types of training do this well**	Technical skills			
	Leadership and organisation skills			
	Behaviours & attitudes			
			IPD/CPD	***What is the evidence of this***
• **Establish the types of provision that are valued at entry to employment and those that are valued as CPD.**	Technical competences			
	Leadership and organisation competences			
	Behaviours & attitudes			

Other issues that it may be helpful to explore

In addition to above required outcomes it is suggested, should time and industry group allow, that the following areas are explored:

- How employers source/resource training
- The determining factors behind the use of internal or external training
- How employers monitor and evaluate the fitness-for-purpose of training
- How employers monitor and evaluate the value-for money aspect of training
- The preferred/available modes of learning/training
- What employers consider to be added-value from training
- What provision is lacking and the level of interest in having it developed
- Other as identified as useful (by agreement with Cogent)

Structure of Telephone Interviews (Petroleum)

Proposal to Undertake Work on SSA Phase 2

The Assessment of Current Provision

Introduction

Thanks
Purpose
Time it will take

Training needs

Exploring Industry Drivers

Markets
Technology
Regulation
How work is organised

Skills Shortages?

Skills Gaps?

Carrying out tasks specific to the work role
Managing tasks specific to the work role
Contributing to the management of the organisation

Training supply

Who provides training now?

Operative
Skilled
Technician
Professional/managerial

How do employers judge they are getting what they are paying for?

What are new entrants lacking (and who is to blame)?

What provision is lacking?

What quality standards need to be improved?

What would employers like to see developed?

Is cost a problem?

How and where can Cogent help?