



## **Sandwich Courses in Higher Education**

### **A report on current provision and analysis of barriers to increasing participation**

**July 2011**

E4E is the body through which the engineering profession offers coordinated and clear advice on education to UK Government and the devolved Assemblies. It deals with all aspects of learning that underpin engineering. It is both proactive and reactive to ensure that the education system continually remains appropriate to meet the challenges facing society. It is hosted by The Royal Academy of Engineering with a wide membership drawn from the professional engineering community including all of the professional engineering institutions.

## Executive Summary

This report details current provision of sandwich courses in UK Higher Education and barriers to participation. Sandwich course is term given to work experience during a university degree course. This work experience is usually 'sandwiched' between the second and third year of a degree. Sandwich courses are sometimes a formal part of a degree course and may sometimes be assessed. However, they are only one of a number of opportunities available for students to gain experience of the workplace. Other non-formal work placements provide students with experience of the working environment along with vacation work.

Over recent years there has been a downward trend in the number of participants on sandwich placements. However, there is increasing speculation among the community of university placement and careers advisory practitioners<sup>1</sup> that the number of students taking sandwich years will begin to rise again with the introduction of increased tuition fees. This is because an increasing number of HE institutions will look for differentiators and additional value in their offering for prospective students, and students themselves will become more aware of the long term benefits of undertaking placements. If this is the case and numbers of students opting for sandwich placements increases, then a significant issue may be in attracting more industrial partners to join placement schemes.

### **We ask Government to publically support Sandwich Courses highlighting the benefits to Individuals, Employers and Universities.**

Sandwich Courses during undergraduate degree programmes offer excellent experience and enhanced employment prospects for students and provide universities and employers with a better class of graduate who demonstrate higher quality work and demonstrating better personal management. There are many other benefits for all stakeholders detailed in this report, yet there is a surprisingly low uptake for placements by university students and in recent years there has been a steady year-on-year decline in the number of students taking sandwich course degrees: from 9.5% of the total full-time cohort in 2002/3 to 7.2% in 2009/10<sup>2</sup>.

From Higher Education Statistics Agency (HESA) data, in the period 2003-2009, sandwich placements were taken in 113 out of 199 Higher Education Institutions. Twenty HEIs provided approximately 70% of all placements to businesses and industry. It should be noted that the data presented does not distinguish between full academic year 'thick sandwich' placements and the shorter 3 or 4 month 'thin sandwich' placements.

The most popular sandwich courses by Joint Academic Coding System (JACS) subject grouping are: Business and Administrative Studies, Mathematical and Computer Sciences, Engineering and, Architecture, Building and Planning. Analysis of the data identifies a significant drop in sandwich placements in the Mathematical and Computer Science subject group over the 8 year period examined. This is believed to be a reflection of the substantial decline in computer science undergraduates over the same period. If this subject group is removed from the analysis, there is, in fact a very slight uptake in sandwich placements over the period.

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<sup>1</sup> Placement & Work Based Learning Task Group of AGCAS (Association of Graduate Careers Advisory Service)

<sup>2</sup> Higher Education Statistics Agency 2010

Within engineering disciplines, there are currently 600 undergraduate degree programmes offering sandwich placements through UCAS. This is approximately a quarter of all Engineering courses on offer. The Sandwich courses are on offer at Masters, Bachelor and Foundation level.

The number of engineering students undertaking industrial experience has remained fairly stable at around 13000 from 2003 to 2009. Mechanical, Civil and Electronic engineering have the highest number of sandwich placements. Again, a small number of universities provide the substantial majority of sandwich placements, in particular, those with a history of sandwich courses such as Loughborough University, University of Bath, Brunel and Aston, in addition to a number of post-1992 institutions where the tradition of Sandwich Courses has been strong.

Historically, research intensive institutions have not offered sandwich courses. However, with the impending introduction on increased tuition fees, a number of Russell Group Universities are looking again at placements as an additional offering to future prospective students.

Comments from members of the Placement & Work Based Learning Task Group of AGCAS (Association of Graduate Careers Advisory Service) point to a number of barriers to increasing the number of students taking sandwich placements. These are divided into barriers for *students*, *universities* and for *employers*.

#### *Students*

The overwhelming barrier to increased take-up of Sandwich Courses is down to students, despite the fact that there are substantial benefits for the individual in taking up placement opportunities. The issues cited are in the main, practical. The barriers include the need to fill out application forms during busy periods of the year, uncertainty in securing a placement, strong peer group pressure to opt out of taking up placements, finding a placement close to the university or parents' home, a preference to concentrate on undergraduate studies and a desire to finish studies early to start work.

#### *Institutions*

For Institutions, there is a need to commit substantial human resource to developing and maintaining relationships with employers. There is a need for close personal contact with employers from academic and administrative staff. Where this relationship exists, there are often repeat placements, as employers know that they will receive good quality students. In terms of developing new business, there is again substantial effort required to convince employers of the value of placements (particularly SMEs) and to build relations and trust.

#### *Employers*

Barriers for employers to providing placement opportunities are usually associated with the costs and time required, in particular for supervision; the time to set-up and to monitor projects or work tasks that students undertake, the time and effort to make links with higher education institutions and subsequently the potential students. In some circumstances, employers are put off by the high costs in establishing an appropriate work-station for work-experience students. There is also a concern among employers about the quality of the placement student, although this is generally mitigated by interview and selection procedures and interventions by academic staff.

## Introduction

Sandwich placements undertaken on undergraduate degree programmes are well recognised by professionals and academics as having a significant positive effect on students' personal development. The CBI in its report "*Future Fit: Preparing Graduates for the World Work*" (2009) encourages the use of work based learning in Higher Education programmes to better prepare students for work and to improve employability and transferable skills.

For students, there are numerous benefits associated with Sandwich Courses including enhanced employment prospects, improved skills, the opportunity to experience the working environment in the chosen subject area and improved academic grades<sup>3</sup>. A study conducted in 2004 found that participation in placement schemes significantly enhanced the likelihood of students' attaining first class or upper second class honours degrees<sup>4</sup>.

The National Council for Work Experience (NCWE) identify additional benefits of placement courses; better knowledge of the business environment, acquaintance of core competencies, familiarity with professional practices, a raising of graduate labour-market value and development of work place maturity<sup>5</sup>.

Work undertaken by the Centre for Higher Education Research and Information has shown improved employment prospects for students having undertaken sandwich courses three and a half years after graduation<sup>6</sup>.

There are also benefits for universities and employers which are discussed in detail later. Yet despite this, there has been a steady decline in the number of Sandwich Courses undertaken in recent years. This report examines the data available on Sandwich Courses for the HE sector as a whole and for engineering subjects specifically. It then looks at the motivations for and barriers against increased participation in sandwich courses.

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<sup>3</sup> Little, B., Harvey, L. *Learning through work placements and beyond*, HE Academy (2006)

<sup>4</sup> Mandilaras, A. *Industrial Placement and Degree Performance: Evidence from a British Higher Education Institution* International Review of Economics Education. Vol 3. No1. (2004)

<sup>5</sup> National Council for Work Experience *Work Related Learning Report*. DfES (2003)

<sup>6</sup> Centre for Higher Education Research and Information (2002)

## Current Participation in Sandwich Courses at UK Universities

The Higher Education Statistics Agency (HESA) holds data on the number of Sandwich Courses by institution and by subject grouping according to the Joint Academic Coding System (JACS). All data shown in this report was sourced from HESA accessed through the Higher Education Information Database for Institutions (HEIDI)<sup>7</sup>.

The following section presents a general picture of sandwich courses followed by detailed analysis of engineering sandwich courses.

Detailed tables of sandwich courses by participating HE institutions can be found in table A1 in appendix A. Table A2 lists those institutions over the period 2002/3 – 2009/10 which did not enter students for placement – it should be noted that some of these institutions may have other forms of work experience opportunities. Tables of participation by JACS subject code can be found in table A3 in appendix A. Data on participation in engineering industrial placement can be found in table B1 in appendix B.

Figure 1 shows the Full Person Equivalent (FPE) participation in Higher Education over the last eight years by mode of study. This includes Full-time (FT), Sandwich and Part-time (PT). Table 1 shows the data for figure 1.

