SFC Corporate publication

Gender Action Plan: Technical Report

Issue date: 6 February 2019

Reference: SFC/CP/01/2019

Summary: This publication gives an overview of the analysis underpinning SFC's Gender Action Plan annual progress report.

FAO: Principals of Scotland's colleges and universities

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Introduction

1. This paper provides an update of the GAP Technical Report to show the most recently available data for college and university entrants in 2016-17. The first GAP Technical Report, for academic year (AY) 2014-15, was published in August 2016 and the second, for 2015-16, in December 2017.

2. The three sections in this paper are dedicated to entrants to colleges, entrants to universities and STEM subjects at both colleges and university.

3. This data is taken from the college FES collection and university HESA collections. In line with SFC and HESA data practices, all figures in this report have been rounded to the nearest 5.

4. SFC publishes college and university statistical publications on an annual cycle and each includes different tables by gender. These can be found in the SFC annual statistical publications:

    - College Statistics 2017-18
    - College Performance Indicators 2017-18
    - HE Students and Qualifiers 2016-17
    - Report on Widening Access 2016-17

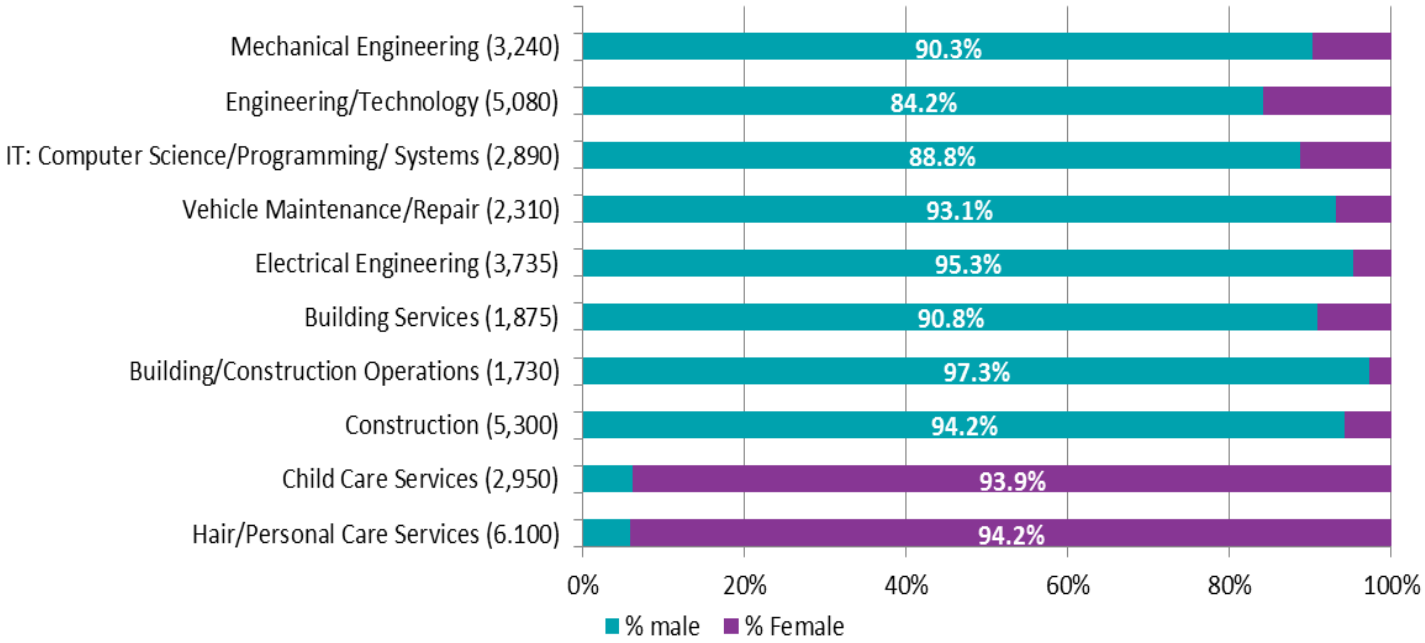
1 Colleges

Enrolments

5. The age group "16 to 24 year olds" is the focus group for the Key Performance Indicator (KPI) that underpins the GAP in colleges. Therefore, the analysis of the college sector in this report relates to students aged 16-24 only. In 2016-17 there were a higher number of males than females enrolling in colleges in this age group. Males aged 16-24 accounted for 56.8% of the total enrolments in 2016-17; however, the proportion is different for further education (FE) and higher education (HE) levels with males accounting for 53.4% of enrolments to HE and 57.2% to FE.

6. The GAP KPI for colleges comes from KPI 8 of the Developing the Young Workforce programme (DYW), to "increase by 5 percentage points (pp) the minority gender share in each of the ten largest and most imbalanced superclasses among 16-24 year olds by 2021". Therefore, the GAP focuses on these ten subjects as shown in Figure 1 below.

Figure 1: Gender balance of enrolments of 16-24 year olds at all levels of study in the most gender imbalanced superclasses, AY 2016-17



7. Eight of the ten superclasses shown above are male dominated, whilst Child Care Services and Hair/Personal Care Services, are female dominated. Currently, the gender gap is most prominent in the Building/Construction Operations superclass where 97.3% of the 1,730 enrolments are male.

