



Name of institution	University of Cambridge	
Department	Department of Engineering	
Focus of department	STEMM	
Date of application	20 th May 2020	
Award Level	Silver	
Institution Athena SWAN award	Date: Nov 2018	Level: Silver
Contact for application	Megan Davies Wykes	
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Telephone	-	
Departmental website	www.eng.cam.ac.uk	

Abbreviations

HoD Head of Department
EDPC Engineering Department Postdoc Committee
PSS Professional and support staff
PPD Personal and Professional Development
IfM Institute for Manufacturing (Division E)

UG Undergraduate
PGT Postgraduate Taught
PGR Postgraduate Research

ILM Institute of Leadership and Management

Word Count

On 6th April 2020 the Athena SWAN Team agreed by email to permit the Department to use an extra 1,000 words due to the Department's size, to analyse and reflect on any departmental or discipline-specific differences. These additional words have been used mainly to explain and analyse the gender attainment gap in the undergraduate degree (section 4.1, 616 words) and throughout section 5 (379 words).

Word count includes all body text, quotes and boxed achievements. An additional section has been added to explain factors related to the COVID-19 pandemic.

Department application	Recommended	Submission
Word count	12,000 + 1,000 + 500	13,257
1. Letter of endorsement	500	691
2. Description of the department	500	425
3. Self-assessment process	1,000	845
4. Picture of the department	2,000	2,616
5. Supporting and advancing women's careers	6,500	7,468
6. Case studies	1,000	881
7. Further information	500	69
8. Effects of COVID-19	500	262

Additional words

Hi Megan,

I hope you are keeping well. We are happy to grant an additional 1,000 words to the Department of Engineering at University of Cambridge for their April 2020 submission due to their faculty-like structure. The additional words are to allow the Department of Engineering to analyse and reflect on any departmental or discipline-specific differences, and to demonstrate how Athena SWAN principles are embedded in each constituent unit.

Please include this email in your submission as confirmation and state in the submission where the additional words have been used.

With best wishes,

Jess

Jessica Kitsell

Equality Charters Adviser

E jessica.kitsell@advance-he.ac.uk

T +44 (0)20 7438 1025

Dear Jess,

I hope you are well too!

I'm sorry, I should have asked this in my last email -- we also (rather unusually) independently class every year of the four year MEng and the last two years of MEng in manufacturing, which has a significant impact on the word count needed to properly discuss and analyse the gender attainment gap (as compared with the majority of departments who only class in the final year). Can I use some of the 1000 words to discuss the gender attainment gap?

Best wishes,

Megan

Hi Megan,

As this appears to be connected to the discipline-specific differences within the Department, then that would be an acceptable use of the additional words granted below.

With best wishes,

Jess

Jessica Kitsell

Equality Charters Adviser

E jessica.kitsell@advance-he.ac.uk

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Important note on staff data in the submission

The census date for the submission data is 31st July 2019. Two female academics were hired in the second half of 2019, they (and the male academics hired in the same period) are included in figures 2B and 4.2A, as indicated in the caption.

One further female lecturer was hired in the first half of 2020, who has not been included in the submission. The figures and charts throughout the submission do not include this new appointment, so the proportion of female academic staff at the submission date will be better than indicated in the data.

1. Letter of endorsement from the head of department (691 words)

An accompanying letter of endorsement from the head of department should be included. If the head of department is soon to be succeeded, or has recently taken up the post, applicants should include an additional short statement from the incoming head.



UNIVERSITY OF
CAMBRIDGE

Department of Engineering

Professor R W Prager FREng

Head of the Department of Engineering

20th May 2020

James Greenwood-Lush

Athena SWAN Charter
Advance HE
First Floor, Napier House
24 High Holborn
London
WC1V 6AT

Dear Mr Greenwood-Lush,

Engineering is a vocation that transcends boundaries and draws on almost every type of skill and knowledge. Engineering is so broad in its demands that it must encompass everyone if we are to be successful. Unfortunately, Engineering has historically been associated with a variety of limited, mostly male, stereotypes. Furthermore, structural barriers to equality and diversity persist in the sector and in this Department. This is a legacy that we as Engineers and as a Department are working hard to overcome and I consider our Athena SWAN activities an integral part of this. Chairing the SAT as Head of Department is, in part, a reflection of my personal commitment to gender equality in my Department, but also a mechanism for ensuring that our Departmental commitment to the Athena SWAN Charter is at the forefront of our wider strategic vision.

The effect of lingering stereotypes is to draw many women away from STEMM subjects in their early teenage years. The gender balance of teenagers doing relevant A-levels such as Physics is heavily skewed and this inevitably leads to far too few female students having the traditionally required academic background for undergraduate Engineering. In addressing this national trend as part of our Athena SWAN activities a variety of outreach activities have been undertaken to widen participation. This is an area of particular personal interest to me and, over the last seven years, I have developed on-line resources to motivate teenagers to study engineering and prepare for the university admissions process.

The structural barriers to gender equality and diversity are many, complex and in some

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cases not yet fully understood. However, this no excuse for inaction. Data collection as part of Athena Swan activities and sharing of best practice from elsewhere enables us to determine appropriate and constructive actions that provide genuine benefits. For example, having identified that we were failing to appoint sufficient female Academic staff we have changed our recruitment practices. We now subject all permanent academic appointments to tough diversity assessment at the long-listing stage, and provide unconscious bias training for those involved in the recruitment process. As a result we have nearly doubled the proportion and number of female Academics at both Lecturer and Professorial levels since 2015.

We have identified a number of priority areas which we address in our latest action plan. These include: addressing the undergraduate gender attainment gap; supporting researchers and lecturers in their careers; and increasing support for staff and student wellbeing. While these are areas in which the data suggests that female students and staff may particularly benefit from positive action, such actions are likely to positively affect all staff groups. We expect these actions to lead to a virtuous circle of improvement. For example, increased numbers of female research staff transitioning to academic roles will increase the number of female academics teaching undergraduates thereby helping tackle the stereotype threat that is thought to contribute to the undergraduate gender attainment gap.

I am proud of the progress that we have made as a Department, but I recognise that there is much work left to do, and we cannot just do more of the same. In particular it is important that our efforts to improve equality and diversity do not become a burden borne disproportionately by our female staff. This is one reason why I have encouraged more male participation in our SAT.

For Engineering to reach its true potential, we need a balanced and diverse workforce. Achieving this is a challenge that we are only just beginning to address. I support this Athena Swan application without reservation. As Head of Department I will continue to make fair and diverse recruitment a major priority. I will continue to seek new ways in which to evolve our Department and our discipline to achieve the balance that will be best for the staff, best for the University and best for the needs of humanity that we serve.

Lastly, I can confirm that to the best of my knowledge the information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the department,

Yours sincerely,

A handwritten signature in black ink that reads "Richard Prager". The script is cursive and fluid, with the first name "Richard" and last name "Prager" clearly legible.

R W Prager

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2. Description of the Department (425 words)

Please provide a brief description of the department including any relevant contextual information. Present data on the total number of academic staff, professional and support staff and students by gender.

The Department is the largest integrated engineering department in the UK, representing approximately 10% of the University of Cambridge's academic activity. The Department had a second female HoD in 2018 when Dr Claire Barlow served as the interim Head for six months; the current HoD, Professor Richard Prager, took up the post in December 2018.

The Department currently has sites in central and west Cambridge (see map below), but within 10-15 years will move fully to west Cambridge. The 2019 move of Division D to west Cambridge has changed the gender balance from 28% female to 31% female staff on the West Site. The gender balance will be further improved when the support services Division V (currently 51% female staff) is allocated facilities in west Cambridge.

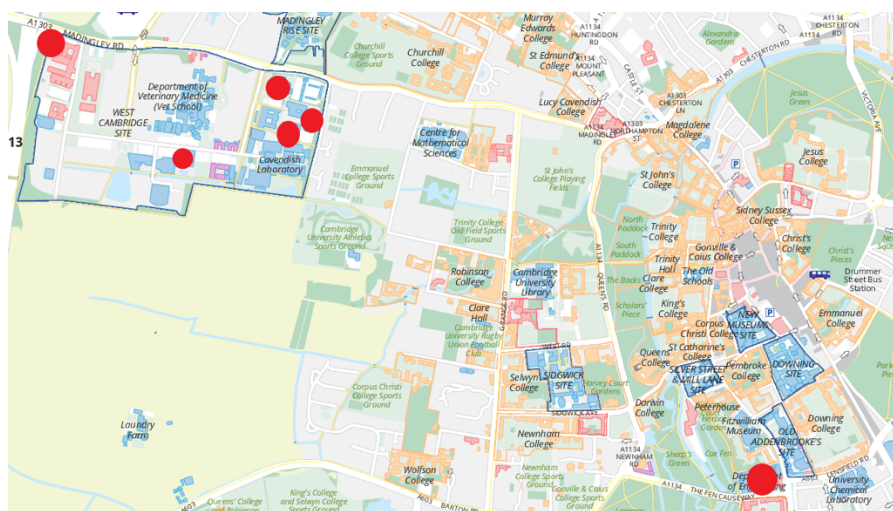


Figure 2A: Map of Engineering Department sites.

The department has over 800 staff and over 2,000 students, see table and figure 2B.

		2016 (% female)	2019 (% female)
Staff	Academic	154 (11%)	151 (12%)
	Researchers	316 (23%)	343 (22%)
	Support	284 (43%)	327 (45%)
Students	Undergraduate	1068 (24%)	1,112 (24%)
	Postgraduate	864 (27%)	957 (27%)

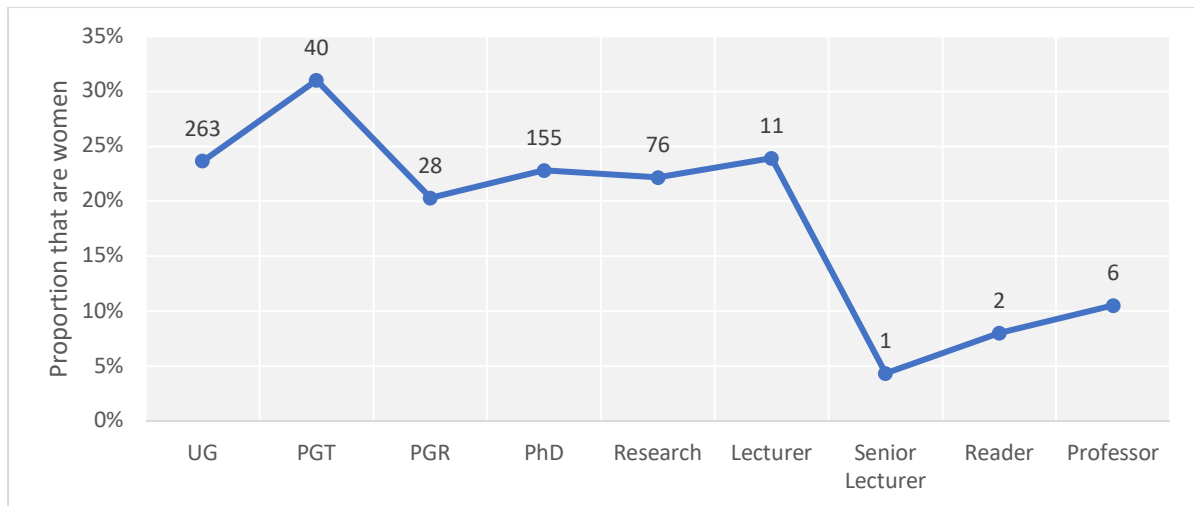


Figure 2B: Proportion of women students, researchers and academics. Label is number of women at that level. Includes two female lecturers hired in the second half of 2019.

The Department is divided into eight Divisions – six academic and two professional services. The gender differences in Divisions (figure 2C) are due to certain Engineering disciplines being largely male dominated at all levels. The measures being taken to improve gender balance among students are discussed in section 4.1 and for staff in section 5.1.