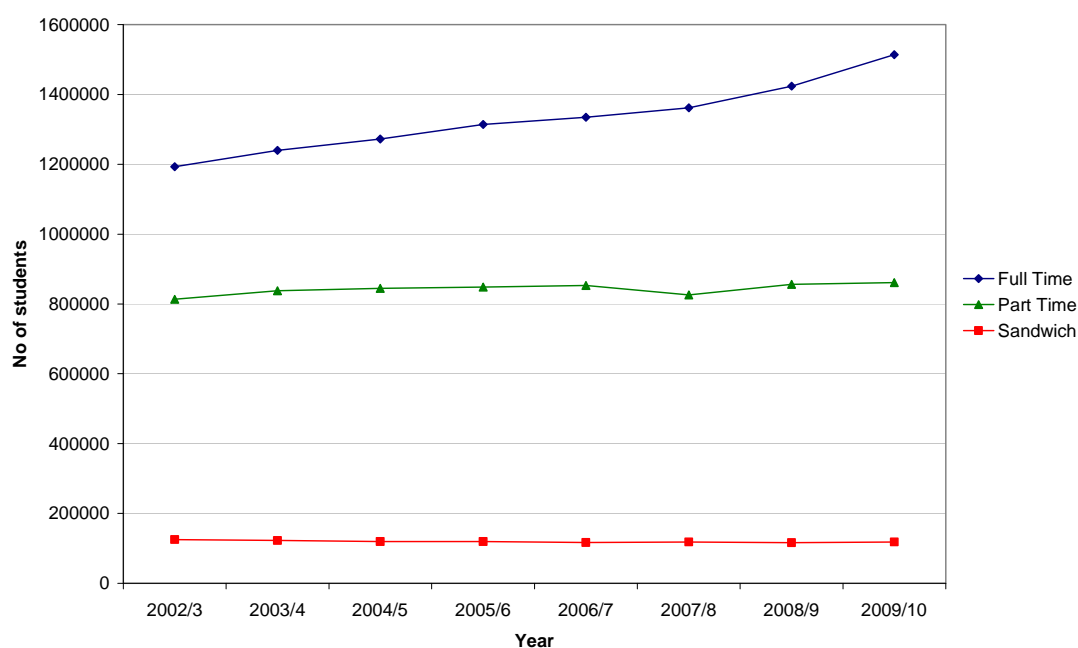


Figure 1: Number of FPE students in HE by mode of study 2002-2009: all domiciles, all years

	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	8 yr trend
FT	1192875	1239855	1272125	1313820	1335030	1361950	1423900	1514000	21.2
S'dwich	125140	122370	119405	119245	116695	118400	116135	118110	-6.0
PT	813030	837945	844790	848230	853010	825740	856010	861300	5.6

Table 1: Number of FPE students in HE by mode of study 2002-2009: all domiciles, all years

<sup>7</sup> HESA Higher Education Information Database for Institutions <https://heidi.hesa.ac.uk/>

Figure 1 and table 1 show a well recorded increase in participation in HE of 21% for full time mode of study between 2002 and 2009. As a proportion of full-time equivalent participation in HE (i.e. excluding part-time mode of study) the proportion of students undertaking sandwich courses has fallen from 9.5% in 2002/3 to 7.2% in 2009/10. The decline has been continuous throughout the period.

However, the relative decline in the number of students taking Sandwich Courses over the same period is only 6% and it is the increase in participation in HE overall that suggests a greater fall in sandwich placements.

Analysis of the data by Institution shows placement opportunities offered by 113 out of 199 Higher Education Institutions listed. Twenty HEIs provided approximately 70% of all placements to businesses and industry. Table 2 lists the institutions and average number of placement students over the period.

Institution	8 year Average	Cohort %	Cumulative %
University of Ulster	8514	7.1	7.1
Sheffield Hallam University	6131	5.1	12.3
The University of Surrey	5438	4.6	16.8
University of the West of England, Bristol	5355	4.5	21.3
The Nottingham Trent University	5255	4.4	25.7
Bournemouth University	4889	4.1	29.8
The University of Bath	4659	3.9	33.7
University of Hertfordshire	4498	3.8	37.5
Loughborough University	4321	3.6	41.1
Aston University	4264	3.6	44.6
The University of Huddersfield	4210	3.5	48.2
Leeds Metropolitan University	4029	3.4	51.5
The University of Northumbria at Newcastle	3729	3.1	54.7
The Manchester Metropolitan University	3636	3.0	57.7
Brunel University	3498	2.9	60.6
Coventry University	3022	2.5	63.2
Oxford Brookes University	2169	1.8	65.0
The University of Portsmouth	2066	1.7	66.7
Teesside University	2027	1.7	68.4
Staffordshire University	1956	1.6	70.0

**Table 2: Number of FPE students in HE by mode of study 2002-2009: all domiciles, all years**

Table 2 shows a mixture of higher education institutions with a strong tradition in providing sandwich courses (such as the University of Surrey, Loughborough, Bath and Brunel Universities) alongside many post-1992 universities, which is unsurprising as sandwich degrees were a distinguishing characteristic of provision in the former polytechnics. Tables A1 and A2 in the appendix have institutions colour coded by university mission group to aid the reader.

Figure 2 overleaf shows the participation of Sandwich Courses by JACS subject grouping for the seven subject groupings with largest participation. All subject groups had some amount of participation in placements. The detailed list of placement

participation by subject groups and specific subject JACS codes can be seen in table A3 in the appendix. Medicine had the lowest number (only twenty five over the eight year period) which is to be expected because of the highly vocational and practical mode of provision in university teaching hospitals.

By far the greatest number of placements undertaken was in the Business and Administrative Studies subject grouping. This saw a small decline in the first half of the eight year period followed by a slow gradual increase towards 2009.

The most significant line on the graph is the very steep decline in placements in the mathematics and computer science subject group. This is most likely in direct correlation with the very steep decline in numbers of students taking computer science degrees, which has fallen 21% in the last ten years<sup>8</sup>.

Engineering has maintained a relatively steady participation level of around 13000 placements per year with some growth towards the end of the period. All other subject areas demonstrate a similar trend. Engineering will be examined in detail in the next section.

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<sup>8</sup> Strategically Important and Vulnerable Subjects. The HEFCE advisory group's 2009 report [http://www.hefce.ac.uk/pubs/hefce/2010/10\\_09/](http://www.hefce.ac.uk/pubs/hefce/2010/10_09/)

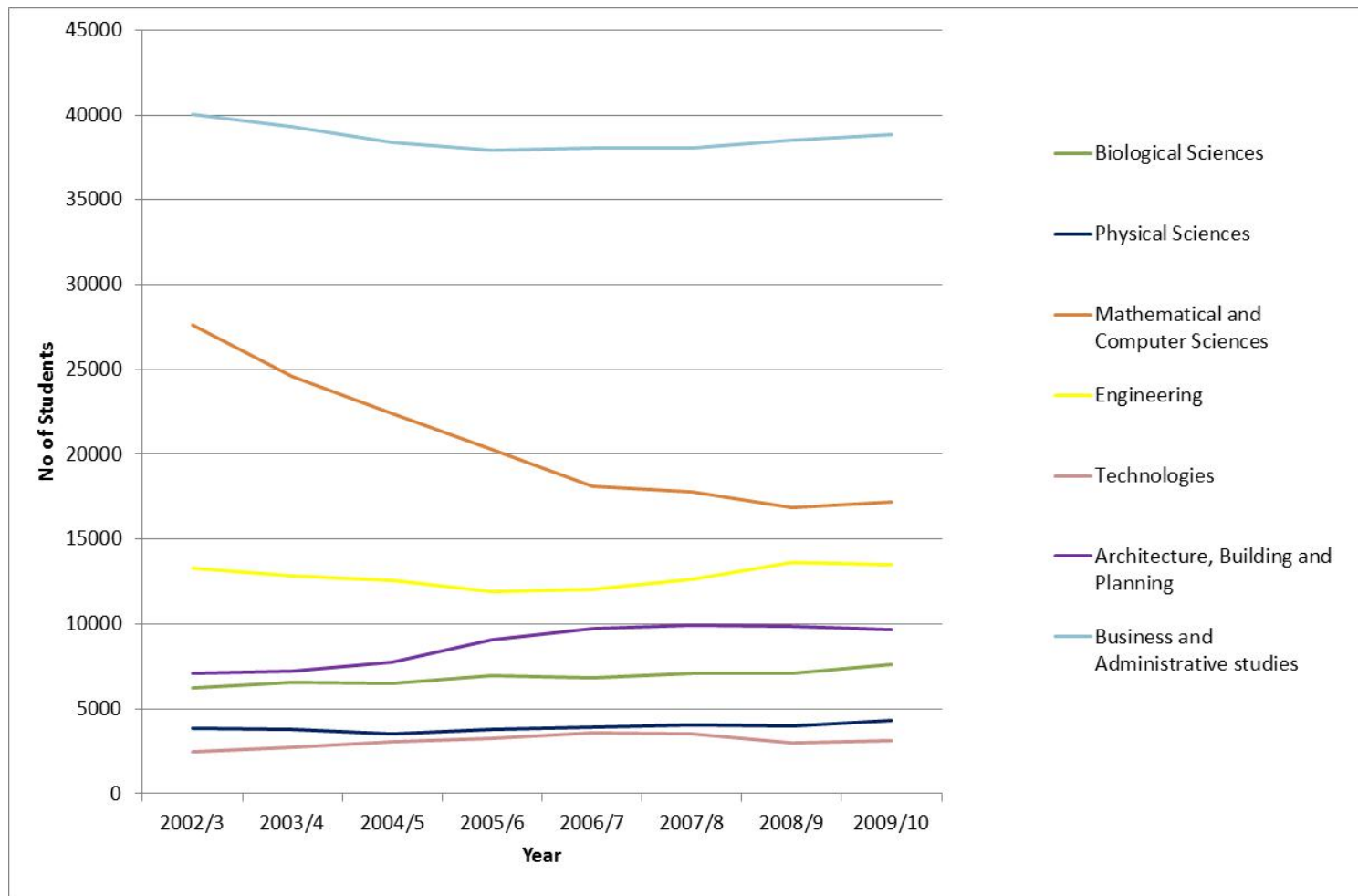


Figure 2: Number of FPE students in HE by JACS subject grouping 2002-2009: all domiciles, all years

## Engineering Sandwich Courses at UK Universities

For engineering, it is particularly important that students are given real industrial experience to provide them with the ability to marry practical vocational needs and business constraints with academic theory of underpinning engineering principles. It is precisely the work-related skills and business perspective that employers feel is lacking in today's graduates.

This section details the present placement opportunities in engineering at UK higher education institutions and presents the current participation across various engineering disciplines.