8. Table 1, below, shows the change in the gender split of these ten superclass

subjects between 2016-17 and the baseline year, 2011-12.

9. As seen in Table 1 progress across superclass subjects has been varied. The biggest change has occurred in Building Services where the proportion of males has decreased from 97.0% to 90.8%, a reduction of 6.2pp.

10. Progress towards KPI 8 in Engineering/Technology is shown below, overall, as 4.9pp, despite variations throughout this time. Between 2011-12 and 2012-13 the proportion of males in this superclass increased from 89.1% to 91.4% before decreasing again to 84.2% between 2012-13 and 2016-17, an overall reduction of 7.2pp.

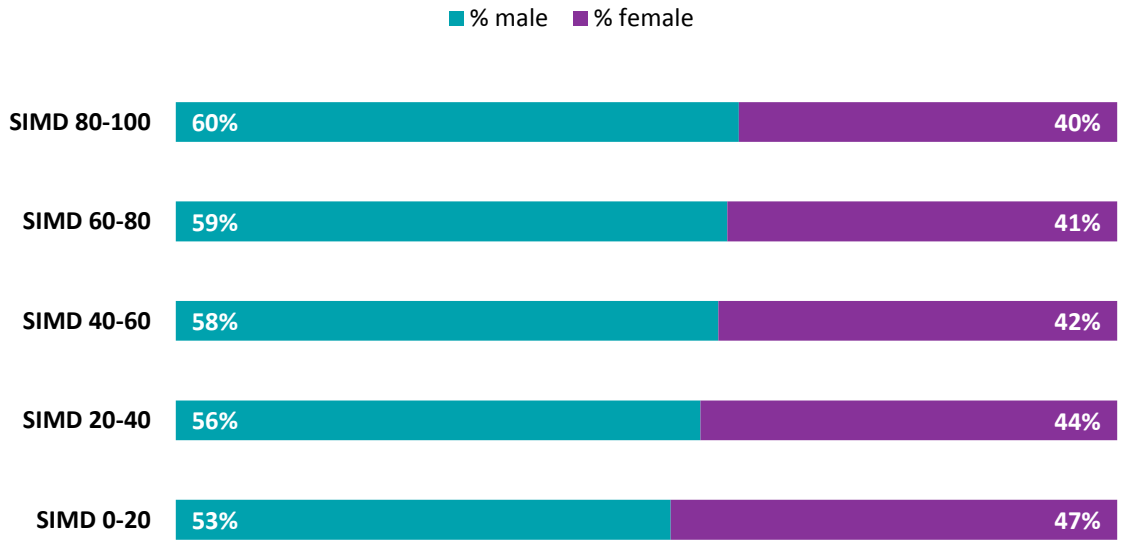
11. Progress figures highlighted in red, in Table 1, show the areas with least progress towards KPI 8. Least progress has been made in IT: Computer Science/Programming/ Systems, with the proportion of males increasing from 87.8% in 2011-12 to 88.8% in 2016-17. However, background analysis shows that in 2012-13 males represented 91.0% of this superclass and there has been a downward trend since then, with a 0.7pp decrease between 2015-16 and 2016-17.

12. Furthermore, Table 1 shows that the proportion of males studying Construction has increased by 0.8pp between 2011-12 and 2016-17, however, this figure has fluctuated. Between 2015-16 and 2016-17 the majority share increased by 1.9pp.

Table 1: Progress Towards KPI 8 Update: 2011-12 and 2016-17

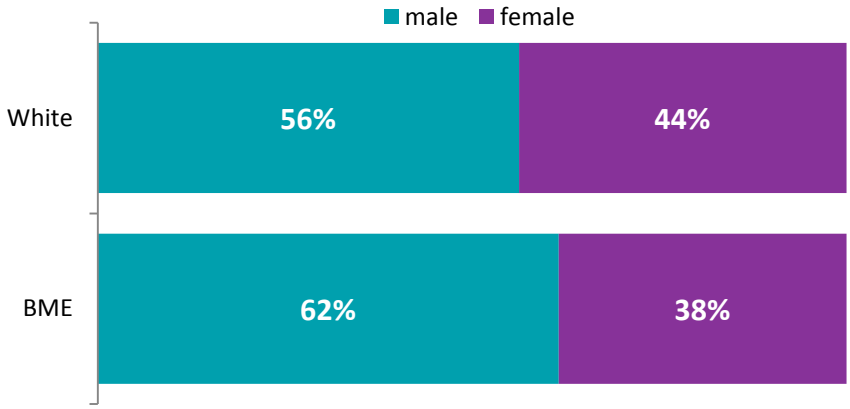
GAP superclass	**Minority Share 2011-12**	**Minority Share 2016-17**	**Progress towards KPI 8**
Hair/Personal Care Services	3.5%	5.8%	**2.4%**
Child Care Services	4.7%	6.1%	**1.5%**
Construction	6.6%	5.8%	**-0.8%**
Building/ Construction Operations	2.5%	2.7%	**0.2%**
Building Services	3.0%	9.2%	**6.2%**
Electrical Engineering	4.1%	4.7%	**0.6%**
Vehicle Maintenance/ Repair	5.1%	6.9%	**1.8%**
IT: Computer Science/ Programming/ Systems	12.2%	11.2%	**-1.0%**
Engineering/ Technology (general)	10.9%	15.8%	**4.9%**
Mechanical Engineering	6.1%	9.7%	**3.6%**

Figure 2: Gender split of enrolments for students aged 16-24 by SIMD quintile, AY 2016-17



13. Figure 2 shows that more 16 to 24 year old males than females, regardless of SIMD quintile, enrolled at college in 2016-17. The gender split was least balanced for SIMD Quintile 80-100 with males comprising 60% of enrolments. Meanwhile the gender split was most balanced concerning students from SIMD0-20 areas where males accounted for 53% of enrolments.