Head of Department (HoD)		
Academic Divisions	Division A – Energy, Fluid Mechanics and Turbomachinery	Academic Committee (Membership includes the Senior Management Team and Heads of Division)
	Division B* – Electrical Engineering	
	Division C – Mechanics, Materials and Design	
	Division D* – Civil Engineering	
	Division E* – Manufacturing and Management	
	Division F – Information Engineering	
Support Divisions	Division V – HR Office, Research Office, Graduate Studies Office, Teaching Office, Finance and Purchasing Office, Library, IT Services	
	Division W – Design and Technical Services	

**Division currently situated in west Cambridge.*

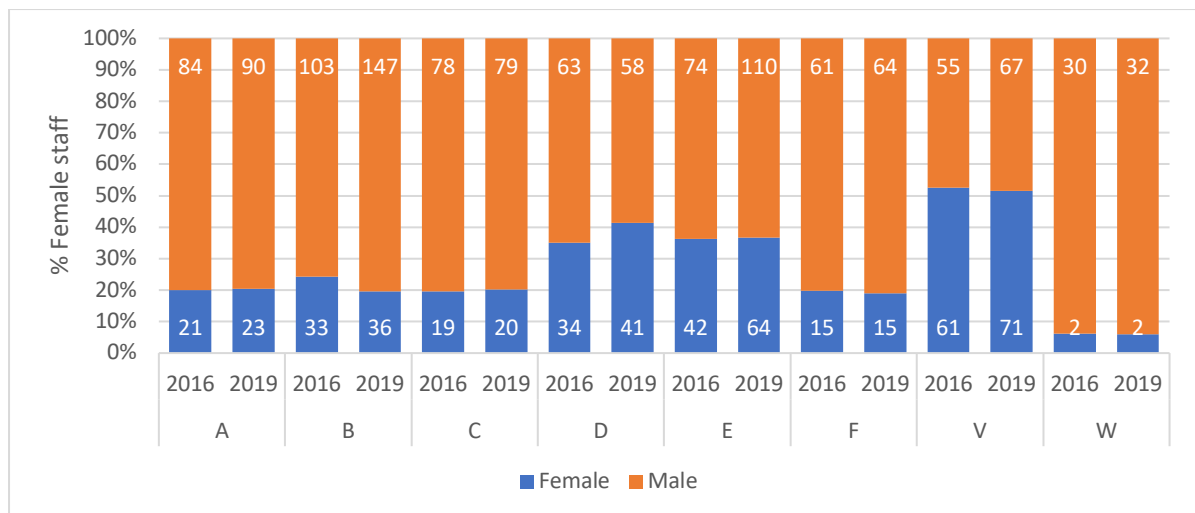


Figure 2C: Number and proportion of male and female staff in each division.

The Department runs two undergraduate courses leading to BA and MEng degrees (figure 2D). All students follow the same course for the first two years, covering the main branches of engineering. They then concentrate on their chosen branch of engineering within the Engineering Degree or the Manufacturing Engineering Degree. The Department benefits from the University's collegiate structure whereby the 31 Colleges provide accommodation, pastoral care and small group teaching for undergraduate students; most academic staff are College Fellows.

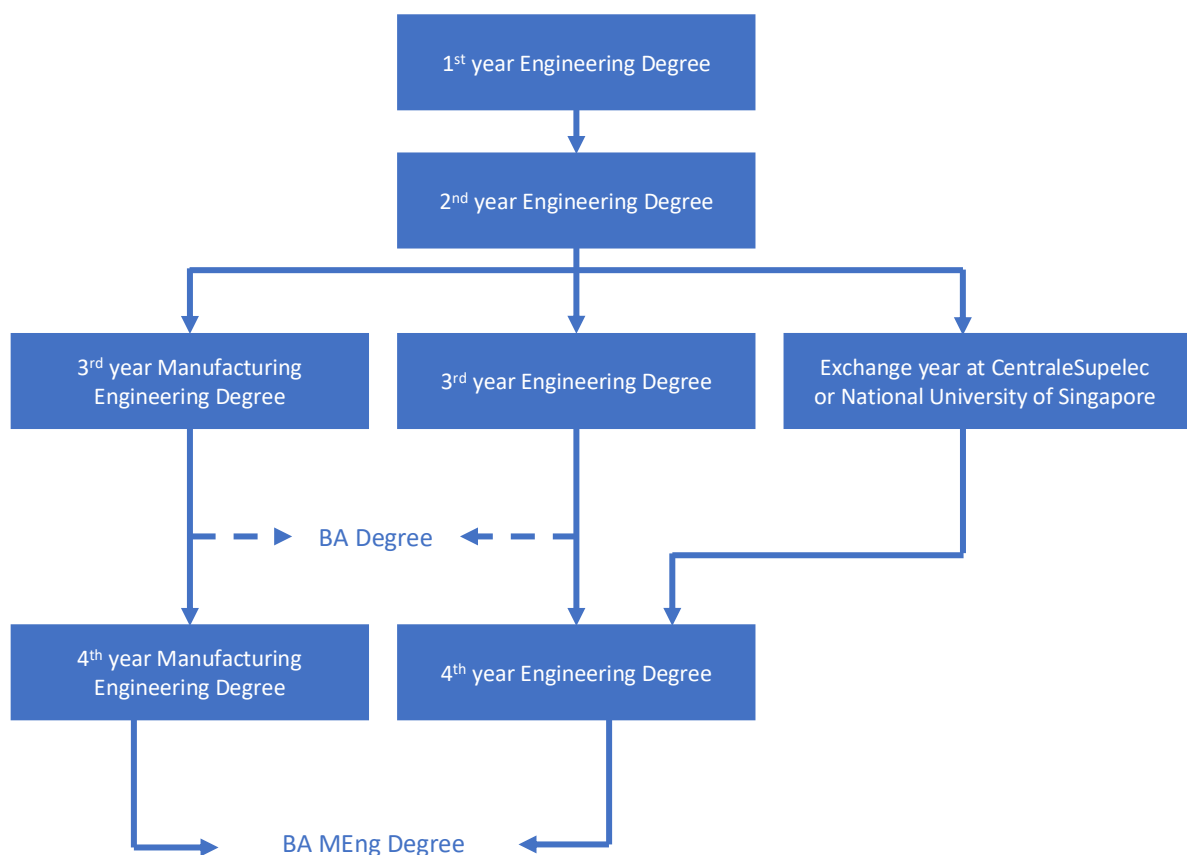


Figure 2D: Overview of undergraduate degree course

The Department offers taught graduate courses (MPhil and MSt) and research degrees (PhD, MPhil and MRes). These follow an integrated educational framework that goes beyond the specific field of study, aiming to build transferable skills in communication, teamwork and ethics. Researchers are one of the Department's growth areas alongside Professional Support Staff (PSS). The number of researchers has increased by 27 since 2016 and are a key area of focus (section 5.1).

3. The Self-Assessment Process (845 words)

Describe the self-assessment process. This should include: a description of the self-assessment team; an account of the self-assessment process; plans for the future of the self-assessment team.

The SAT's 23 members (12F, 11M) have a wide range of career experiences, caring responsibilities and work-life balances. Since 2015, the SAT has included student representatives and academic Champions for each Division alongside representatives from all staff groups. Appointment to the SAT is for a term of 3 years, and the SAT is actively seeking members from underrepresented groups (non-female) at each appointment round. SAT membership is open to all staff, and proposals for members, with guidance on the gender balance, are sought from Heads of Division and Department as well as Divisional Champions and other SAT members.

Participation in the SAT is acknowledged as general contribution in the Senior Academic Promotions process and has been taken into account in successful salary increment applications for other staff groups.

SAT member	Gender and pronouns	Role and relevant experience
Dr Christelle Abadie	Female; she/her/hers	<ul style="list-style-type: none"> University Lecturer in Civil Engineering. Division D Champion. Organiser of International Women in Engineering Day events.
Dr Claire Barlow	Female; she/her/hers	<ul style="list-style-type: none"> University Senior Lecturer and Deputy HoD. Deputy Chair of the SAT. Second female HoD.
Kevin Bullman	Male; he/him/his	<ul style="list-style-type: none"> Chief Technician in the Department's Design and Technical Services. Dyson Centre Technician Champion. One child, partner working part-time.
Lucia Corsini	Female; she/her/hers	<ul style="list-style-type: none"> PhD Student. Graduate student representative in the SAT.
Dr Megan Davies Wykes	Female; she/her/hers	<ul style="list-style-type: none"> Liz Acton University Lecturer.

		<ul style="list-style-type: none"> Academic Lead of the SAT.
Ingrid El Helou	Female; she/her/hers	<ul style="list-style-type: none"> Graduate Representative in the SAT. Awarded an Amelia Earhart scholarship. Manages social media for Engineering Diversity and advertising events.
Emma Etteridge (since Nov 2019)	Female; she/her/his	<ul style="list-style-type: none"> Engineering Library manager. Organiser of events to support equality and wellbeing.
Dr Robert Foster	Male; he/him/his	<ul style="list-style-type: none"> University Lecturer. Deputy Academic Lead of the SAT. Recently appointed early career academic.
Dr Sue Jackson	Female; No preferred pronouns	<ul style="list-style-type: none"> Researcher Development Programme Coordinator. Chartered Engineer and qualified Coach, workshop designer and facilitator. Previously Daphne Jackson Research Fellow.
Dr Hannah Joyce	Female; she/her/hers	<ul style="list-style-type: none"> Reader, Division B Champion. Research group is 50% women and 50% BAME. Dual career family in academia with one child.
Lotta Kallioinen	Female; she/her/hers	<ul style="list-style-type: none"> Secretary to the SAT. Dual career family with two small children. Balancing work/life commitments by working part-time.
Dr Mukesh Kumar	Male; he/him/his	<ul style="list-style-type: none"> University Lecturer, Division E Champion. Member of BAME staff network Interested in unconscious bias in hiring and managing people.
Alessandra Luna-Navarro	Female; she/her/hers	<ul style="list-style-type: none"> PhD Candidate working in smart buildings. Divisional student representative. Graduate student representative for Athena Swan SAT.
Dr Luca Magri	Male; he/him/his	<ul style="list-style-type: none"> University Lecturer in Thermo-Fluid Dynamics. Royal Academy of Engineering Research Fellow. Diversity Champion for the Department.
Dr Athina Markaki	Female; she/her/hers	<ul style="list-style-type: none"> University Reader, research group 50% women. Division C Champion. Dual career family. Worked part-time for graduated return after maternity leave.
Lynne Meehan (until Nov 2019)	Female; she/her/hers	<ul style="list-style-type: none"> Department Librarian.

		<ul style="list-style-type: none"> Experienced in balancing work/life commitments, including dual career family with two teenage children. Previously worked part-time.
Dr David Morgan	Male; he/him/his	<ul style="list-style-type: none"> Deputy Director of MPhil in Engineering for Sustainable Development. Taught courses representative for SAT. Collating resources for Engineering Diversity Website.
Mr Nick Northrop	Male; he/him/his	<ul style="list-style-type: none"> Professional staff member of SAT and EDPC. Two small children, partner working part-time. Working flexibly to balance work and study.
Dr Timothy O'Leary	Male; he/him/his	<ul style="list-style-type: none"> Lecturer in Neuroscience. Division F Champion. Recent parent with working partner. Only Control Group member with mixed gender team.
Professor Richard Prager	Male; he/him/his	<ul style="list-style-type: none"> HoD, Chair of SAT. Active in promoting equality of access in University admissions. Editor of the i-want-to-study-engineering.org website.
Dr Rasha Rezk	Female; she/her/hers	<ul style="list-style-type: none"> Postdoctoral Research Associate. Member of Robogals, taking robotics workshops into schools to improve diversity in Engineering.
Dan Sexton	Male; he/him/his	<ul style="list-style-type: none"> Head of Information and Computing Services. Promoting E&D within IT community. Full-time professional family with two young children. Limited flexible working.
Yoanna Shams (until Sep 2019)	Female; she/her/hers	<ul style="list-style-type: none"> Research Assistant in Technology and Innovation Policy. Postdoctoral Researcher representative for the SAT.
Tse Uweja	Female; she/her/hers	<ul style="list-style-type: none"> Undergraduate student. Cambridge University Engineering Society's Diversity Officer.
Professor Garth Wells	Male; he/him/his	<ul style="list-style-type: none"> Deputy HoD (Research), Chair of REF2021 Committee. Supports equality of access to research support services. School-aged child, working partner.
Dr Andy Wheeler	Male; he/him/his	<ul style="list-style-type: none"> University Lecturer and EPSRC Fellow. Division A Champion. Dual career family with two small children.