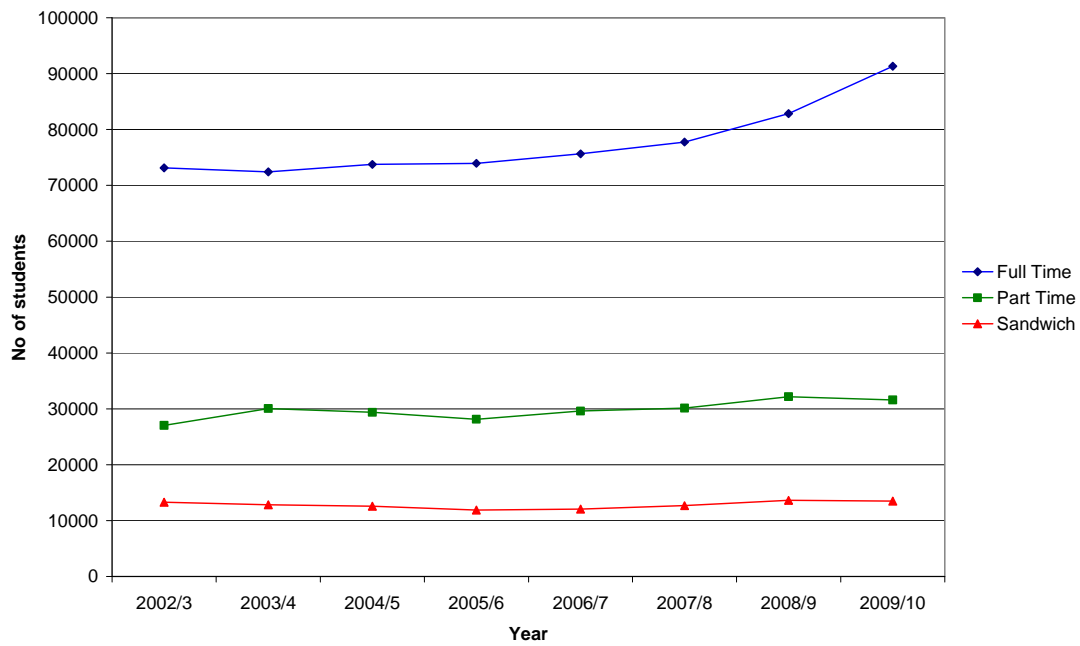
The UCAS application service lists in total 2468 different engineering undergraduate courses<sup>9</sup>. Of these, 600 are sandwich courses. The breakdown by qualification level is shown in table 3. In all, sandwich courses make up just under a quarter of first-degree qualifications in engineering subjects at UK universities.

HE Course type	No of courses
All Engineering Degree Courses	2468
B.Eng Sandwich courses	303
B.Sc Sandwich courses	126
M.Eng Sandwich courses	166
Foundation degree sandwich courses	5
Total Eng HE courses with Sandwich degree	600 (24%)

**Table 3: Undergraduate engineering degree courses**

In terms of participation on sandwich placements, engineering as a subject area compares well with other JACS subject groups, with on average 14% of the cohort undertaking a placement between 2002/3 and 2009/10. There has been a reduction in participation of sandwich placements as a proportion of the cohort in recent years but this is because of an increase in full time students which has not been matched by an equivalent rise in participation in sandwich placements. This can be seen in the graph in figure 3 overleaf.

<sup>9</sup> UCAS application portal. <http://www.ucas.ac.uk/>.



**Figure 3: Number of FPE students in engineering subjects by mode of study 2002-2009: all domiciles, all years**

Figure 4 overleaf shows the participation of engineering sandwich courses by JACS principle subject code. There is significant variation in participation by subject and there is also variation in trends for individual subjects. The overall participation rate remains relatively constant. However, further analysis reveals that steep declines in general engineering and production & manufacturing engineering are masked by growth in mechanical and civil engineering subject areas. Table 4 shows the data in detail.

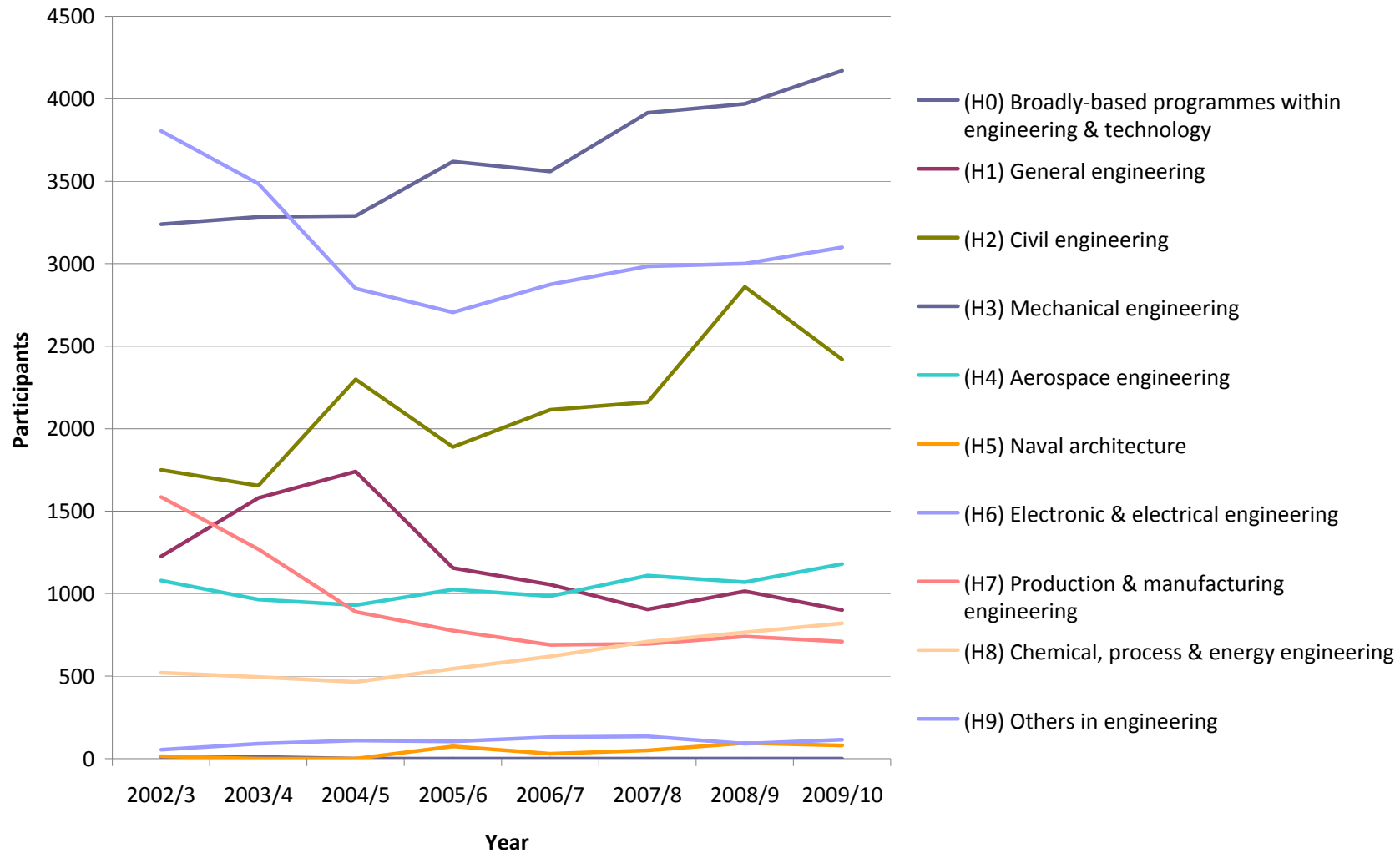


Figure 4: Participation in engineering sandwich degree courses by JACS subject code: all domiciles, all years

	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10
<b>(H0) Broadly-based programmes within engineering &amp; technology</b>	10	10	0	0	0	0	0	0
<b>(H1) General engineering</b>	1225	1580	1740	1155	1055	905	1015	900
<b>(H2) Civil engineering</b>	1750	1655	2300	1890	2115	2160	2860	2420
<b>(H3) Mechanical engineering</b>	3240	3285	3290	3620	3560	3915	3970	4170
<b>(H4) Aerospace engineering</b>	1080	965	930	1025	985	1110	1070	1180
<b>(H5) Naval architecture</b>	15	0	0	75	30	50	95	80
<b>(H6) Electronic &amp; electrical engineering</b>	3805	3485	2850	2705	2875	2985	3000	3100
<b>(H7) Production &amp; manufacturing engineering</b>	1585	1270	890	775	690	695	740	710
<b>(H8) Chemical, process &amp; energy engineering</b>	520	495	465	545	620	710	765	820
<b>(H9) Others in engineering</b>	55	90	110	105	130	135	90	115
<b>Totals</b>	<b>13285</b>	<b>12835</b>	<b>12575</b>	<b>11895</b>	<b>12060</b>	<b>12665</b>	<b>13605</b>	<b>13495</b>

**Table 4: Participation in engineering sandwich degree courses by JACS subject code: all domiciles, all years**

Table 5 shows the most popular universities for engineering sandwich courses (2008/09). Loughborough University plays a particularly important (and well recognised) role in placements for the engineering sector. Table 6 overleaf shows the universities with the highest participation rates for specific engineering programmes according to JACS descriptors. Again, Loughborough University is highlighted as an institution which has three of the highest participation rates; in mechanical, production and manufacturing and, process, chemical and energy engineering.