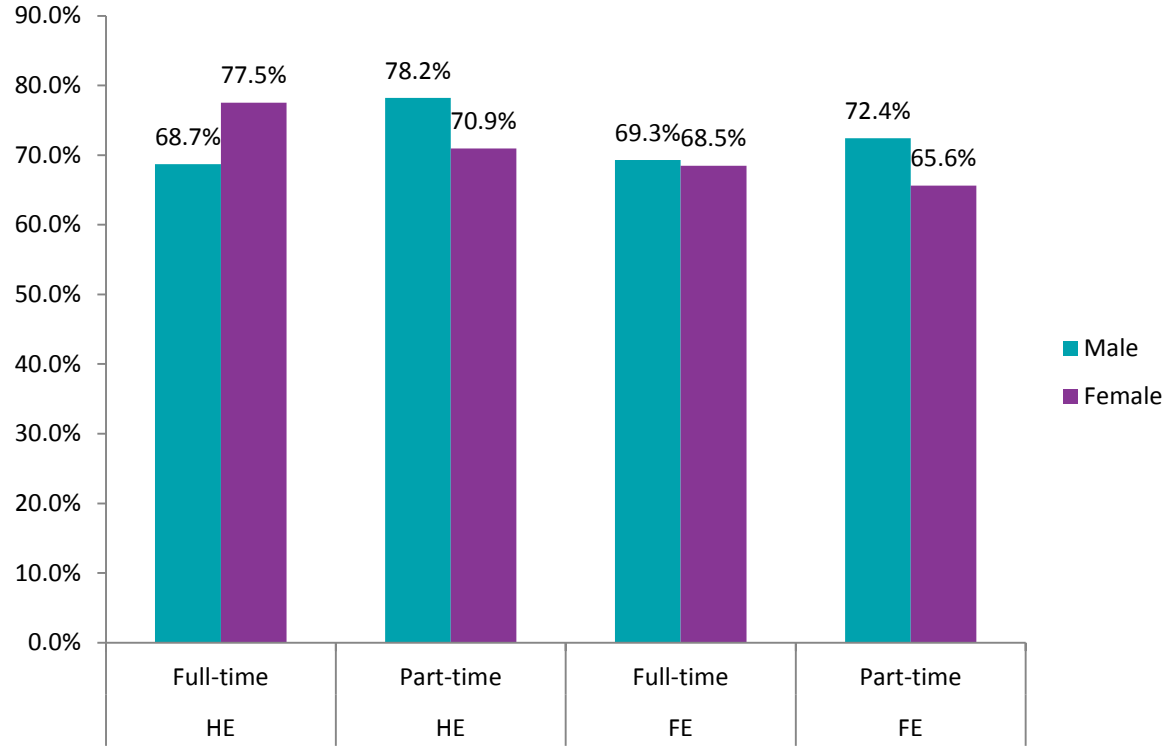
Figure 3: Gender split of enrolments by ethnic group of students aged 16-24, AY 2016-17



14. In 2016-17, the proportion of 16 to 24 year old males, from both Black Minority Ethnic (BME) and White backgrounds, was larger than the proportion of females from respective backgrounds (Figure 3). Males comprised 62% of the BME population at colleges, whilst the gender split of White students was more balanced (8pp difference).

Completion

Figure 4: Successful completion rates of males and females by mode and level of study, AY 2016-17



15. Figure 4 shows that, in 2016-17, males had a higher rate of successful completion at college than females when studying part-time HE, full-time FE and part-time FE. Females were most successful when studying full-time HE (77.5%), 8.8pp more than males (68.7%), incidentally, where males were least successful. Males were most successful when studying part-time HE courses (78.2%), 7.3pp more than females (70.9%).

2 Universities

Entrants

16. The GAP also addresses the overall gender imbalance, at universities, of Scottish-domiciled undergraduate entrants (SDUE) and subject level imbalances in selected JACS Group[1] subjects.

17. Figure 5 shows the sector level gender split across a six year timeframe. In AY 2016-17, the gender imbalance of male and female SDUEs at university was 17.2pp. Females accounted for 58.6% of total enrolments.