(ii) an account of the self-assessment process

Since the last application, the SAT has met bi-monthly to:

- track progress on its action plan;
- discuss and act upon relevant feedback and data;
- plan initiatives to improve the Department's working environment and culture.

The appropriate committee then authorises any necessary action raised by the reports.

Richard Prager, the Head of Department (HoD), is the Athena SWAN Departmental Champion and Chair of the SAT. He is committed to ensuring that the Department is an inclusive place to work and study and has sought to engage all Department members with this endeavour, updating them on progress through presentations, emails and newsletter articles plus regular reports to the Department's committees. An area of particular focus for the HoD has been ensuring a good gender balance in all long-lists. As Head of School, he insisted that every professorial long-list had an appropriate level of gender balance. He also contributed to the design of the framework that now requires all lectureship long-lists to be reviewed to ensure gender balance. Professor Prager also served on the race-equality charter working group.

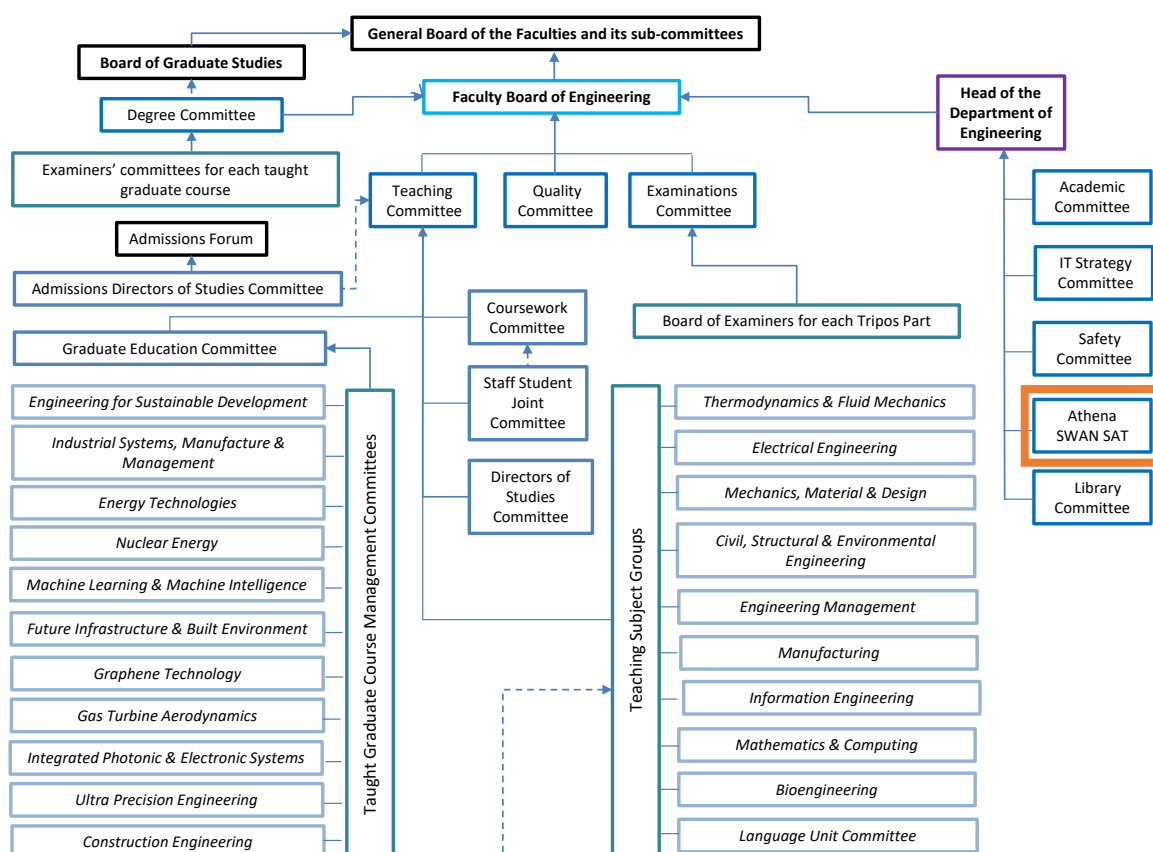


Figure 3A: Committee structure in the department. The Athena SWAN SAT is chaired by the HoD, who, along with the academic lead, reports to the faculty board.

The SAT used OneDrive to collaboratively draft the submission. Each SAT member has responsibility for the sections of the submission most relevant to their experience, although the SAT has collective responsibility for the final version.

Divisional Champions

The Department has six academic Divisions, each of which is the size of a small-medium department. Each Division has an EDI Champion (three female and three male), who act as conduits for communication between Divisions and the SAT. They have had a significant impact on the awareness and engagement of academic staff with the initiative, enabling us to drive change more effectively. The Divisional Champions also reach out to undergraduate and postgraduate student communities and organise termly Inspirational Engineers talks.

Departmental consultation

The submission and ongoing action plan have been heavily informed by the results of the 2019 staff survey. The relatively low response rate (48%) was due to several other recent survey and consultation activities resulting in survey fatigue. The SAT used analysis of the results by occupation and gender to identify areas of concern and to prioritise actions. Follow-up has included focus groups to explore particular issues identified. Each Division has also held meetings to discuss the results and identify actions.

Other quantitative data for the Silver Award submission was obtained through the University's Personal and Professional Development (PPD) section, via talks.cam.ac.uk, and the departmental HR Office's staff and training databases.

Action 5.3: The January 2019 staff survey had overall response rate of 48%. We will need a new staff survey in 2022 to examine progress and success of our action plan. We will aim for significant increase in the response rate of >90%, with Divisional Champions promoting the survey to increase response rates. This worked well for the 2016 survey (response rate 92%), but unfortunately was not used for the 2019 survey.

Other contacts

The SAT works closely with the University's E&D team and liaises with contacts in cognate departments and universities to share good practice and ideas for tackling common challenges such as recruiting and retaining women.

SAT members have developed links with the South East Physics Network, attending the annual workshop on the Attainment Gap. A representative from the SAT ran a workshop at Kings College London for STEM PhD students on impostor syndrome. We have also developed links with the Cambridge Branch of Women In Science and Engineering, as well as drawing upon benchmarking data provided by HESA.

Top priorities

The Department's top priorities arising from the data and consultations are:

1. Address the **gender attainment gap** in the undergraduate engineering degree: there is a 10-15% gap in attainment between male and female students.
2. **Support researchers** in the transition to an academic career: we have discovered that female researchers are less likely than male researchers to continue in an academic career.
3. Support academic staff in **induction and promotion**: we now have a greatly increased proportion of women at lecturer level, who we must support through induction and promotion.
4. Increase **support for staff and student wellbeing**, including managing stress and reducing workload: female staff report difficulties with work-life balance.

(iii) Plans for the future of the self-assessment team

Some SAT members are due to finish their terms in 2020, and the search for successors is underway. Heads of Division, Deputy Heads of Department, and PSS leaders have been approached for suitable new members, taking in consideration gender balance; the proposed membership will be discussed and approved by the SAT. This also provides an opportunity for the current members to take up vacant roles. The outgoing members and members changing roles within the SAT will be asked to provide brief handover notes, which, together with the SAT Chair and Secretary's induction will provide an introduction to the incoming membership.

Ongoing action: The SAT will meet monthly to receive updates from the HoD on the progress of any actions either discussed by relevant departmental committees and from the Academic Lead on actions implemented by the Department and the SAT.

Action 5.6: To promote the SAT and Athena SWAN, the Engineering Diversity web page with an updated Silver Award action plan will feature more prominently on the departmental website once the migration onto the new platform has been completed. The SAT will continue to promote Engineering Diversity through regular events and workshops, and by sending a representative to take part in the welcome event for all new staff.

4. Picture of the department (2,616 words)

4.1. Student data

If courses in the categories below do not exist, please enter n/a.

(i) Numbers of men and women on access or foundation courses

N/A.

(ii) Numbers of undergraduate students by gender

Full- and part-time by programme. Provide data on course applications, offers, and acceptance rates, and degree attainment by gender.

All undergraduates are full-time.

Undergraduate numbers and admissions

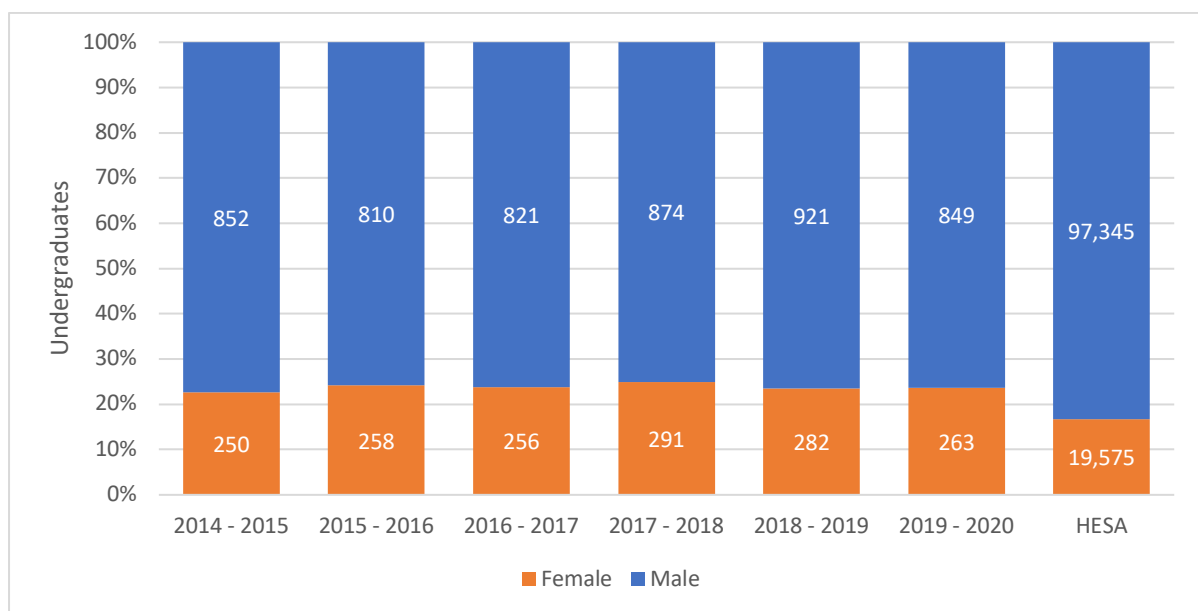


Figure 4.1A: Undergraduate numbers. HESA data for first degree undergraduate students in Engineering and Technology (2017).