<b>Institution</b>	<b>total</b>
Loughborough University	1870
Coventry University	1025
The University of Northumbria at Newcastle	1020
The University of Bath	905
The University of Surrey	785

**Table 5: Most popular institutions for engineering sandwich courses 2008/9: all domiciles, all years**

Institution	Course	Number of students
University of Ulster	General Engineering	175
The University of Northumbria at Newcastle	Civil Engineering	460
Loughborough University	Mechanical Engineering	555
University of Hertfordshire	Aerospace Engineering	190
Southampton Solent University	Naval Architecture	95
The University of Northumbria at Newcastle	Electronic and Electrical Engineering	415
Loughborough University	Production and manufacturing Engineering	255
Loughborough University	Chemical, process and energy engineering	170
Sheffield Hallam University	Others in Engineering	40

**Table 6: Most popular institutions for engineering sandwich courses 2008/9: all domiciles, all years**

## Barriers to increasing participation

Higher education and the market for work have changed significantly in recent years, with higher education moving towards increased participation and the employment market creating a drive in higher level qualifications. Forty-five percent of young people continued their studies at Higher Education Institutions in 2008/09<sup>10</sup>, compared to one-in-eight in 1980<sup>11</sup>. However, it is clear from the data that the number of students choosing sandwich placements is falling.

There are conflicting arguments as to whether there is insufficient supply of students for placements, a lack of encouragement from universities or demand from employers. It is likely that all factors play their part to a varying degree. This section reports the views of Careers and Placement practitioners and employers interviewed for this study on the barriers to participation<sup>12</sup>. The three key stakeholders; Students, Universities and Employers are examined in turn.

<sup>10</sup> EngineeringUK 2011 report. [www.engineeringuk.com](http://www.engineeringuk.com)

<sup>11</sup> Skills and Enterprise Network, 1998

<sup>12</sup> Interviews were conducted with; Michelle Kavan, Deputy Director, Placement and Careers Centre, Brunel University (Chair of the Placement & Work Based Learning Task Group of AGCAS); Jenny Jones, Director, Careers and Employability Centre, Loughborough University; Chris Ward, The Year in Industry, (gap year placements), EDT; Richard Hamer, Director, Education Programmes, BAE Systems.

## Students

The benefits of placements for students are well-rehearsed and have been presented earlier in this report. But what of the barriers? Discussions with university placement directors at Loughborough and Brunel Universities, members of the Placement & Work Based Learning Task Group of AGCAS, revealed a number of common issues. The overwhelming barrier at present to an increase in placements is from students themselves. The issues are generally very practical and universities take great efforts to overcome them, but they must not be underestimated.

The process of finding a place for a sandwich student typically starts at the beginning of the second year. Special lectures are often put on to help students get through the business of where to look for placements, how to write CVs and application forms and interview techniques. Application forms are sent, typically by late October or early November. The problem begins around this time because many employers are prioritising the graduate recruitment process. If students have not got a position secured by the Christmas break, they start worrying about where they will live the following year. There is then significant peer pressure by friends who have accommodation prepared, but need an additional person to share. From the student's perspective, the support network of friends is very important. A student taking a year out for a sandwich placement will have to make new friends on their return for the final year. While this appears to be a trivial issue, it is a strong driver against the take-up of sandwich placements.

Other factors which are important to students include finding a sandwich placement close to the university or parents' home. If the sandwich placement is away from these centres, the student has to find accommodation near the employer. Large employers with long histories of providing sandwich placements will often have good systems in place, including contacts with local lettings agents, bulletin boards to put employees in contact with students. Employers in remote areas such as BAE Systems in NW England will typically have more support in place compared with employers in London or Birmingham. According to the interviewees, increasingly students are using social networking sites to arrange accommodation.

Further barriers identified by placement officers who have conducted surveys amongst their students include lack of confidence with writing applications, cold calling to identify placement opportunities, enquiring about the outcome of the application and negotiating the work placement framework.

For some subject areas, placements will be unpaid. This is a significant barrier for students. Students are also reluctant to take up any placement which is not related to their studies and are concerned that the placement will result in excessive work load or repetitive, tedious or otherwise "inappropriate" work. In many cases, students are keen to complete their studies and begin work with higher salaries.

*A note on diversity*

Ethnicity is also regarded as a barrier for students to undertake a placement course. Most research on graduate employability has centred on issues faced by traditional students and has failed to capture the specific issues faced by inner city and multi-ethnic students. Students from ethnic groups and skilled manual/partly skilled or unskilled backgrounds are known to be disadvantaged in the graduate labour market and need to access the benefits that can be gained from placements. Statistics from the Commission for Racial Equality (CRE) show that an African Caribbean graduate is more than twice as likely to be unemployed as a white person with A-levels, and that African men with degrees are seven times more likely to be unemployed than white male graduates<sup>13</sup>.

## Employers

Employers offer work placement opportunities to students for various reasons. The National Council of Work Experience undertook a survey in 2003 to find the main reasons for taking on placements<sup>14</sup>. They found the main reason is to find suitable permanent staff. There are also opportunities for employers to build relationships with very high quality students to aid their recruitment on qualifying in their degree. Employers see placements as a way to source high-calibre graduates ahead of the milk-round and also as a mechanism for conducting a long-term trial before committing to taking on a particular person.

Placement opportunities are also taken on as a gesture to the community or local student population, to undertake a specific project, to cover busy periods and to meet an immediate need. The low wages that can be paid are an additional attraction.

The main reason that employers are reluctant to offer placements to students is because of the costs associated. These include the time of permanent staff to supervise a student, to set-up and to monitor projects or work tasks that students undertake, and low skill levels of undergraduate students are cited as a cause for concern. Employers also feel that the time and effort taken to make links with higher education institutions is a burden.

In some cases there are high costs in establishing an appropriate work-station for placement students. For some employers, the requirement to pay a wage is seen as an additional cost, even when the amounts in question are relatively small<sup>15</sup>.

## Universities

Universities tend to benefit from sandwich placements because of improved links with industry and better grades from placement students. From the perspective of the academic staff, there is a clear distinction with respect to students who have undertaken a placement compared with those who have remained at university; with the former producing higher quality work and demonstrating better personal

<sup>13</sup> Balta, M. Investigating the motivations and barriers to undertake work placements. Brunel University 2010

<sup>14</sup> Work Experience Survey Results, National Council for Work Experience, 2003

<sup>15</sup> Balta, M. Investigating the motivations and barriers to undertake work placements. Brunel University 2010

management. The opportunity for universities to develop greater links with industry through sandwich placements also enables research collaborations to develop and for Institutions to cross-sell CPD courses to employers. A further benefit for universities is that students will continue to pay fees for the year in industry (albeit substantially reduced) and the institutions will continue to receive funding from HEFCE. Universities themselves also offer sandwich opportunities and placements to the students they are teaching.

However, higher education staff also experience barriers to increasing the number of placements. These include the time and effort required to establish and maintain links with employers; the subsequent time to monitor, assess and evaluate placement situations; inadequate funding to support placement initiatives and the lack of recognition to academic staff engaged in this type of activity, particularly with heavy pressure on research output. A developing problem is the lack of industrial experience of a growing percentage of academic staff. They have little knowledge of, or empathy with industry and can consciously (or sub-consciously) discourage students from even considering Sandwich Courses.

Increasingly universities are using a careers and placement team to find new employer partnerships. New business and employer liaison team will promote placement opportunities alongside research when talking to businesses. Some HE Institutions with new business incubator facilities will also work closely with the start-ups to see if student placements can fill the necessary functions required. This is particularly attractive for small businesses who do not want to commit to permanent staff. However, there is a need for university academic and administrative staff to manage expectations of SMEs and small businesses, as many students are looking for large scale businesses and are not prepared to commit a year out for a small company. This can often lead to SMEs offering placements but having no take-up.

One of the problems facing modern Sandwich Courses is that the model is still based on the traditional one-year sandwich placements originating from the 'big company' practice of the 1950s. While in engineering, for large employers the 6 month or whole year placement is likely to continue, the system will need to be more flexible to meet the needs of SMEs and for companies in other sectors. The challenge is to develop a *new model* suitable for SMEs in the 21st Century. This will probably be based on a *consortium* approach. According to members of the Placement & Work Based Learning Task Group of AGCAS, this is indeed happening in other subject areas. Already, some arts based placements may comprise of three or four 3-month placements, some of which, by necessity, will be unpaid.

## Conclusions

There is clear evidence of benefits from Sandwich Courses for individuals, employers and universities. Among these benefits are greater employability for students, the opportunity for employers to find new staff without committing to full employment and for universities there is better interaction with industry and improved grades of the returning students in final year studies.

Yet over recent years the number of students taking placements has been falling. From 9.5% of the full-time cohort in 2002 to 7.2% in 2009. The most popular sandwich courses by Joint Academic Coding System (JACS) subject grouping are:

- Business and Administrative Studies
- Mathematical and Computer Sciences
- Engineering
- Architecture, Building and Planning

There has been a particularly sharp decline in Mathematics and Computer science placements which will skew the data but nevertheless student take-up of sandwich courses is very low.

From Higher Education Statistics Agency (HESA) data, in the period 2003-2009, sandwich placements were taken in 113 out of 199 Higher Education Institutions. Twenty HEIs provided approximately 70% of all placements to businesses and industry.

Within engineering disciplines, there are currently 600 undergraduate degree programmes offering sandwich placements through UCAS. This is approximately a quarter of all Engineering courses on offer. The Sandwich courses are on offer at Masters, Bachelor and Foundation level.

The number of engineering students undertaking industrial experience has remained fairly stable at around 13000 from 2003 to 2009. Mechanical, Civil and Electronic engineering have the highest number of sandwich placements. A small number of universities provide the substantial majority of sandwich placements, in particular, those with a history of sandwich courses such as Loughborough University, University of Bath, Brunel and Aston, in addition to a number of post-1992 institutions where the tradition of Sandwich Courses has been strong.