Figure 5: Overall Gender Balance across Scottish Domiciled Undergraduate Entrants to University, 2011-12 to 2016-17

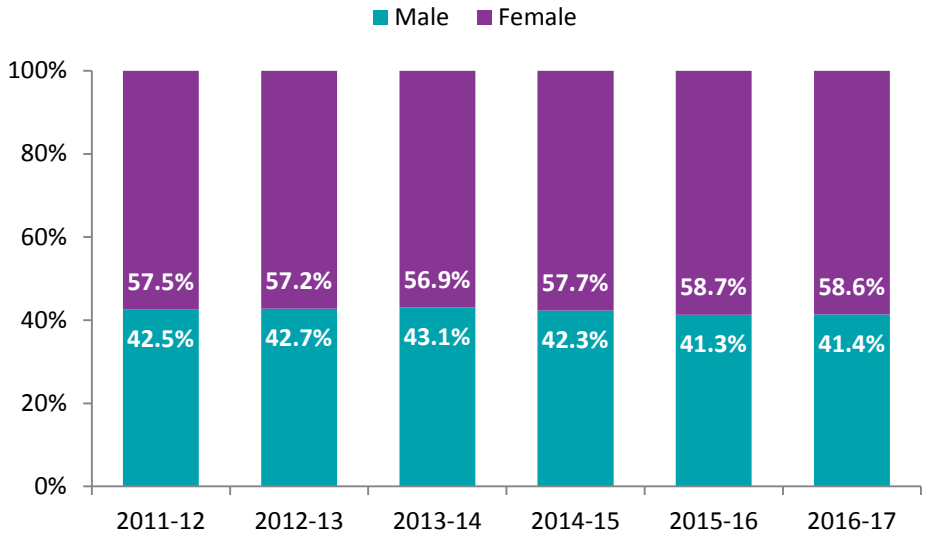


Table 2: Gender Gap for Scottish-domiciled UG entrants, 2011-12 to 2016-17

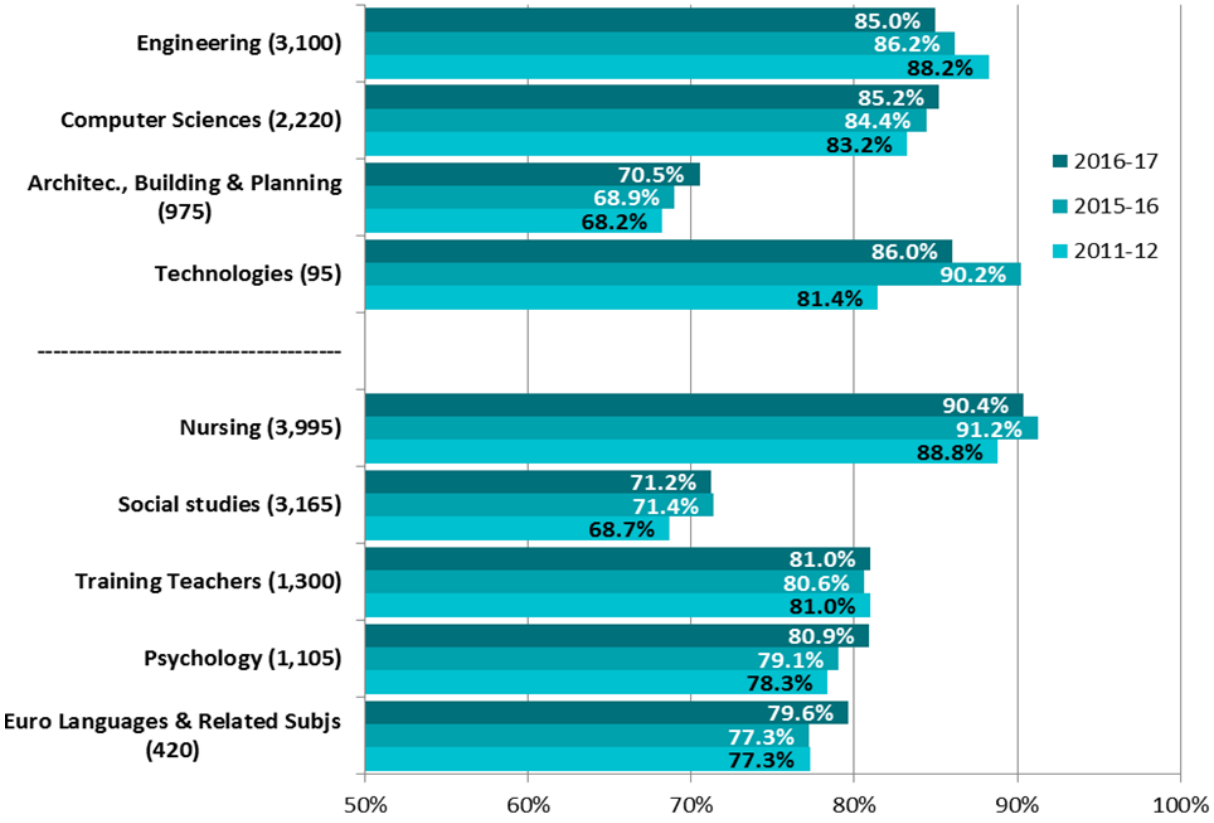
AY	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Gender Gap (pp)	14.9%	14.5%	13.8%	15.3%	17.4%	17.2%

18. Table 2 shows the progress made towards the GAP aim to reduce the sector level gender gap for SUDEs to 5pp. From 2011-12 to 2016-17, despite fluctuations, the gender imbalance has increased overall by 2.3pp. However, between 2015-16 and 2016-17 there has been a 0.2pp decrease, the first reduction in the gender gap since 2013-14.

[1] The Joint Academic Coding System used to define subject groups in HEIs

19. Figure 6 considers the nine GAP subjects for SDUEs, showing the proportion of the majority gender by academic year comparing the baseline year of 2011-12 and the two most recent years, 2015-16 and 2016-17. The four subjects at the top of the Figure 3, from Engineering to Technologies, are male dominated whilst the lower five subjects, from Nursing to European Languages and Related Subjects, are female dominated.