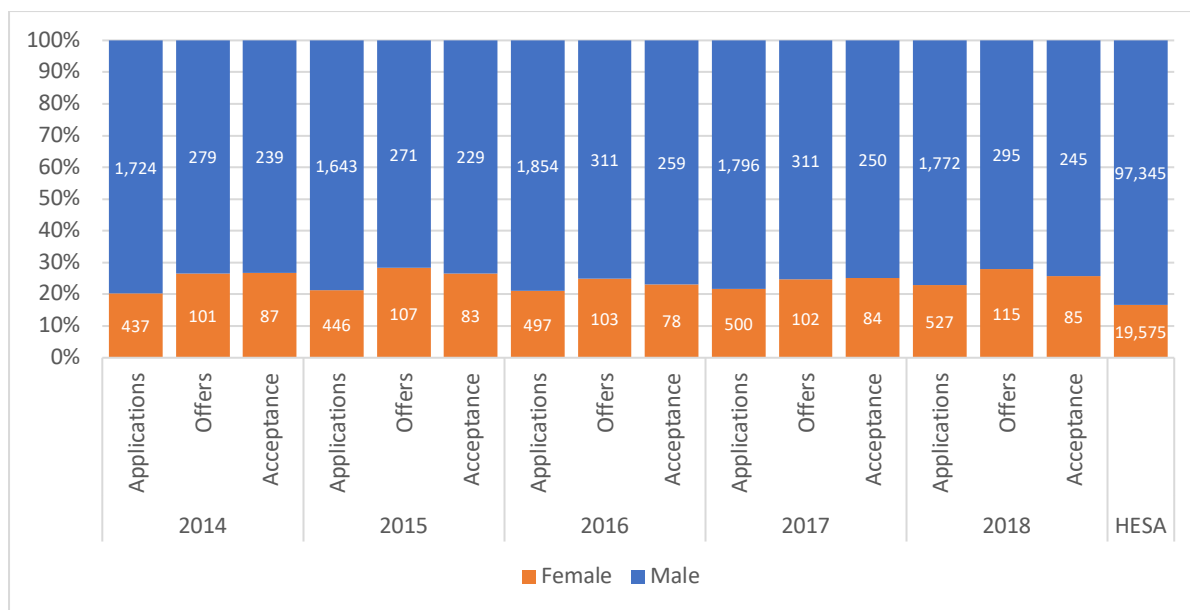


Figure 4.1B: Undergraduate admissions by gender. HESA data from 2017, first degree undergraduate students by subject area and gender in Engineering and Technology.

Undergraduate numbers are stable at around 24% (figure 4.1A), which is 40% higher than the HESA average for Engineering and Technology (17%). Female students make up 22% of those taking physics at A-level (IOP, 2018), which limits the pool of applicants. Despite this, the percentage of female applicants has shown a clear increase between 2014-18 (figure 4.1C).

Achievement: Proportion of female undergraduates is 40% higher than UK average for Engineering and Technology.

We attribute this increase to several actions made as part of the last application:

- Outreach by the department, targeting female students (section 5.6).
- Visibility of female students and academics at open days.
- Including prominent images of female engineers in the admissions material for engineering (figure 4.1D),
- The Physics Teacher Network's East of England branch was invited to the Department to meet women staff and students.

Achievement: Over the last 5 years there has been a steady increase in the proportion of female undergraduate applicants.

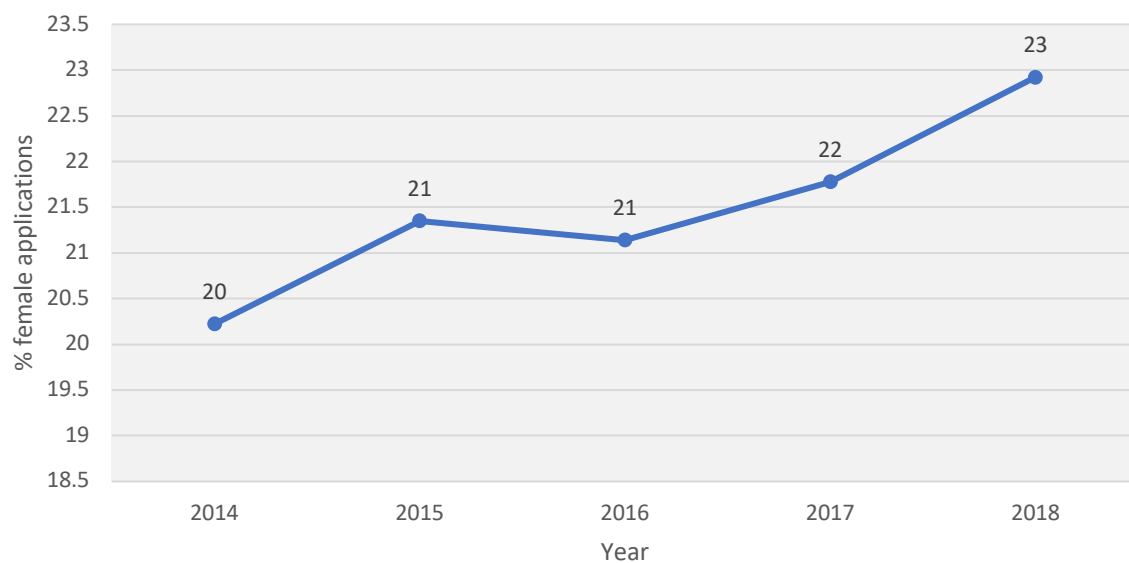


Figure 4.1C: Percentage of female undergraduate applications.



Figure 4.1D: Example images from the engineering admissions website.

All Cambridge undergraduate students are members of a College. Colleges select and admit undergraduates, with academics from the Department performing interviews. Academics working in admissions are required by the department to undergo unconscious bias training.

The proportion of female applicants who receive offers is higher than for male applicants (22% vs 17%), as is the proportion of female applicants who apply and are accepted (17% vs 14%, figure 4.1B), indicating there is no negative bias against female candidates at admission.

Undergraduate Attainment

Cambridge does not have final degree classifications, instead every year is given a class. Most undergraduates complete a MEng, however, it is possible to leave with a BA in Engineering after the 3rd year. Undergraduate attainment can therefore be examined at various levels: for the BA, for the MEng and the MEng in Manufacturing Engineering.

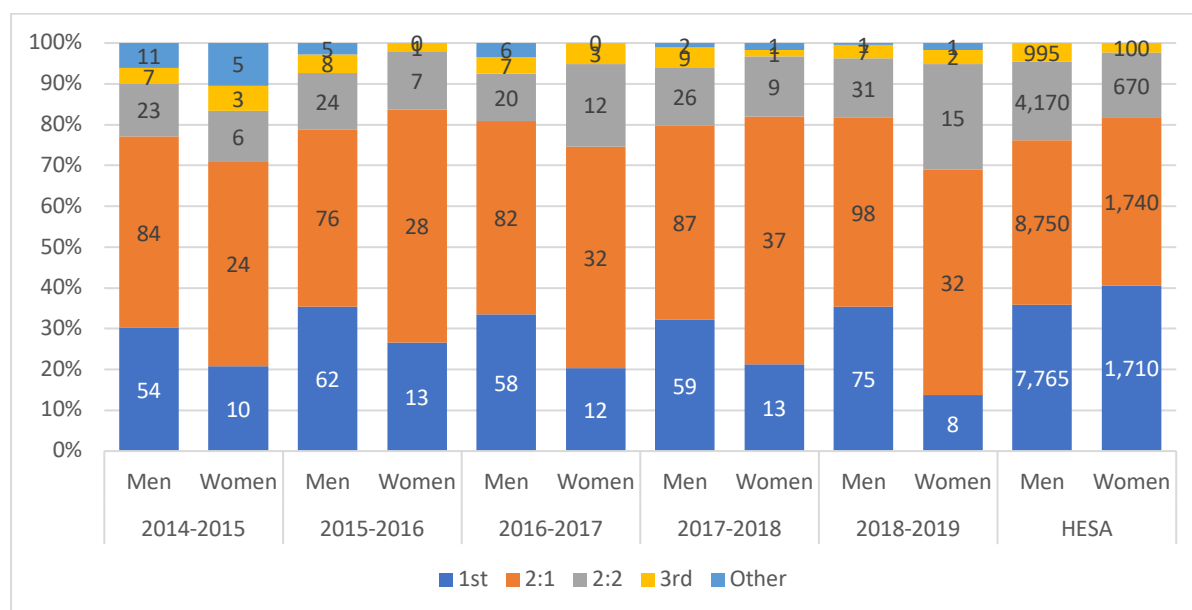


Figure 4.1C: Degree classification by gender for the 3rd-year (BA) of the Engineering undergraduate degree. HESA data is for Engineering and Technology (2017).

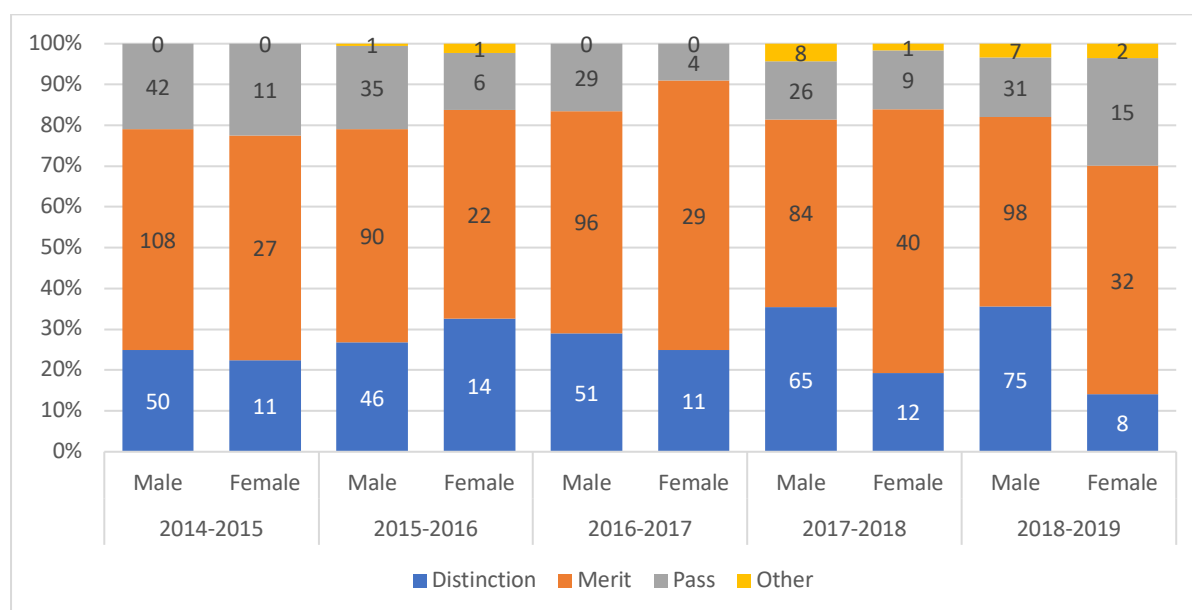


Figure 4.1D: Degree classification by gender for the 4th-year (MEng) of the Engineering Undergraduate degree. HESA data not available for MEng.

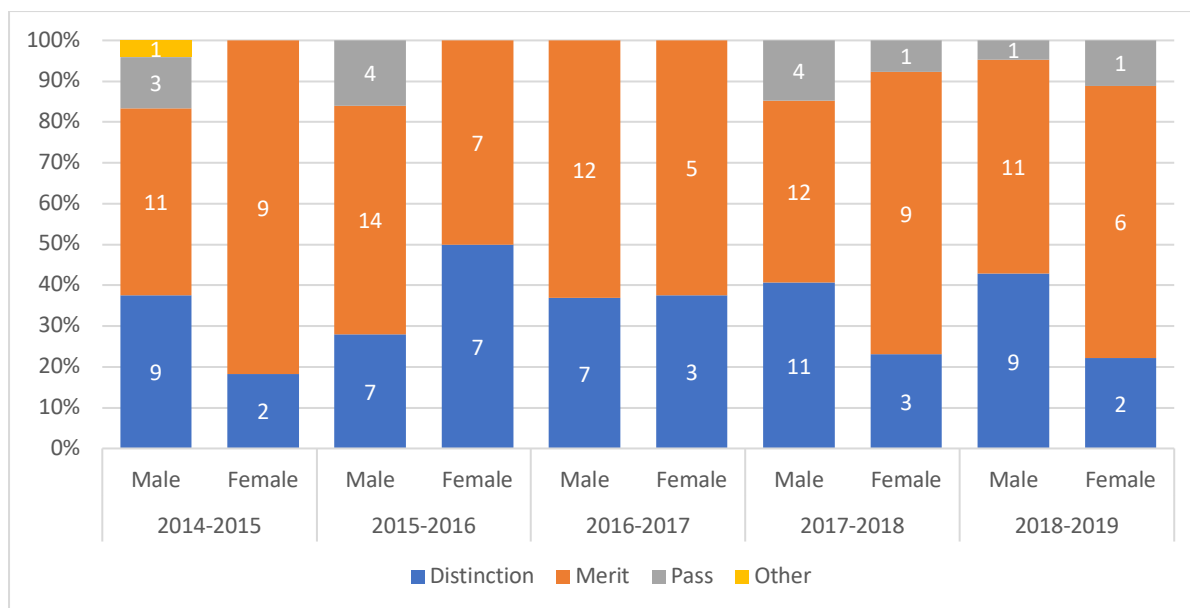


Figure 4.1E: Degree classification by gender for the MEng in Manufacturing Engineering. HESA data not available for MEng.