With the introduction of tuition fees, it is highly likely that a number of institutions will begin to re-examine the sandwich course offer as a means of differentiation and providing greater employability to prospective students. In addition, it is possible that future student cohorts will take up more placement opportunities.

The key issues which need to be overcome to ensure greater uptake are: Practical impediments faced by students; including the need to fill out application forms during busy periods of the year, uncertainty in securing a placement, strong peer group pressure to opt out of taking up placements, finding a placement close to the university or parents' home.

From the universities perspective there is a need to commit substantial human resource to developing and maintaining relationships with employers. This is from both academic and administrative staff. In terms of developing new business, there is

again substantial effort required to convince employers of the value of placements (particularly SMEs) and to build relations and trust.

Employers recognising the value of placements against the costs and time required for supervision; the time and effort to make links with higher education institutions and subsequently the potential students.

If there is a future increase in Sandwich Courses undertaken by students then a significant issue may be in attracting more industrial partners to join placement schemes. Higher Education Institutions may have to develop new models of placement opportunities with employers – particularly SMEs – which see a number of smaller companies taking on students for shortened periods, rather than the traditional 6month or year-long placement model. In engineering however, there may be reluctance on the part of students to undertake sandwich placements in small and medium sized enterprises.

## **Annexe**

## Annexe A

**Table A1: Sandwich course participation by UK Higher Education Institution: all domiciles, all years**

	Russell Group	1994 Group	Million +	University Alliance	No affiliation							
Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %	
University of Ulster	8305	8985	9160	9540	8830	8425	7740	7125	8514	7.1	7.1	
Sheffield Hallam University	6605	6325	6045	5800	5640	5975	6340	6320	6131	5.1	12.3	
The University of Surrey	5190	5475	5200	5235	5285	5660	5830	5630	5438	4.6	16.8	
University of the West of England, Bristol	5055	5355	5005	4985	5725	5850	4630	6235	5355	4.5	21.3	
The Nottingham Trent University	5805	5820	5520	5200	4770	4810	4830	5285	5255	4.4	25.7	
Bournemouth University	4690	4725	4680	4875	4860	4960	5115	5210	4889	4.1	29.8	
The University of Bath	4245	4395	4615	4575	4730	4760	4855	5100	4659	3.9	33.7	
University of Hertfordshire	4465	5090	5310	4685	3640	4965	3650	4175	4498	3.8	37.5	
Loughborough University	4040	4095	4140	4020	4175	4675	4880	4545	4321	3.6	41.1	
Aston University	3360	3730	3975	4360	4570	4750	4805	4565	4264	3.6	44.6	
The University of Huddersfield	4155	3845	3685	4100	4320	4450	4495	4630	4210	3.5	48.2	
Leeds Metropolitan University	4225	4465	4445	4395	4050	3500	3295	3860	4029	3.4	51.5	
The University of Northumbria at Newcastle	4140	4335	4440	3915	3215	3120	3180	3485	3729	3.1	54.7	
The Manchester Metropolitan University	3655	3755	3695	3505	3750	3565	3600	3560	3636	3.0	57.7	
Brunel University	3905	3620	3530	3525	3420	3475	3340	3165	3498	2.9	60.6	
Coventry University	3330	2895	2565	2545	2640	2705	3275	4220	3022	2.5	63.2	
Oxford Brookes University	2095	2070	2075	2335	2245	2320	2180	2035	2169	1.8	65.0	
The University of Portsmouth	1465	1330	1045	1205	1140	1565	4235	4540	2066	1.7	66.7	
Teesside University	1760	1875	2015	2055	2160	2045	2030	2275	2027	1.7	68.4	
Staffordshire University	2250	2195	2215	2250	2180	2210	1405	940	1956	1.6	70.0	

**Table A1: Sandwich course participation by UK Higher Education Institution cont'd**

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
Liverpool John Moores University	1905	1815	1595	1405	1380	1440	1540	1485	1571	1.3	71.4
The University of Brighton	1820	545	1310	1755	1710	1870	1830	1510	1544	1.3	72.7
Kingston University	2320	1875	1520	1380	1290	1220	1310	1300	1527	1.3	73.9
Cardiff University	1385	1420	1430	1420	1500	1425	1550	1555	1461	1.2	75.2
The University of Bradford	1715	1570	1445	1295	1325	1350	1340	1275	1414	1.2	76.3
The University of Plymouth	2550	2080	2005	2010	1445	460	365	270	1398	1.2	77.5
Glasgow Caledonian University	1600	1495	1410	1315	1300	1195	1165	935	1302	1.1	78.6
University of Gloucestershire	1510	1380	1255	1045	1195	1195	1165	1115	1233	1.0	79.6
Harper Adams University College	1110	1105	1070	1155	1200	1305	1390	1520	1232	1.0	80.7
University of Glamorgan	1675	1900	1695	1285	1525	295	845	580	1225	1.0	81.7
The University of Central Lancashire	1170	1055	1095	1150	985	2335	315	1105	1151	1.0	82.7
University of the Arts, London	855	925	930	1045	1025	1075	1120	1095	1009	0.8	83.5
Middlesex University	1560	1400	1365	1070	835	555	410	385	948	0.8	84.3
The University of Manchester	0	0	1070	995	1330	1440	1290	1355	935	0.8	85.1
University College Birmingham	1015	965	935	825	775	800	845	790	869	0.7	85.8
The University of Kent	615	680	735	820	910	960	1065	1095	860	0.7	86.5
The University of Wolverhampton	1330	1060	895	805	730	690	495	360	796	0.7	87.2
The Robert Gordon University	1085	1035	740	850	655	525	615	590	762	0.6	87.8
Southampton Solent University	980	795	930	570	570	655	710	770	748	0.6	88.5
Thames Valley University	220	620	580	770	865	960	960	890	733	0.6	89.1
The University of Salford	1115	855	820	760	650	490	665	150	688	0.6	89.6
The University of Westminster	1020	870	655	580	615	575	435	405	644	0.5	90.2
The University of Nottingham	0	0	705	745	800	885	905	910	619	0.5	90.7
The University of Newcastle-upon-Tyne	145	145	165	155	1395	1180	1020	545	594	0.5	91.2
The City University	745	705	590	545	585	555	550	420	587	0.5	91.7
The University of Lincoln	480	390	405	415	340	780	675	630	514	0.4	92.1

**Table A1: Sandwich course participation by UK Higher Education Institution cont'd**

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
University of Wales Institute, Cardiff	870	850	525	385	405	410	340	295	510	0.4	92.5
The University of Greenwich	920	640	440	480	460	400	305	290	492	0.4	93.0
The Queen's University of Belfast	460	5	0	2035	425	280	245	350	475	0.4	93.4
Aberystwyth University	175	535	520	490	500	425	435	450	441	0.4	93.7
The University of York	470	540	510	460	400	350	355	370	432	0.4	94.1
Edinburgh Napier University	85	455	595	385	405	405	385	280	374	0.3	94.4
The University of Leeds	340	315	150	405	400	430	390	515	368	0.3	94.7
De Montfort University	375	405	435	365	360	410	320	250	365	0.3	95.0
Edinburgh College of Art	345	350	355	365	400	370	375	320	360	0.3	95.3
University of Derby	765	500	380	420	190	170	160	140	341	0.3	95.6
The University of Bristol	210	305	285	350	335	360	355	330	316	0.3	95.9
The University of Reading	225	255	185	285	360	405	390	335	305	0.3	96.1
Glasgow School of Art	285	250	265	275	375	375	310	225	295	0.2	96.4
Birmingham City University	285	250	245	235	305	420	390	205	292	0.2	96.6
Swansea Metropolitan University	375	330	275	260	195	165	180	220	250	0.2	96.8
Anglia Ruskin University	370	330	265	230	200	150	110	225	235	0.2	97.0
London Metropolitan University	570	495	300	210	100	65	45	30	227	0.2	97.2
The University of Sunderland	670	285	215	180	165	100	90	100	226	0.2	97.4
Imperial College of Science, Technology and Medicine	260	215	245	235	235	190	200	195	222	0.2	97.6
The University of Sheffield	0	0	0	0	315	370	390	455	191	0.2	97.7
The University of the West of Scotland	375	305	205	230	150	35	70	70	180	0.2	97.9
Royal Agricultural College	185	235	230	205	240	85	85	0	158	0.1	98.0
University of Manchester	600	655	0	0	0	0	0	0	157	0.1	98.2
The University of Edinburgh	130	135	135	140	150	175	190	175	154	0.1	98.3
The University of Dundee	360	360	355	110	5	0	0	0	149	0.1	98.4