Figure 6: Majority Gender Proportion of SDUE in GAP Subjects in Universities by AY



20. In Engineering, male representation of entrants has decreased by 3.2pp between 2011-12 and 2016-17. For all other male majority subjects, the imbalance has increased. The largest increase, 4.6pp, occurred in Technologies but it should be noted that the number of entrants to this subject group was very small (95) in 2016-17.

21. A similar pattern is seen across female dominated subjects, where the proportion of female entrants increased in each of the subjects between 2011-12 and 2016-17, with the exception of Training Teachers where the proportion remained unchanged.

22. It is also useful to note the variation in the number of institutions delivering and complying with the 25/75 gender split target across the nine JACS Group Subjects identified as the most problematic. This helps to identify areas of good practice and those JACS Group subjects that are facing challenges across the sector.

Table 3: Proportion of Majority Gender across GAP Subjects and Institutions. *Subjects that meet the 25/75 target are shown in white text and out with this target shown in black text. Green denotes a 50/50 gender split.*

Female Dominated Subject
Male Dominated Subject

Institution	JACS Group Subject								
	Social studies	Computer Sciences	Psychology	Engineering	Architecture, Building and Planning	Training Teachers	European Languages, Literature and related subjects	Nursing	Technologies
Aberdeen, University of	60%	77%	75%	88%	67%	90%	86%		100%
Dundee, University of	64%	87%	75%	91%	57%	91%	63%	92%	
Edinburgh, University of	60%	90%	82%	71%	61%	74%	87%	84%	
Edinburgh Napier University	73%	84%	80%	93%	73%		79%	91%	
Glasgow, University of	67%	86%	78%	79%		88%	78%	82%	
Highlands and Islands, University of the	84%	89%	85%	89%	88%	55%			85%
Strathclyde, University of	60%	80%	87%	79%	55%	87%	78%		
West of Scotland, University of the	82%	86%	85%	86%		87%	100%	92%	
Stirling, University of	66%	65%	86%			75%	72%	79%	
Heriot-Watt University	84%	93%	77%	83%	68%		78%		
Glasgow Caledonian University	67%	84%	80%	91%	77%			90%	
Abertay Dundee, University of	66%	88%	82%	92%				77%	100%
Queen Margaret University, Edinburgh	76%		75%					90%	
Robert Gordon University	82%	86%		94%	66%			93%	
St Andrews, University of	69%	82%	83%				80%		
Scottish Agricultural College					71%	67%			
Royal Conservatoire of Scotland						74%			
Glasgow School of Art					50%				

23. Table 3, above, shows the proportion of the dominant gender in each GAP Subject across institutions. In majority of cases, subjects are dominated by one gender across all institutions. However, for social studies at Heriot-Watt University, there is a higher proportion of males (84.2%) than females, whilst the opposite is true for all other institutions. Conversely, Architecture, Building and Planning Subjects are male dominated at all institutions apart from University of Edinburgh, where 60.6% of SDUEs are female, although, this does fall within the 25/75 gender split target. However, it should be noted that small cohort sizes may explain why these anomalies occur, in part.

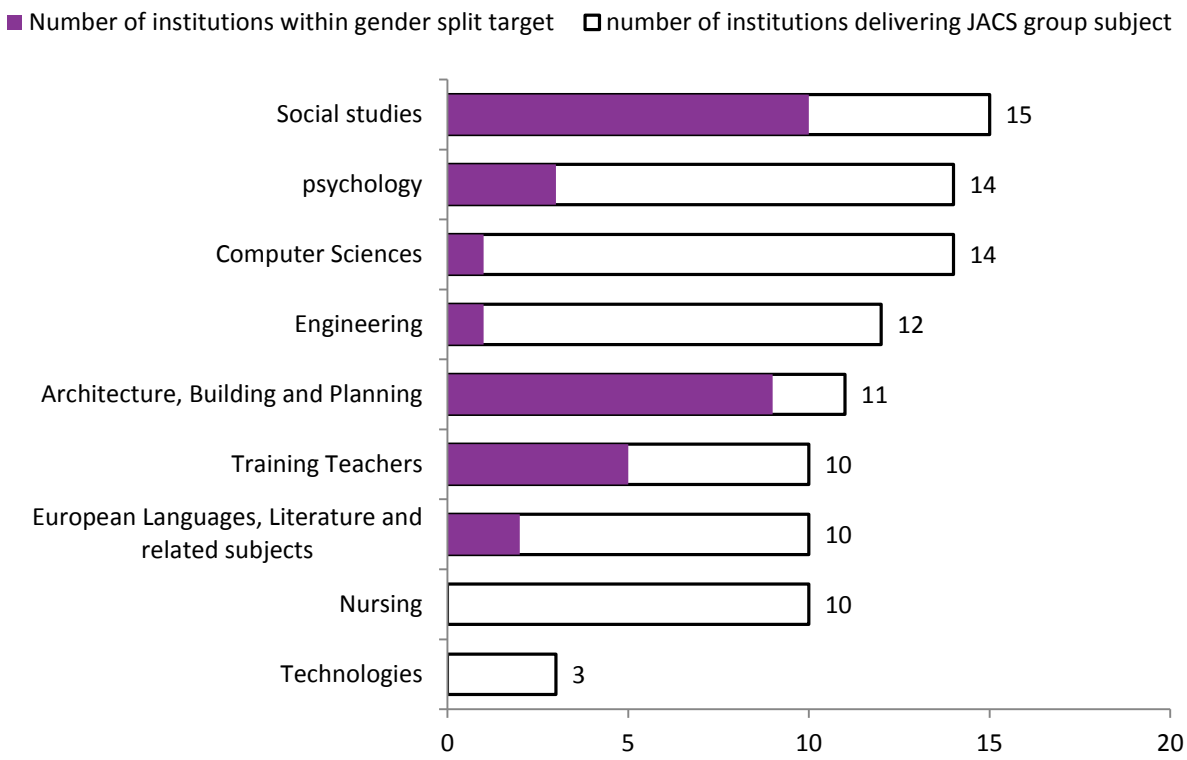
Table 4: Progress of Institutions towards Gender Split Target across GAP Subjects, AY 2016-17