Examination of the BA and MEng reveals a positive gender attainment gap – a higher proportion of male students get a 1st or a distinction than female students. To understand this we have compiled data on the gender attainment gap for each year of the undergraduate degree, looking at both the difference in the proportion of men and women who receive a 1st and the difference in the proportions who receive a 1st or a 2:1 (good honours).

We see different behaviour between the two measures of attainment gap. There is a large attainment gap for good honours (figure 4.1F) in the 1st year, which reduces in the 2nd year and disappears in the 3rd and 4th year. Note that due to small numbers, the gender attainment gap would be expected to fluctuate significantly: a single additional female student achieving good honours would reduce the attainment gap by around 2%.

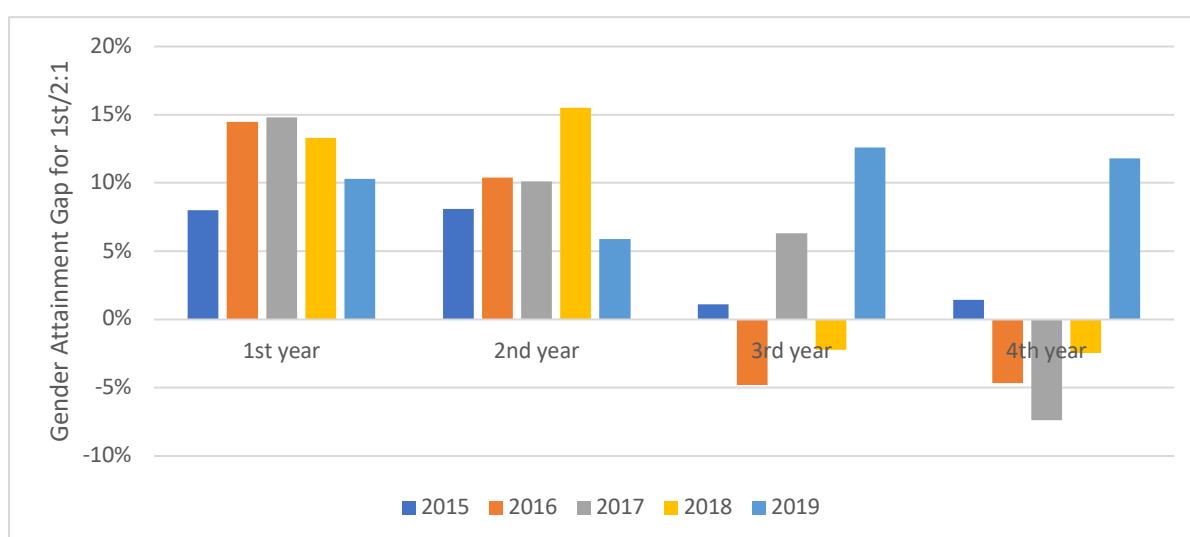


Figure 4.1F: Gender attainment gap for 1st/2:1 or Distinction/Merit (good honours). HESA data: -5.5% for Engineering and Technology in 2017.

An action from the previous submission was to review the teaching allocation to identify whether any courses in the 1st or 2nd year could be taught by women, with the aim of reducing the gender attainment gap. As a result of this work, the number of hours lectured by female lecturers has generally increased, particularly in the 1st year (figure 4.1G). Further analysis (figure 4.1H) suggests that increasing hours given by female lecturers reduces the gender attainment gap; this effect has also been found elsewhere¹.

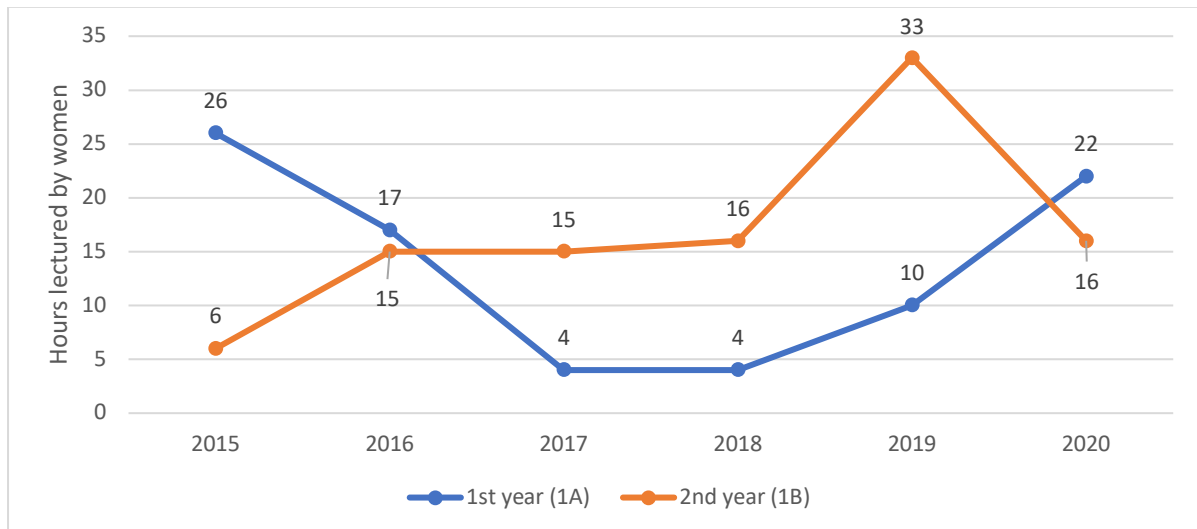


Figure 4.1G: Hours lectured by women in first two years of the Engineering undergraduate degree.

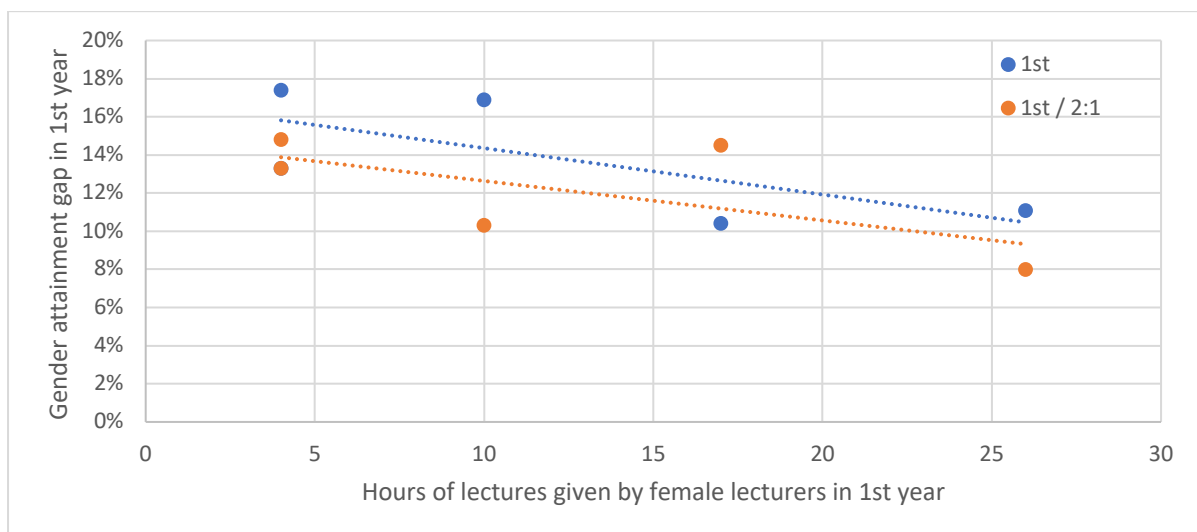


Figure 4.1H: Gender attainment gap in 1st year reduces with an increase in the number of hours of lectures by women.

Due to low numbers of female academics in past years, there were difficulties in increasing the number of hours of lectures. Our new hires will reduce this restriction, while our

¹ Carrell, S. E., Page, M. E., & West, J. E. (2010). Sex and science: How professor gender perpetuates the gender gap. *The Quarterly Journal of Economics*, 125(3), 1101-1144.

transparent teaching allocation database will prevent our female lecturers from being overloaded. We have had excellent feedback regarding the increased use of female lecturers.

“It was awesome to have a female lecturer for a cool subject”
– Anonymous course feedback from a 2nd-year undergraduate student.

We now upgrade and prioritise this action to increase the proportion of lectures in years 1 and 2 given by women. An analysis of the influence of female lecturers on the gender attainment gap has been sent to Subject Groups (who assign teaching) and importance of female lecturers has been emphasised to Subject Groups Chairs.

Action 1.4: Increase the proportion of female lectures from 8% in 1st year and 3% in 2nd year to match the proportion of women in the department. The proportion of lectures given by female lecturers in the 1st and 2nd year is will be included in the yearly briefing sent to teaching groups just before teaching is allocated.



Figure: An undergraduate lab

Much of the teaching is performed in small groups, known as supervisions. Additional actions have included emphasising the importance of inclusive teaching practices in supervisor training sessions. Marking of all exams is done anonymously, as is the marking of 4th-year coursework. Coursework in years 1-3 does not constitute a significant fraction of the final grade. Past papers are available for the past 20 years, with cribs available to students for the last five years.

Action 1.5: Supervisors required (rather than encouraged) to do unconscious bias training. Unconscious bias training will be integrated into supervisor training session.

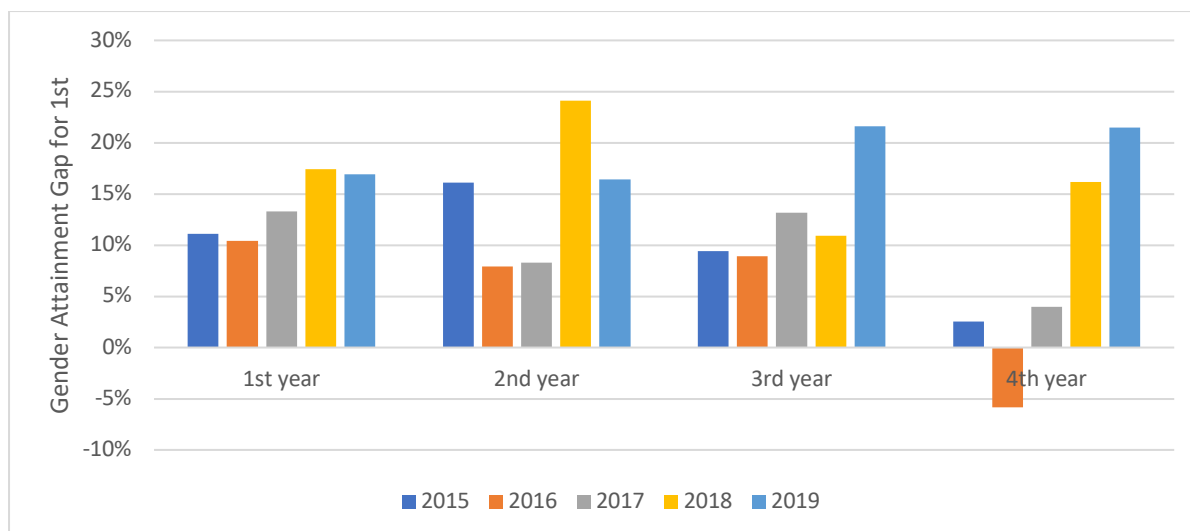


Figure 4.1J: Gender attainment gap for 1st or Distinction. HESA data: -4.8% for Engineering and Technology in 2017.