**Table A1: Sandwich course participation by UK Higher Education Institution cont'd**

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
University of Durham	45	100	115	110	40	230	205	220	133	0.1	98.5
Swansea University	75	95	115	115	140	140	180	205	133	0.1	98.6
The University of Cambridge	115	105	55	0	100	195	190	255	127	0.1	98.7
The University of Lancaster	120	115	105	105	105	130	145	175	125	0.1	98.8
The University of Glasgow	205	140	95	65	55	140	135	135	121	0.1	98.9
The University of Manchester Institute of Science and Technology	535	395	0	0	0	0	0	0	116	0.1	99.0
London South Bank University	195	205	110	90	95	90	60	75	115	0.1	99.1
The University of Northampton	270	220	150	25	15	20	25	20	93	0.1	99.2
The University of Hull	90	65	50	95	100	115	105	75	87	0.1	99.3
Bangor University	275	40	70	45	70	55	60	65	85	0.1	99.4
The University of Leicester	65	115	110	100	90	75	75	15	81	0.1	99.4
The University of Exeter	50	80	70	110	60	50	60	105	73	0.1	99.5
The University of Southampton	0	0	0	0	0	0	0	495	62	0.1	99.5
The University of Chichester	90	110	115	25	25	30	30	30	57	0.0	99.6
The University of Birmingham	50	40	45	45	55	55	65	65	53	0.0	99.6
King's College London	50	80	40	35	90	55	30	40	53	0.0	99.7
Buckinghamshire New University	80	120	50	40	45	30	25	15	51	0.0	99.7
The University of Warwick	35	35	50	45	60	60	55	55	49	0.0	99.8
The University of Oxford	0	0	0	0	0	105	105	110	40	0.0	99.8
The University of East London	85	50	55	40	30	20	15	5	38	0.0	99.8
The University of Essex	20	25	35	30	30	35	35	35	31	0.0	99.9
The University of East Anglia	30	25	15	5	20	25	25	55	25	0.0	99.9
University of Chester	40	35	45	35	20	10	10	0	24	0.0	99.9
University of Bedfordshire	35	25	15	25	15	35	20	10	23	0.0	99.9
The University of Liverpool	30	15	10	20	15	15	10	15	16	0.0	99.9

**Table A1: Sandwich course participation by UK Higher Education Institution cont'd**

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
The University of Worcester	20	20	25	10	0	0	5	15	12	0.0	99.9
Writtle College	40	0	0	0	20	15	10	0	11	0.0	99.9
The University of Bolton	20	15	5	5	5	15	10	5	10	0.0	100.0
UHI Millennium Institute	30	0	0	0	10	40	0	0	10	0.0	100.0
The University of Sussex	10	10	10	10	10	10	5	10	9	0.0	100.0
Canterbury Christ Church University	20	20	15	0	0	0	0	0	7	0.0	100.0
Cranfield University	30	0	0	0	0	0	0	0	4	0.0	100.0
The University of Keele	5	5	0	0	0	10	5	5	4	0.0	100.0
The University of Aberdeen	0	0	0	0	0	10	5	10	3	0.0	100.0
University of Abertay Dundee	5	0	0	10	10	0	0	0	3	0.0	100.0
Queen Mary and Westfield College	0	0	0	0	0	15	5	5	3	0.0	100.0
University College London	0	0	0	0	0	10	10	5	3	0.0	100.0
Bath Spa University	0	0	0	0	5	5	5	5	3	0.0	100.0
University of Cumbria	0	0	0	0	0	5	10	5	3	0.0	100.0
Edge Hill University	0	0	5	0	5	5	0	0	2	0.0	100.0
Goldsmiths College	0	0	0	0	0	0	0	5	1	0.0	100.0
The University of St Andrews	5	0	0	0	0	0	0	0	1	0.0	100.0

**Table A2: Institutions with no sandwich placements 2002/3 – 2009/10**

Russell Group	1994 Group	Million +	University Alliance	No affiliation
Armagh Observatory	Institute of Education		London School of Hygiene and Tropical Medicine	Royal Welsh College of Music and Drama
Bell College	Institute of Zoology		Newman University College	St George's Hospital Medical School
Birkbeck College	Kent Institute of Art and Design		The University of Wales, Newport	St Mary's University College
Bishop Grosseteste University College Lincoln	The University of Wales, Lampeter		The University of North London	St Mary's University College, Twickenham
The Arts University College at Bournemouth	Leeds College of Music		Northern College of Education	The School of Oriental and African Studies
Bretton Hall College of HE	Leeds Trinity University College		Northern School of Contemporary Dance	The School of Pharmacy
Brighton and Sussex Medical School	Liverpool Hope University		Norwich University College of the Arts	Scottish Agricultural College
The University of Buckingham	The Liverpool Institute for Performing Arts		The Open University	The University of Stirling
The Institute of Cancer Research	London Business School		Peninsula College of Medicine and Dentistry	Stranmillis University College
Central School of Speech and Drama	University of London (Insts's and activities)		University College Plymouth St Mark and St John	The University of Strathclyde
Conservatoire for Dance and Drama	Institute of Advanced Legal Studies (UoL(Insts's and activities))		Queen Margaret University, Edinburgh	University Campus Suffolk
Courtauld Institute of Art	Institute of Commonwealth Studies (UoL(Insts's and activities))		Ravensbourne	The Surrey Institute of Art and Design, University College
University for the Creative Arts	Courtauld Institute of Art (UoL(Insts's and activities))		Roehampton University	Trinity Laban Conservatoire of Music and Dance
Cumbria Institute of the Arts	Institute of Germanic Studies (UoL(Insts's and activities))		Rose Bruford College	Trinity University College
Dartington College of Arts	Institute of Historical Research (UoL(Insts's and activities))		Royal Academy of Music	The University of Wales (central functions)
University College Falmouth	Institute of Latin American Studies (UoL(Insts's and activities))		Royal College of Art	University of Wales College of Medicine
Glyndŵr University	University Marine Biological Station (UoL(Insts's and activities))		Royal College of Music	University of Wales Centre for Advanced Welsh and Celtic Studies (research institute of The University of Wales)
Guildhall School of Music and Drama	University of London Institute in Paris (UoL(Insts's and activities))		The Royal College of Nursing	Wimbledon School of Art
Heriot-Watt University	Institute of United States Studies (UoL(Insts's and activities))		Royal Holloway and Bedford New College	The University of Winchester
Heythrop College	Warburg Institute (UoL(Insts's and activities))		Royal Northern College of Music	York St John University
Homerton College	London Guildhall University		The Royal Scottish Academy of Music and Drama	
Hull York Medical School	London School of Economics and Political Science		The Royal Veterinary College	