JACS Group/Subject	Number of Institutions to Deliver JACS Group/Subject	Number of Institutions Above Gender Split Target
Social studies	15	10
psychology	14	3
Computer Sciences	14	1
Engineering	12	1
Architecture, Building and Planning	11	9
Training Teachers	10	5
European Languages, Literature and related subjects	10	2
Nursing	10	0
Technologies	3	0

24. Table 4, above, shows that Architecture, Building and Planning, the second most widely available subject, was the most gender balanced across institutions (82%). Meanwhile, Nursing was the most gender imbalanced with no institutions complying with the gender split target. Likewise, no institutions met the target for the least available JACS group, technologies; however, entrant numbers are much smaller to this group than others. The University of Stirling was the lone institution to attain the target in 2016-17 for Computer Science, available at fourteen institutions, whilst the University of Edinburgh was the only institution to meet the gender split target for Engineering, which was available at twelve institutions.

25. Figure 7 shows that the number of institutions delivering each of the most gender imbalanced JACS Group Subjects varied in 2016-17. Social studies were the most widely available JACS Group subject, delivered at fifteen institutions, whilst Technologies were the most uncommon, delivered at three institutions. Again, the number of SDUEs to this subject tends to be particularly small. There were only three JACS Group Subjects: Architecture, Building and planning; Social studies; and Training Teachers where the majority of institutions met the 25/75 gender split target in 2016-17 for SDUEs.

Figure 7: Progress of Institutions towards the Gender Split Target across GAP Subjects, AY 2016-17



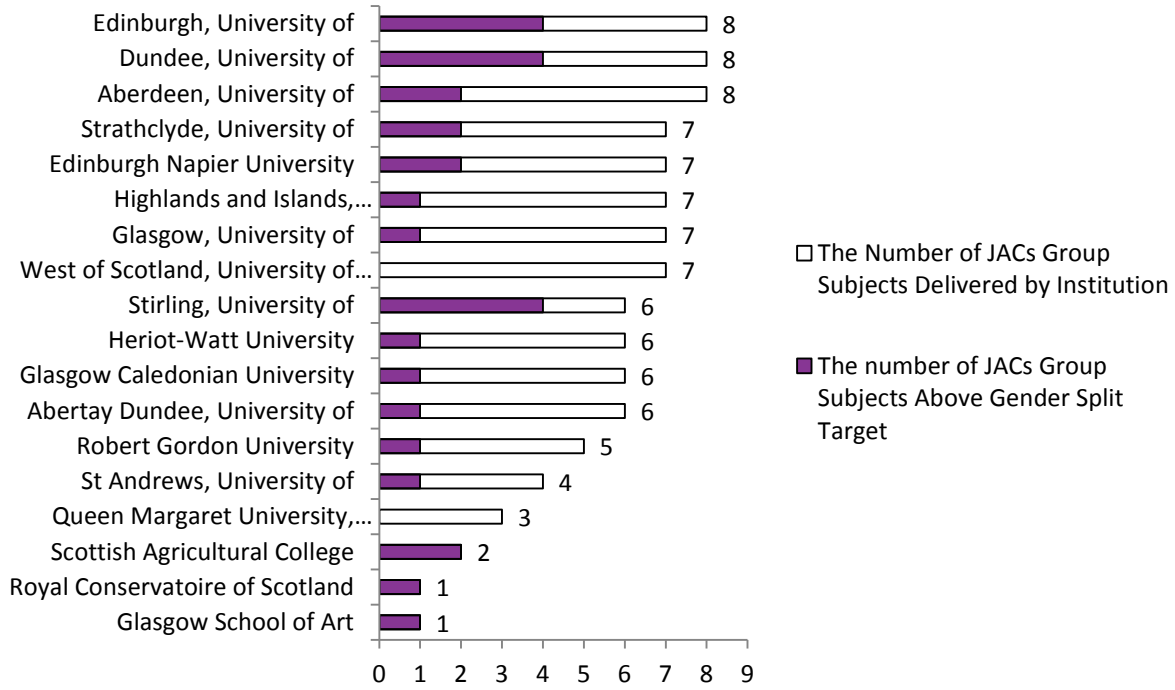
26. Institutions are grouped by volume of GAP subjects they deliver in Table 5 (below). When comparing institutions in this way they perform relatively equally compared to their peers. However, of those institutions that delivered six of the JACS Group Subjects, there was a 67pp difference in target achievement between the University of Stirling and its peers (83% compared to 17%). Conversely, institutions delivering eight JACS groups performed equally (38%), with the exception of the University of Highlands and Islands (25%).