We have also examined the attainment gap for a 1st or distinction (figure 4.1J). Across all years there is a significant attainment gap of around 10-15%. Although the gap appears to decrease as students move through the undergraduate degree, the gap at 4th-year appears to be increasing. Note that due to small numbers, the gender attainment gap would be expected to fluctuate significantly.

To identify suitable actions to combat this issue we need more data that is not currently available as gender was not previously included in marking spreadsheets. We will add gender as a hidden field (not visible to examiners). This new data will be analysed to identify:

1. The gender attainment gap for individual modules or papers.
2. The difference in attainment gap between 4th-year coursework and exams.
3. The difference in attainment gap between 4th-year projects and modules.
4. Any connection between attainment gap in 3rd-year and 4th-year and the proportion of women in a class.

This analysis will be performed on a yearly basis. The results will be reported to the Teaching Committee and the relevant Subject Groups.

Action 1.1: Perform detailed data analysis on gender attainment gap using new data, with results reported to the Teaching Committee and relevant Subject groups. The gender attainment gap is now a standing item on the Teaching Committee meeting in Michaelmas term.

Previous research has suggested that differences in achievement in STEM may be in part due to gendered differences in ability at mental rotation² ³. Interventions elsewhere have

² Geiser, C., Lehmann, W., & Eid, M. (2008). A note on sex differences in mental rotation in different age groups. *Intelligence*, 36(6), 556-563.

³ Sorby, S. A. (2009). Educational research in developing 3-D spatial skills for engineering students. *International Journal of Science Education*, 31(3), 459-480.

indicated that this difference can be reduced or even eliminated by training^{4 5}. A key action will be to build on this existing research to develop a spatial training module for undergraduate students.

Action 1.7: Develop online learning resources for mental rotation and visualisation. The new training will be taken by students before they arrive in Cambridge, replacing part of the existing pre-course material. Improvements in spatial reasoning will be measured by pre- and post- tests of mental rotation ability, before and after the training module is taken. We also plan to re-test students at the beginning of their second term, with additional training offered to those who have significantly below average training ability. Note that this training will be offered to all students, regardless of gender, however, due to gendered differences in ability at mental rotation we expect this training to reduce the gender attainment gap.

We are also carrying out a Part 1 Review, examining teaching in the first two years of the undergraduate course. **Addressing the gender attainment gap will be a central aim of the Part 1 Review.**

Due to the short terms at Cambridge (8 weeks) and the need to spend the second half of Easter term doing exams, the workload during term time is extremely high. Previous research has indicated that female students are more likely to say that they find the workload excessive⁶.

Action 1.2: Reduce in-term workload for students in 1st and 2nd year by reducing overall lecture hours by 20%, reducing the number of labs to a maximum of 20 labs per year, and by moving some learning to online coursework outside of term. Currently there are 200 hours of lectures and 150-200 hours of labs (140 in 1st year, 200 in 2nd year). This is comparable load to other engineering courses but confined to only two and a half terms of eight weeks. We may choose to modify these targets if we have good pedagogical reasons for doing so.

Action 1.3: Review undergraduate assessment, examining ways to shift focus from time-constrained written exams, emphasising the importance of creativity and practice within the course, and increasing the importance of existing and new project work, introducing student projects. We aim by this to reduce stereotype threat and increase the practical and creative skills that graduates will need to succeed in the engineering workforce.

The University Equality and Diversity division has chosen the Engineering Department's analysis of the gender attainment gap to be a case study, therefore results and lessons learnt will be shared more widely within the university.

Action 1.8: Our current analysis of the attainment gap has focussed specifically on gender. We currently do not have data for Engineering where the results are broken down by

⁴ Sorby, S., Casey, B., Veurink, N., & Dulaney, A. (2013). The role of spatial training in improving spatial and calculus performance in engineering students. *Learning and Individual Differences*, 26, 20-29.

⁵ Uttal, D. H., Miller, D. I., & Newcombe, N. S. (2013). Exploring and enhancing spatial thinking: Links to achievement in science, technology, engineering, and mathematics? *Current Directions in Psychological Science*, 22(5), 367-373.

⁶ Schubert, R., & Marinica, I. (2018). Gender Attainment Gaps.

ethnicity. We will put into place mechanisms to gather this data before the next submission, so that we are able to examine the intersection of ethnicity and gender on the attainment gap.

(iii) Numbers of men and women on postgraduate taught degrees

Full- and part-time. Provide data on course application, offers and acceptance rates and degree completion rates by gender.

All PGT degrees are full-time.

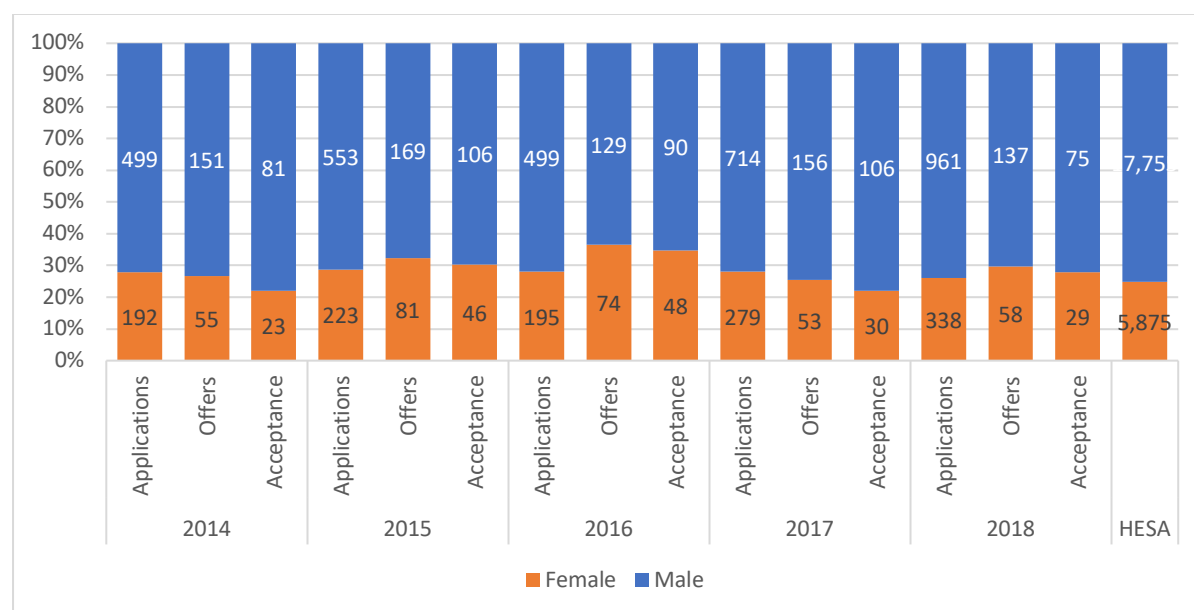


Figure 4.1L: PGT admissions (MPhil). HESA data is PGT in Engineering and Technology, 2017.

The average offers/applications is higher for women than for men (28% vs 25%). The proportion of women is generally higher than the HESA benchmark (27% vs 25%). Completion rates are very high for PGT degrees (figure 4.1M), with no differences between genders. We attribute this high completion rates to the support offered to PG students, as described in section 5.3.

Achievement: Proportion of women on PGT degrees is higher than HESA benchmark. Completion rates are very high with no differences between genders.

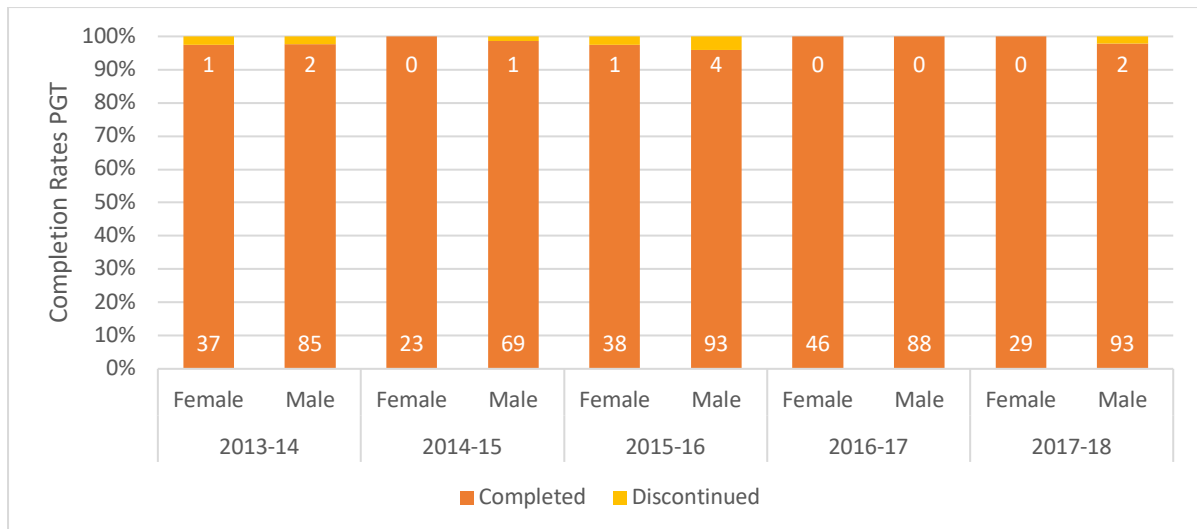


Figure 4.1M: PGT (MPhil) completion rates

(iv) Numbers of men and women on postgraduate research degrees

Full- and part-time. Provide data on course application, offers, acceptance and degree completion rates by gender.

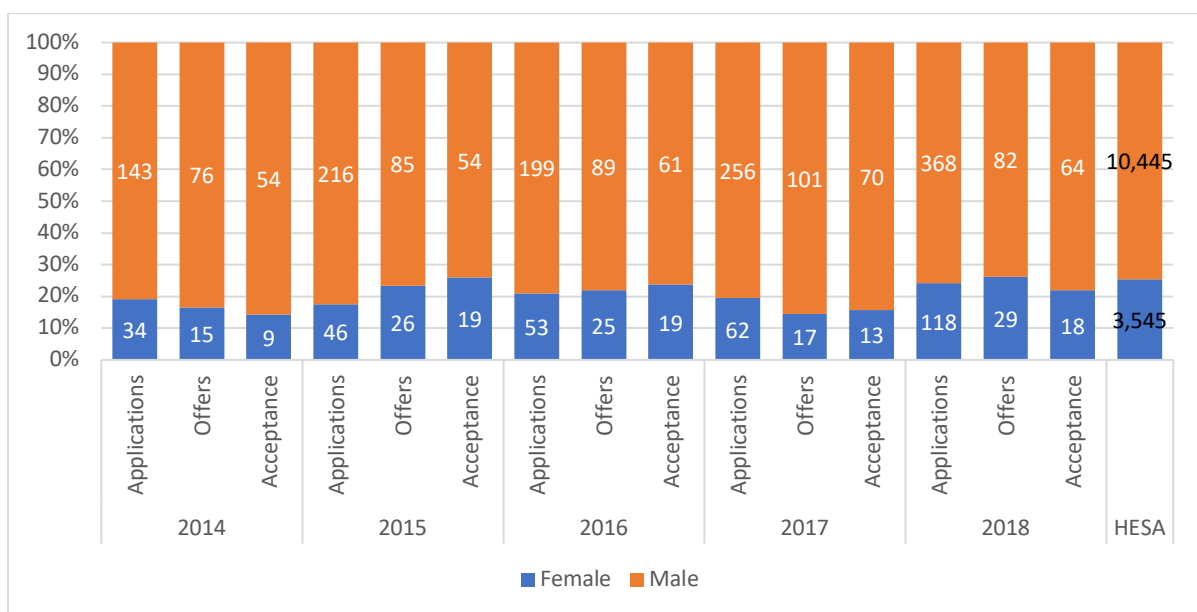


Figure 4.1N: PGR masters admissions. HESA data for PGR in Engineering and Technology, 2017.