**Table A3: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(A0) Broadly-based programmes within medicine & dentistry	0	0	0	0	0	0	0	0	0
(A1) Pre-clinical medicine	0	5	0	0	0	5	0	0	1
(A2) Pre-clinical dentistry	0	0	0	0	0	0	0	0	0
(A3) Clinical medicine	0	0	0	0	0	15	0	0	2
(A4) Clinical dentistry	0	0	0	0	0	0	0	0	0
(A9) Others in medicine & dentistry	0	0	0	0	0	0	0	0	0
<b>Medicine and Dentistry</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>3</b>
JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(B0) Broadly-based programmes within subjects allied to medicine	0	0	0	0	0	0	0	0	0
(B1) Anatomy, physiology & pathology	575	660	625	650	640	535	465	335	561
(B2) Pharmacology, toxicology & pharmacy	985	915	820	760	745	790	785	755	819
(B3) Complementary medicine	240	95	110	70	50	45	15	5	79
(B4) Nutrition	835	950	1000	1100	860	840	845	880	914
(B5) Ophthalmics	0	0	0	0	5	5	0	0	1
(B6) Aural & oral sciences	140	190	255	295	280	230	200	290	235
(B7) Nursing	2545	2765	2725	2730	2405	2545	1895	1655	2408
(B8) Medical technology	450	365	400	425	385	325	290	145	348
(B9) Others in subjects allied to medicine	1710	1660	1620	1455	1305	1375	1225	1345	1462
<b>Subjects allied to Medicine</b>	<b>7480</b>	<b>7600</b>	<b>7555</b>	<b>7485</b>	<b>6675</b>	<b>6690</b>	<b>5720</b>	<b>5410</b>	<b>6827</b>
JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(C0) Broadly-based programmes within biological sciences	10	0	0	0	10	0	0	0	3
(C1) Biology	1550	1670	1625	1895	1735	1765	1600	1750	1699
(C2) Botany	0	5	5	0	5	5	10	10	5
(C3) Zoology	120	130	105	95	95	115	100	125	111
(C4) Genetics	140	160	125	135	135	130	115	110	131
(C5) Microbiology	420	415	385	290	340	180	160	145	292
(C6) Sports science	650	1030	1180	1415	1445	1600	1720	1895	1367
(C7) Molecular biology, biophysics & biochemistry	1085	1065	890	905	885	1060	1085	1215	1024
(C8) Psychology	1700	1800	1970	2035	2005	2035	2085	2085	1964
(C9) Others in biological sciences	530	255	210	200	195	165	195	250	250
<b>Biological Sciences</b>	<b>6205</b>	<b>6530</b>	<b>6495</b>	<b>6970</b>	<b>6850</b>	<b>7055</b>	<b>7070</b>	<b>7585</b>	<b>6845</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(D0) Broadly-based programmes within agriculture & related subjects	0	0	0	0	0	0	0	0	0
(D1) Pre-clinical veterinary medicine	120	0	115	0	0	0	0	0	29
(D2) Clinical veterinary medicine & dentistry	30	0	0	0	0	0	0	0	4
(D3) Animal science	515	495	340	445	415	240	300	420	396
(D4) Agriculture	1475	1310	1230	1305	1140	1125	990	1290	1233
(D5) Forestry	125	100	105	110	95	100	15	30	85
(D6) Food & beverage studies	725	810	810	760	720	760	785	805	772
(D7) Agricultural sciences	25	70	65	55	60	5	0	0	35
(D9) Others in veterinary sciences, agriculture & related subjects	25	75	20	35	165	220	290	5	104
<b>Veterinary Sciences, Agriculture and related</b>	<b>3040</b>	<b>2860</b>	<b>2685</b>	<b>2710</b>	<b>2595</b>	<b>2450</b>	<b>2380</b>	<b>2550</b>	<b>2659</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(F0) Broadly-based programmes within physical sciences	5	5	0	0	0	0	0	0	1
(F1) Chemistry	1830	1740	1760	1945	1900	1975	2010	2235	1924
(F2) Materials science	5	0	0	10	10	10	10	10	7
(F3) Physics	390	400	350	325	315	275	335	355	343
(F4) Forensic & archaeological science	365	515	530	535	595	730	640	685	574
(F5) Astronomy	75	65	55	65	40	45	25	40	51
(F6) Geology	75	65	30	25	35	30	35	65	45
(F7) Ocean sciences	25	0	0	0	0	245	260	295	103
(F8) Physical & terrestrial geographical & environmental sciences	1030	915	730	750	820	535	510	575	733
(F9) Others in physical sciences	65	110	40	130	170	200	165	50	116
<b>Physical Sciences</b>	<b>3865</b>	<b>3815</b>	<b>3495</b>	<b>3785</b>	<b>3885</b>	<b>4045</b>	<b>3990</b>	<b>4310</b>	<b>3899</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(G0) Broadly-based programmes within mathematical sciences	25	0	0	0	0	0	0	15	5
(G1) Mathematics	1145	1155	1135	1280	1255	1370	1685	2035	1383
(G2) Operational research	60	85	80	45	50	40	60	70	61
(G3) Statistics	155	180	180	125	85	90	110	130	132
(G91) Others in mathematical sciences	0	0	0	0	0	0	0	0	0
(G9) Others in mathematical & computing sciences	155	85	20	0	5	0	0	0	33
(G4) Computer science	18385	14750	13190	12325	11180	11100	10540	10660	12766
(G5) Information systems	6365	6280	5860	4705	3715	3225	2930	2700	4473
(G6) Software engineering	1170	1995	1870	1755	1740	1855	1470	1475	1666
(G7) Artificial intelligence	95	45	50	45	75	55	35	40	55
(G92) Others in computing sciences	35	40	40	25	25	35	40	35	34
<b>Mathematical and Computer Sciences</b>	<b>27590</b>	<b>24615</b>	<b>22425</b>	<b>20305</b>	<b>18130</b>	<b>17770</b>	<b>16870</b>	<b>17160</b>	<b>20608</b>
JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(H0) Broadly-based programmes within engineering & technology	10	10	0	0	0	0	0	0	3
(H1) General engineering	1225	1580	1740	1155	1055	905	1015	900	1197
(H2) Civil engineering	1750	1655	2300	1890	2115	2160	2860	2420	2144
(H3) Mechanical engineering	3240	3285	3290	3620	3560	3915	3970	4170	3631
(H4) Aerospace engineering	1080	965	930	1025	985	1110	1070	1180	1043
(H5) Naval architecture	15	0	0	75	30	50	95	80	43
(H6) Electronic & electrical engineering	3805	3485	2850	2705	2875	2985	3000	3100	3101
(H7) Production & manufacturing engineering	1585	1270	890	775	690	695	740	710	919
(H8) Chemical, process & energy engineering	520	495	465	545	620	710	765	820	618
(H9) Others in engineering	55	90	110	105	130	135	90	115	104
<b>Engineering</b>	<b>13285</b>	<b>12835</b>	<b>12575</b>	<b>11895</b>	<b>12060</b>	<b>12665</b>	<b>13605</b>	<b>13495</b>	<b>12802</b>
JACS Subject Group	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	Average
(J1) Minerals technology	10	5	0	0	0	0	0	0	2
(J2) Metallurgy	15	15	20	0	10	15	10	15	13
(J3) Ceramics & glasses	0	0	0	0	0	0	0	0	0
(J4) Polymers & textiles	845	750	790	865	1150	1190	1265	1265	1015
(J5) Materials technology not otherwise specified	155	125	150	130	130	65	85	55	112
(J6) Maritime technology	275	15	15	20	80	335	395	440	197
(J7) Industrial biotechnology	35	15	10	20	15	100	60	50	38
(J9) Others in technology	1150	1775	2090	2190	2220	1815	1205	1305	1719
<b>Technologies</b>	<b>2485</b>	<b>2700</b>	<b>3075</b>	<b>3225</b>	<b>3605</b>	<b>3520</b>	<b>3020</b>	<b>3130</b>	<b>3095</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(K0) Broadly-based programmes within architecture, building & planning	0	0	0	0	0	0	0	0	0
(K1) Architecture	2630	2645	3310	3230	3605	3620	3400	3385	3228
(K2) Building	3390	3235	3145	4300	4390	4555	4885	4650	4069
(K3) Landscape design	175	125	125	125	185	180	150	150	152
(K4) Planning (urban, rural & regional)	855	1210	1160	1415	1515	1560	1420	1445	1323
(K9) Others in architecture, building & planning	20	5	0	30	30	30	20	40	22
<b>Architecture, Building and Planning</b>	<b>7070</b>	<b>7220</b>	<b>7740</b>	<b>9100</b>	<b>9725</b>	<b>9945</b>	<b>9875</b>	<b>9670</b>	<b>8793</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(L0) Broadly-based programmes within social studies	0	0	0	5	0	0	0	0	1
(L1) Economics	1300	1470	1585	1660	1590	1650	1860	1830	1618
(L2) Politics	290	360	340	415	475	645	660	700	486
(L3) Sociology	555	515	560	550	530	600	535	540	548
(L4) Social policy	95	30	20	25	60	240	205	270	118
(L5) Social work	260	345	195	115	175	100	45	320	194
(L6) Anthropology	15	20	50	60	65	55	50	45	45
(L7) Human & social geography	170	190	220	210	160	155	160	230	187
(L9) Others in social studies	5	0	5	5	10	5	5	10	6
<b>Social Sciences</b>	<b>2690</b>	<b>2930</b>	<b>2975</b>	<b>3045</b>	<b>3065</b>	<b>3450</b>	<b>3520</b>	<b>3945</b>	<b>3203</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(M0) Broadly-based programmes within law	0	0	0	0	0	0	0	0	0
(M1) Law by area	135	555	590	580	605	565	300	340	459
(M2) Law by topic	835	1185	1220	1290	1285	1280	1255	1350	1213
(M9) Others in law	0	5	5	5	5	0	0	0	3
<b>Law</b>	<b>970</b>	<b>1745</b>	<b>1815</b>	<b>1875</b>	<b>1895</b>	<b>1845</b>	<b>1555</b>	<b>1690</b>	<b>1674</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(N0) Broadly-based programmes within business & administrative studies	160	610	845	0	0	0	0	0	202
(N1) Business studies	20605	20535	19190	18835	17910	17495	16965	16745	18535
(N2) Management studies	7930	6995	7075	7385	7450	4240	4210	4350	6204
(N3) Finance	1260	1040	1050	1510	1455	1650	1575	2005	1443
(N4) Accounting	2150	2220	2425	2400	2775	2875	3220	3415	2685
(N5) Marketing	4040	3500	3415	3455	3905	4040	4485	4005	3856
(N6) Human resource management	885	955	870	740	715	705	775	715	795
(N7) Office skills	0	0	0	110	90	0	0	0	25
(N8) Tourism, transport & travel	2745	3135	3050	3250	3525	6975	7240	7550	4684
(N9) Others in business & administrative studies	265	290	445	220	240	45	55	85	206
<b>Business and Administrative studies</b>	<b>40040</b>	<b>39280</b>	<b>38365</b>	<b>37905</b>	<b>38065</b>	<b>38025</b>	<b>38525</b>	<b>38870</b>	<b>38634</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(P0) Broadly-based programmes within mass communications & documentation	5	15	0	0	0	0	0	0	3
(P1) Information services	165	180	180	255	145	160	210	205	188
(P2) Publicity studies	810	770	700	685	630	590	590	655	679
(P3) Media studies	160	255	415	445	395	260	270	260	308
(P4) Publishing	15	20	25	25	25	25	25	15	22
(P5) Journalism	0	5	10	10	5	80	20	15	18
(P9) Others in mass communications & documentation	0	95	100	100	100	100	90	85	84
<b>Mass Communications and Documentation</b>	<b>1155</b>	<b>1340</b>	<b>1430</b>	<b>1520</b>	<b>1300</b>	<b>1215</b>	<b>1205</b>	<b>1235</b>	<b>1300</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(Q0) Broadly-based programmes within languages	115	75	0	0	0	195	10	5	50
(Q1) Linguistics	100	80	85	75	85	65	60	45	74
(Q2) Comparative literary studies	0	0	0	0	0	0	0	0	0
(Q3) English studies	75	85	75	120	155	305	145	210	146
(Q4) Ancient language studies	0	0	0	0	0	0	0	10	1
(Q5) Celtic studies	5	5	5	10	5	5	0	0	4
(Q6) Latin studies	0	0	0	0	0	0	0	0	0
(Q7) Classical Greek studies	0	0	0	0	0	0	0	0	0
(Q8) Classical studies	0	0	0	0	0	5	0	0	1
(Q9) Others in linguistics, classics & related subjects	0	15	15	20	35	50	35	50	28
<b>Linguistics, Classics and related</b>	<b>295</b>	<b>260</b>	<b>180</b>	<b>225</b>	<b>280</b>	<b>625</b>	<b>250</b>	<b>320</b>	<b>304</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(R1) French studies	870	835	750	1000	835	740	810	755	824
(R2) German studies	475	445	390	435	375	325	350	325	390
(R3) Italian studies	135	130	125	120	125	100	110	95	118
(R4) Spanish studies	300	355	355	575	485	420	475	485	431
(R5) Portuguese studies	10	10	10	10	10	10	15	15	11
(R6) Scandinavian studies	0	0	0	0	0	0	0	0	0
(R7) Russian & East European studies	60	50	45	40	40	40	35	40	44
(R8) European studies (post 2007 JACS)						40	270	300	203
(R9) Others in European languages, literature & related subjects	995	805	640	520	415	340	380	355	556
<b>European Language, Literature and related</b>	<b>2845</b>	<b>2630</b>	<b>2315</b>	<b>2700</b>	<b>2285</b>	<b>2015</b>	<b>2445</b>	<b>2370</b>	<b>2451</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(T1) Chinese studies	0	0	0	0	5	0	5	15	3
(T2) Japanese studies	35	45	50	55	65	70	70	120	64
(T3) South Asian studies	25	25	35	35	30	5	10	40	26
(T4) Other Asian studies	5	0	0	0	0	0	0	0	1
(T5) African studies	0	0	0	0	0	0	0	0	0
(T6) Modern Middle Eastern studies	0	0	0	0	0	0	0	5	1
(T7) American studies	20	85	50	65	70	20	10	5	41
(T8) Australasian studies	0	0	0	0	0	0	0	0	0
(T9) Others in Eastern, Asiatic, African, American & Australasian languages, literature & related subjects	135	105	55	5	105	25	0	0	54
<b>Easter, Asiatic, African, American and Australasian Lang, lit and related</b>	<b>220</b>	<b>260</b>	<b>190</b>	<b>160</b>	<b>275</b>	<b>120</b>	<b>95</b>	<b>185</b>	<b>188</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(V0) Broadly-based programmes within historical & philosophical studies	0	0	0	0	0	0	0	0	0
(V1) History by period	15	30	30	55	50	240	45	50	64
(V2) History by area	0	0	0	0	0	0	0	0	0
(V3) History by topic	10	5	5	15	10	10	5	5	8
(V4) Archaeology	0	0	0	0	0	0	15	0	2
(V5) Philosophy	35	55	60	40	35	35	30	20	39
(V6) Theology & religious studies	5	0	0	0	5	0	5	5	3
(V9) Others in historical & philosophical studies	0	0	0	0	0	0	0	0	0
<b>Historical and Philosophical studies</b>	<b>65</b>	<b>90</b>	<b>95</b>	<b>110</b>	<b>100</b>	<b>285</b>	<b>100</b>	<b>80</b>	<b>116</b>