Table 5: Progress towards Gender Balance by Institution for all GAP Subjects they deliver, AY 2016-17

Institution	Number of GAP Subjects Delivered	Number of GAP Subjects Compliant with the Gender Split Target
Dundee, University of	8	4
Edinburgh, University of	8	4
Aberdeen, University of	8	2
Edinburgh Napier University	7	2
Strathclyde, University of	7	2
Glasgow, University of	7	1
Highlands and Islands, University of the	7	1
West of Scotland, University of the	7	0
Stirling, University of	6	4
Abertay Dundee, University of	6	1
Glasgow Caledonian University	6	1
Heriot-Watt University	6	1
Robert Gordon University	5	1
St Andrews, University of	4	1
Queen Margaret University, Edinburgh	3	0
Scottish Agricultural College	2	2
Glasgow School of Art	1	1
Royal Conservatoire of Scotland	1	1

27. Figure 8 (below) displays how institutions performed, in 2016-17, across GAP Subjects. Excluding those that deliver a particularly small number of JACS groups, the University of Stirling met the 25/75 gender split for the largest proportion of the most imbalanced JACS subjects (67%). Meanwhile, the University of the West of Scotland and Queen Margaret University achieved the target gender split for the fewest number of JACS Group Subjects.

Figure 8: Progress of Institutions towards Gender Balance of all GAP Subjects delivered, AY 2016-17



28. For comparison, Table 6 shows the gender split of Scottish-domiciled applicants to UCAS in 2018-19 and SDUEs in 2016-17. Psychology is excluded here as the UCAS data cannot be broken down to this level of detail and the JACS subject area, Biological Sciences, is too broad to include. In the majority of cases, 6 out of 8 subject groups, the gender gap is smaller for recent applicants compared to SDUEs in 2016-17. Technologies have seen the greatest change, however, it is important to note that the number of applicants to technology courses (600) was relatively small. When comparing the number of SDUEs in 2016-17 to the number of UCAS applications in 2018-19, the gender imbalance has reduced by 55.3pp. However, both Computer Science and European Languages, Literature and related subjects have seen a reduction in female applicants compared to the number of entrants in 2016-17 with a 0.8 and 1.3pp change, respectively.

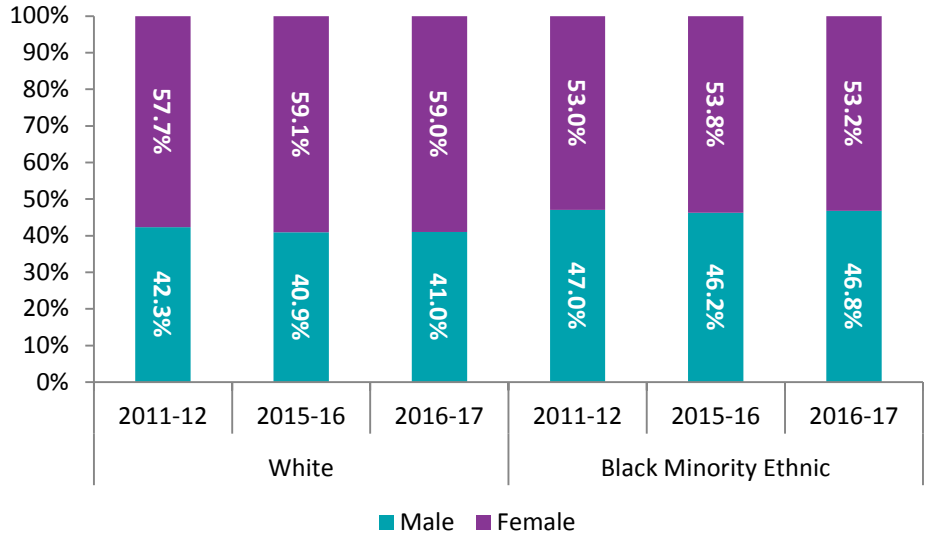
Table 6: Comparison of the gender imbalance of SDUEs in 2016-17 compared to Scottish Domiciled UCAS applicants. *Subjects where the gender imbalance is lower for recent applicants compared to 2016-17 entrants are shown in white text.*

JACS Group Subject	Male proportion of SDUEs (2016-17)	Female proportion of SDUEs (2016-17)	SDUE Gender Imbalance (2016-17)	Scottish Domiciled Applicants Gender Imbalance (2018-19)
Architecture, Build & Plan	68.7%	31.3%	41.0%	37.4%
Computer Sciences	85.6%	14.4%	70.4%	71.2%
Education *	23.1%	76.9%	61.9%	53.7%
Engineering	84.8%	15.2%	69.9%	69.6%
European Langs, Lit & related	19.7%	80.3%	59.2%	60.5%
Social Studies	30.9%	69.1%	42.4%	38.3%
Subjects allied to Medicine *	13.1%	86.9%	80.7%	73.8%
Technologies	58.3%	41.7%	72.0%	16.7%

**Here Education will include other subjects as well as Training Teachers and Subjects allied to Medicine will include other subjects as well as Nursing.*