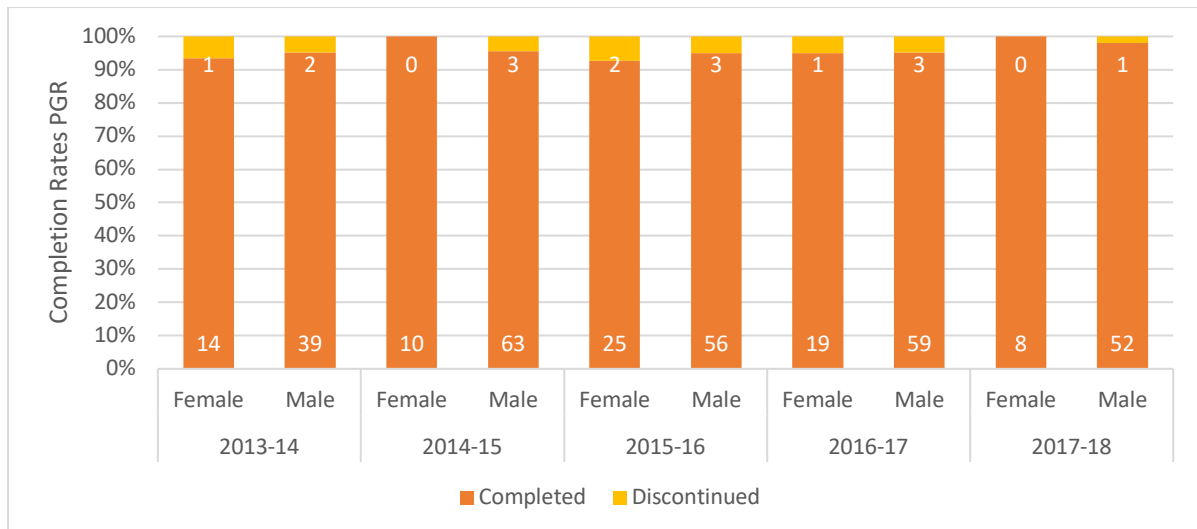


Figure 4.1O: PGR masters completion rates by gender vs year admitted.

The proportion of women on Research Master’s degrees is often below the national average. In the past this has been principally due to the low numbers of women on the Turbo-CDT MRes (in 2017, the proportion of women over all other MRes courses was 33%, much higher than the HESA average of 25%). To address this issue, the Turbo-CDT has made a particular effort to increase applications from women, organising annual Women in Aerospace Dinners. This event enables undergraduate students to talk to women at all stages of their careers. As a result of these actions, applications from women to the CDT have doubled (figure 4.1Q) and the proportion of women students accepted onto the CDT in 2019-2020 was 27%.



Figure 4.1P: Women in Aerospace Dinner 2018

“It’s been great to get together with a group of women and see the trajectory of successful women at all career stages.”

– Anna Young, Senior CDT Fellow

“It was really nice to see so many women who are excited about their subject” – Katie Williams, a fourth-year undergraduate

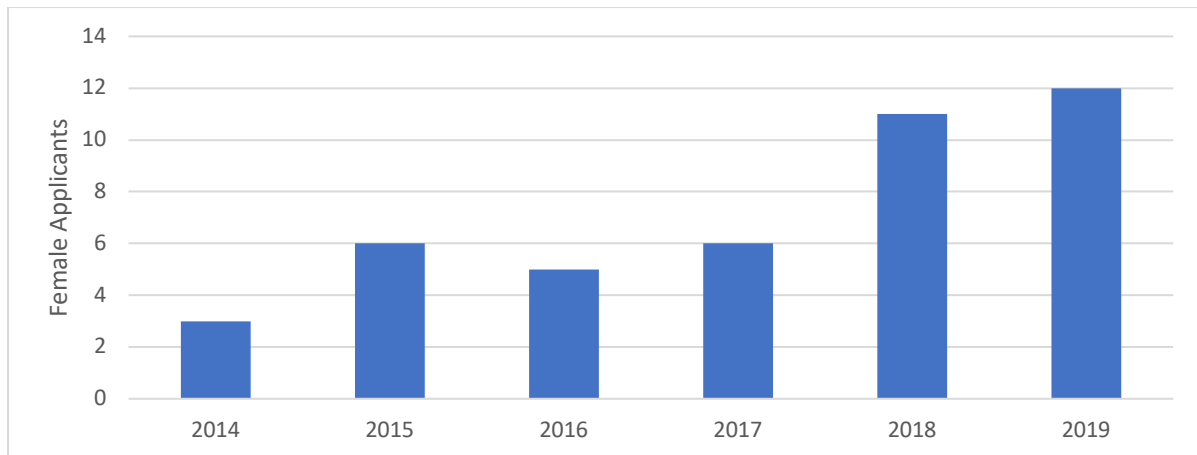


Figure 4.1Q: Female applications for Turbo-CDT. The proportion of women students accepted onto the CDT in 2019-2020 was 27%.

Achievement: Actions have successfully doubled the number of female applicants to the TurboCDT.

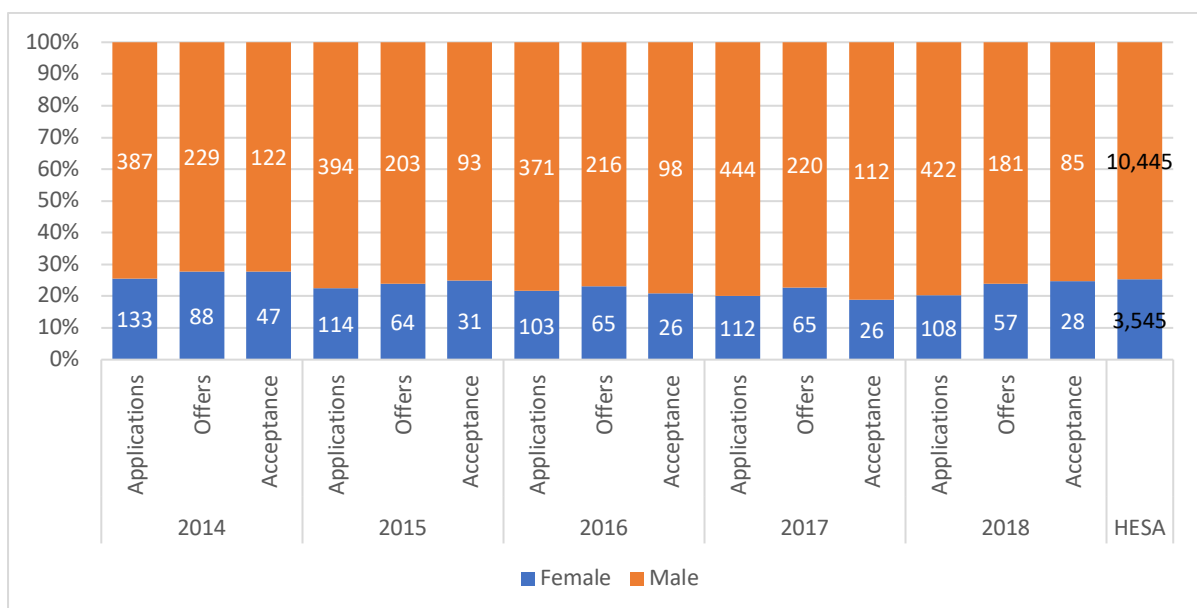


Figure 4.1R: PhD student admissions. HESA data is for research postgraduate students in Engineering and Technology in 2017.

PhD student numbers are comparable to the national average (figure 4.1R). The number of offers/applications is higher for female than male applicants (59%F vs 52%M), as is the number of acceptances/applications (27%F vs 25%M). Completion rates for PhDs are high and completion rates for female students are generally above the rates for male students (figure 4.1S).

Action 5.7: Spread good practice from the TurboCDT to other CDTs, PGR and PhD courses to increase application rates from women.

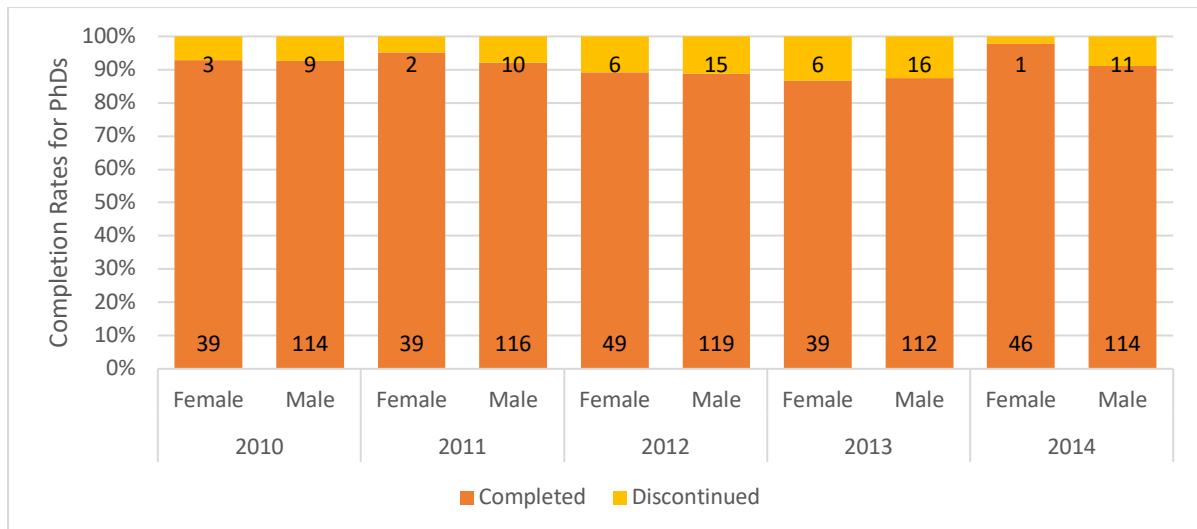


Figure 4.1S: Completion rates for PhD students by gender against year admitted.

(v) Progression pipeline between undergraduate and postgraduate student levels

Identify and comment on any issues in the pipeline between undergraduate and postgraduate degrees.

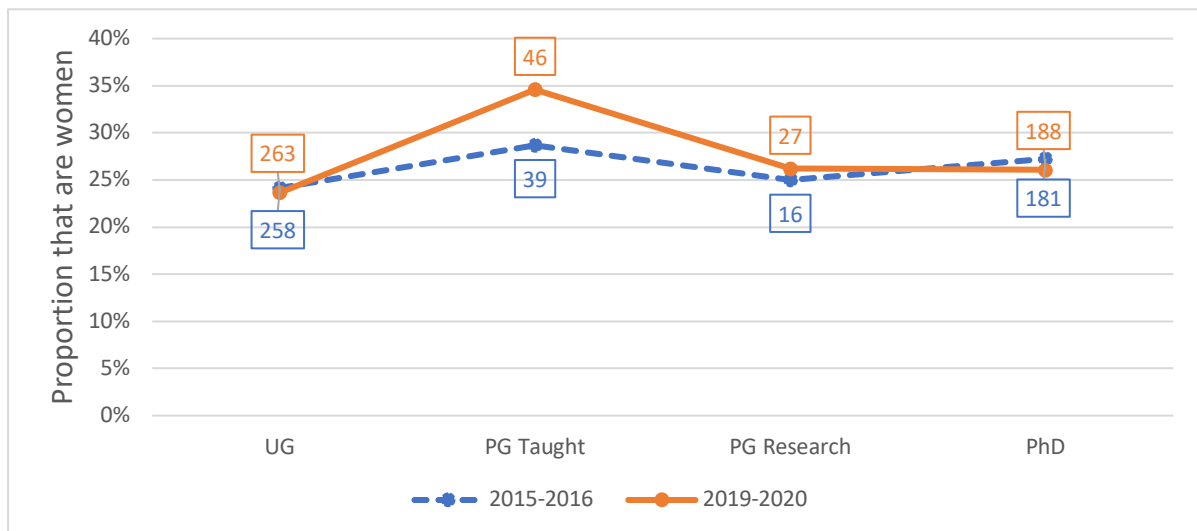


Figure 4.1T: Academic pipeline of women from engineering undergraduate (UG), postgraduate taught (PGT), postgraduate masters by research (PGR), and PhDs. Labels are the number of women at that stage.