**Table A3 cont'd: Sandwich course participation by Joint Academic Coding System (JACS) Subject Group**

<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(W0) Broadly-based programmes within creative arts & design	0	0	0	0	0	0	0	0	0
(W1) Fine art	45	55	75	75	80	60	55	75	65
(W2) Design studies	4825	4820	5235	5495	5035	5285	4960	5220	5109
(W3) Music	245	180	225	270	330	345	335	360	286
(W4) Drama	25	30	30	40	35	15	15	15	26
(W5) Dance	60	55	55	50	55	65	65	55	58
(W6) Cinematics & photography	5	25	35	25	70	70	155	215	75
(W7) Crafts	15	15	10	5	15	20	20	5	13
(W8) Imaginative writing	0	0	0	0	0	0	5	10	2
(W9) Others in creative arts & design	0	0	0	0	35	65	80	55	29
<b>Creative Arts and Design</b>	<b>5220</b>	<b>5180</b>	<b>5665</b>	<b>5960</b>	<b>5655</b>	<b>5925</b>	<b>5690</b>	<b>6010</b>	<b>5663</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
(X0) Broadly-based programmes within education	0	0	0	0	0	0	0	0	0
(X1) Training teachers	5	20	10	10	10	10	30	45	18
(X2) Research & study skills in education	0	75	0	0	0	0	0	0	9
(X3) Academic studies in education	110	50	125	30	40	45	50	45	62
(X9) Others in education	235	205	55	55	40	20	20	40	84
<b>Education</b>	<b>350</b>	<b>350</b>	<b>190</b>	<b>95</b>	<b>90</b>	<b>75</b>	<b>100</b>	<b>130</b>	<b>173</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
<b>(Y0) Combined</b>	<b>295</b>	<b>140</b>	<b>130</b>	<b>130</b>	<b>135</b>	<b>685</b>	<b>80</b>	<b>10</b>	<b>201</b>
<b>JACS Subject Group</b>	<b>2002/3</b>	<b>2003/4</b>	<b>2004/5</b>	<b>2005/6</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>Average</b>
<b>All JACS Subject Groups</b>	<b>125165</b>	<b>122385</b>	<b>119395</b>	<b>119200</b>	<b>116670</b>	<b>118425</b>	<b>116095</b>	<b>118155</b>	<b>119436</b>

## Annexe B: Sandwich course participation by JACS Engineering subject (2008/09): all domiciles, all years

Institution	Sandwich (H1) General engineering	Sandwich (H2) Civil engineering	Sandwich (H3) Mechanical engineering	Sandwich (H4) Aerospace engineering	Sandwich (H5) Naval architecture	Sandwich (H6) Electronic & electrical engineering	Sandwich (H7) Production & manufacturing engineering	Sandwich (H8) Chemical, process & energy engineering	Sandwich (H9) Others in engineering	sandwich total
Loughborough University	0	315	555	145	0	250	255	175	0	1870
Coventry University	15	315	370	165	0	160	0	0	0	1025
The University of Northumbria at Newcastle	0	460	135	0	0	415	10	0	0	1020
The University of Bath	0	60	290	110	0	90	15	170	0	905
The University of Surrey	0	200	120	125	0	180	0	80	0	785
The University of Portsmouth	0	200	165	0	0	240	115	0	0	720
University of Ulster	175	155	140	0	0	75	100	0	0	645
Sheffield Hallam University	130	0	250	5	0	195	20	0	40	640
Aston University	5	5	90	0	0	55	150	130	0	565
University of Hertfordshire	55	0	230	190	0	85	0	0	0	560
The University of Huddersfield	25	0	230	0	0	245	5	0	0	505
University of the West of England, Bristol	110	50	115	50	0	170	10	0	0	505
Brunel University	50	15	195	90	0	130	5	0	0	485
The University of Teesside	70	110	50	0	0	120	0	60	0	470
The University of Manchester	0	5	15	20	0	75	0	130	0	375
Cardiff University	10	195	75	0	0	55	5	0	0	340
Oxford Brookes University	0	0	295	0	0	10	0	0	0	305
The University of Bradford	20	85	70	0	0	65	15	0	10	265
Kingston University	0	110	60	75	0	0	0	0	0	245
The Nottingham Trent University	50	175	0	0	0	0	0	0	0	225
University of Glamorgan	25	80	5	0	0	90	10	0	0	210
Harper Adams University College	0	0	205	0	0	0	0	0	0	205
Staffordshire University	0	0	75	5	0	25	5	0	40	150
Southampton Solent University	50	0	0	0	95	0	0	0	0	145
The University of Brighton	0	45	45	10	0	20	0	0	0	120
The University of Bristol	110	0	0	0	0	0	0	0	0	110
The Queen's University of Belfast	0	35	35	0	0	10	0	5	0	90
Swansea University	0	20	15	20	0	0	5	15	0	90
Leeds Metropolitan University	0	90	0	0	0	0	0	0	0	90

Institution	Sandwich (H1) General engineering	Sandwich (H2) Civil engineering	Sandwich (H3) Mechanical engineering	Sandwich (H4) Aerospace engineering	Sandwich (H5) Naval architecture	Sandwich (H6) Electronic & electrical engineering	Sandwich (H7) Production & manufacturing engineering	Sandwich (H8) Chemical, process & energy engineering	Sandwich (H9) Others in engineering	sandwich total
The University of Sheffield	0	0	35	35	0	5	0	0	0	75
Birmingham City University	5	0	5	0	0	50	5	0	0	65
Bournemouth University	65	0	0	0	0	0	0	0	0	65
Liverpool John Moores University	0	55	0	0	0	5	0	0	0	60
The University of Plymouth	0	25	10	0	0	15	5	0	0	55
The City University	0	25	5	5	0	10	0	0	0	45
The University of Salford	0	20	0	25	0	0	0	0	0	45
The University of Leicester	5	0	15	0	0	20	0	0	0	40
The University of Kent	0	0	0	0	0	30	0	0	0	30
The Manchester Metropolitan University	5	0	15	0	0	5	0	0	0	25
The University of Birmingham	25	0	0	0	0	0	0	0	0	25
The University of York	0	0	0	0	0	20	0	0	0	20
University College Birmingham	0	0	0	0	0	20	0	0	0	20
Aberystwyth University	0	0	0	0	0	15	0	0	0	15
The University of Reading	0	0	0	0	0	15	0	0	0	15
The University of Westminster	0	0	0	0	0	15	0	0	0	15
The University of Greenwich	0	5	5	0	0	5	0	0	0	15
London South Bank University	0	0	5	0	0	5	5	0	0	15
Imperial College of Science, Technology and Medicine	0	0	15	0	0	0	0	0	0	15
The University of Central Lancashire	0	0	10	0	0	0	0	0	0	10
London Metropolitan University	0	0	0	0	0	5	0	0	0	5
King's College London	0	0	0	0	0	5	0	0	0	5
De Montfort University	0	0	5	0	0	0	0	0	0	5
University of Derby	5	0	0	0	0	0	0	0	0	5
The University of Sunderland	0	0	5	0	0	0	0	0	0	5
<b>Course Totals</b>	<b>1010</b>	<b>2855</b>	<b>3960</b>	<b>1075</b>	<b>95</b>	<b>3005</b>	<b>740</b>	<b>765</b>	<b>90</b>	<b>14360</b>