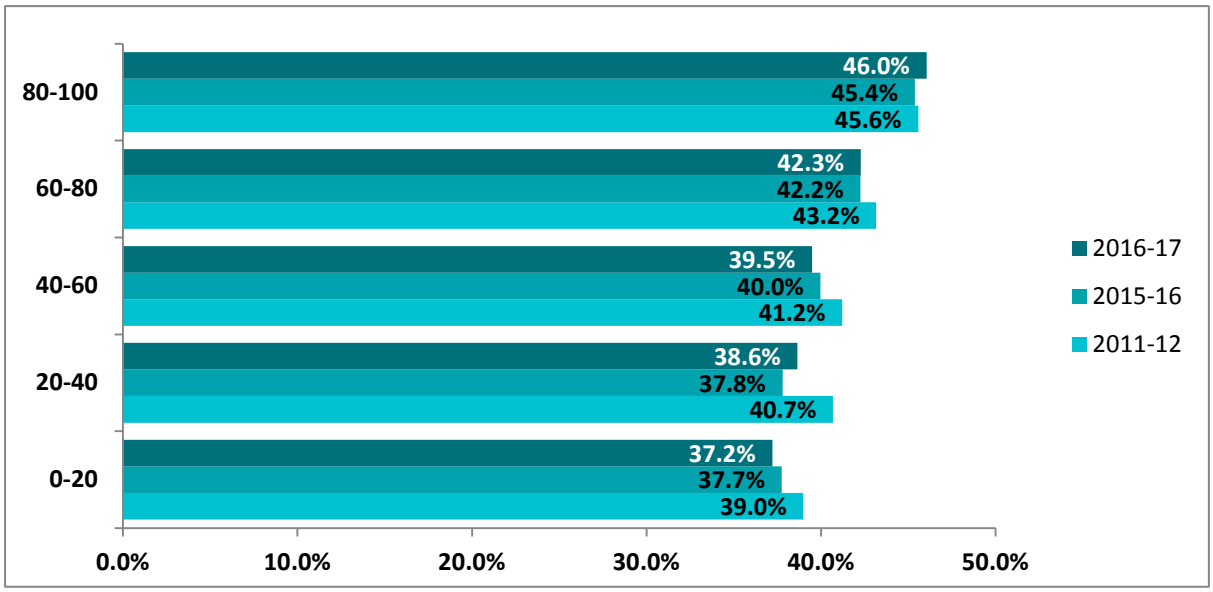
29. Figure 9 shows the gender split by ethnicity of SDUEs comparing the baseline of 2011-12 to more recent years 2015-16 and 2016-17. In the AY 2016-17, the gender imbalance for entrants from a white background was 18pp with females accounting for 59.0% of enrolments. Meanwhile, for female entrants from a Black Minority Ethnic (BME) background accounted for 53.2% of entrants, a 6.4pp difference. For those entrants from a white background, the gender gap has increased since 2011-12 by 2.6pp whilst the gender split of entrants from a BME background has remained relatively consistent.

Figure 9: Gender Balance across Scottish Domiciled Undergraduate Entrants to University from different ethnic backgrounds by AY



30. Figure 10 below displays the proportion of male SDUEs across SIMD quintiles. The largest gender gap exists for entrants from the 20% most deprived areas, where males accounted for 37.2% of entrants in 2016-17. Meanwhile, the gender gap was smallest for those from the 20% least deprived areas at 8pp.

Figure 10: Proportion of male SDUE in Universities across Scottish Index of Multiple Deprivation Quintiles by AY



31. Table 7 shows that the gender gap for those from the least deprived areas has decreased, between 2011-12 and 2016-17, from 8.9% to 7.9%, while the gap has increased for those from the most deprived areas by 3.6pp, from 22.0% to 25.6%, over the same timeframe.

Table 7: Gender Gap for Scottish Domiciled UG Entrants from the least deprived and most deprived areas in Scotland, 2011-12 to 2016-17

	Academic Year					
SIMD Quintile	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
0-20	22.0%	20.4%	20.7%	22.0%	24.5%	25.6%
80-100	8.9%	8.1%	7.1%	7.9%	9.3%	7.9%

3 STEM

32. Volume of STEM activity is an Outcome Agreement Measure for both colleges and universities. This section looks at the gender imbalances across STEM subjects in both sectors. College enrolments of all ages are included rather than looking at the 16 to 24 age group of focus in the college section above.

33. Figure 11 below shows the proportion of STEM enrolments at colleges and entrants at universities that are male. The college enrolments are shown separately for FE and HE level because of the differences that exist between the two.

34. There is a higher proportion of males than females at all levels of STEM subjects. The proportion of male enrolments is highest at HE level in college (84.7%) followed by FE level (71.6%) and the proportion of male entrants at OA undergraduate level at university is lower again (62.9%).

35. Six years of data is shown in Figure 11 below, from 2011-12 to 2016-17. The proportion at each level remains broadly similar across the years, with HE in college having the highest proportion of males and undergraduate level at university having the lowest proportion. There was a notable decrease in the proportion of males at FE level between 2015-16 and 2016-17 where the proportion decreased to 71.6% after remaining above 75% since 2012-13.

Figure 11: Proportion of Male STEM Enrolments at College and Entrants at University, 2016-17