There has been an increase in the proportion of female students on PGT and PGR degrees, with undergraduate and PhD numbers remaining at or above the national average. Care should be taken when interpreting figure 4.1T as a pipeline, as few engineering undergraduates progress to PGT or PGR masters, as they finish their degree with an MEng. Instead, many undergraduates progress directly to a PhD, where the proportion of women is slightly higher than at undergraduate level (26% vs 24%), suggesting that there is not a 'leaky pipeline' at this stage.

4.2. Academic and research staff data

(i) Academic staff by grade, contract function and gender: research-only, teaching and research or teaching-only

Look at the career pipeline and comment on and explain any differences between men and women. Identify any gender issues in the pipeline at particular grades/job type/academic contract type.

In the department there are 398 male and 96 female academic and research staff (figure 4.2A and 4.2B). This corresponds to 19%, whereas the national average is 22% (HESA, SET Academic Staff in General Engineering, 2017/18).

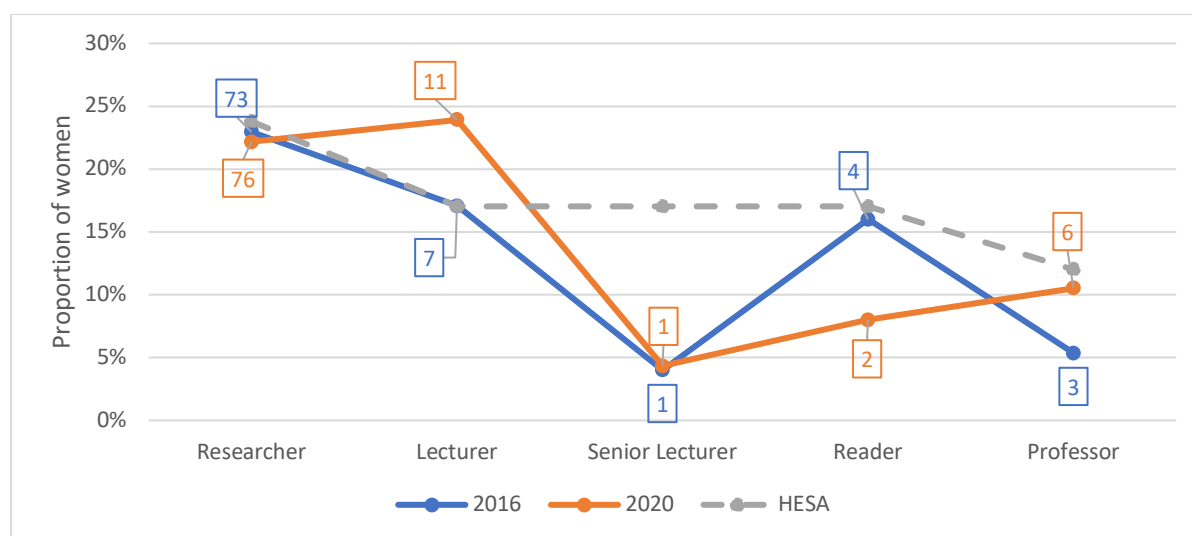


Figure 4.2A: Female pipeline graph, includes two female lecturers hired in the second half of 2019. HESA Data for General Engineering Academic Staff (benchmark uses data for research only, teaching and research, professor), 2017. Reduction of female Readers due to promotion to Professor.

Achievement: Proportion of female lectures has increased from 17% to 24%.

In our last application, the proportion of women among research staff was much larger than the proportion among academics. We are pleased to note that **we have significantly increased the proportion of female lecturers** (from 17% to 24%). In addition, **the number of female professors has doubled** since our last application. The number of female academics has increased from 15 in 2016 to 20 in 2020 due to appointments and promotions. The recent appointments and promotions demonstrate the significant impact of our Athena SWAN activities.

Achievement: Number of female professors has doubled.

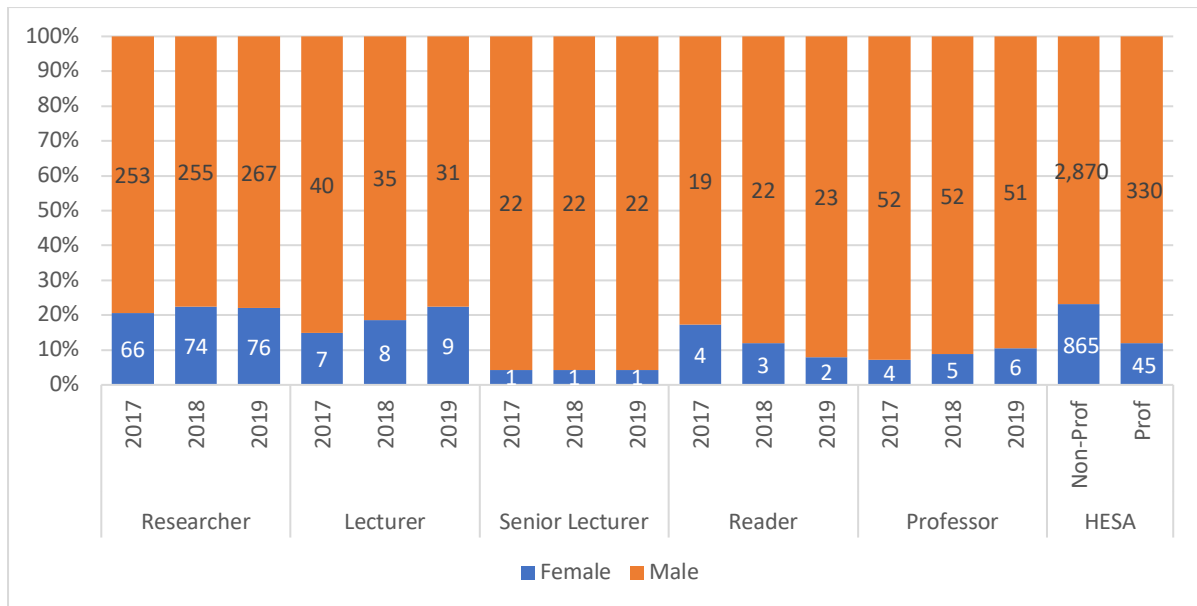


Figure 4.2B: Academic and research staff by job type and gender. HESA Data is SET Academic Staff for General Engineering, 2017. Decrease in number of Readers is due to promotions to Professor.

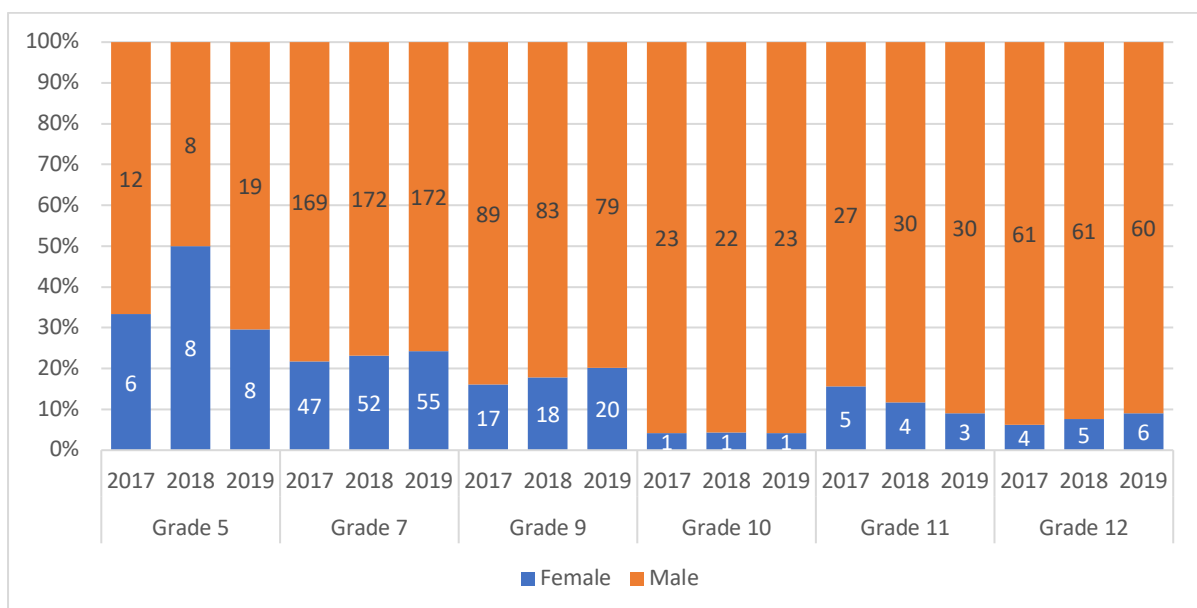


Figure 4.2C: Academic and research staff by grade (e.g. Grade 5-12) and gender. HESA Pay spine data not available disaggregated by subject. Decrease in number at grade 11 is due to promotion to grade 12.

Figure 4.2C shows that there are increasing proportions of women at higher grades (7, 9, and 12). The proportion of women at grade 11 is decreasing due to promotions to grade 12. This data shows a similar story to figure 4.2B: more women are being hired and are being promoted up the career ladder.

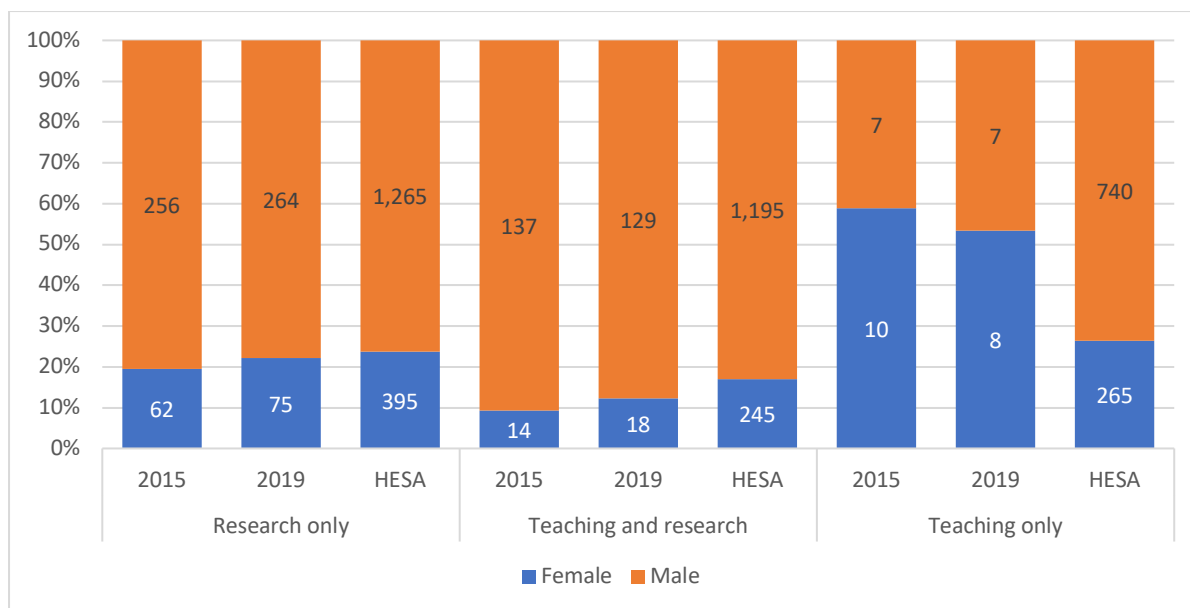


Figure 4.2D: Academic staff by contract type and gender in 2015 and 2019. HESA Data is SET Academic Staff for General Engineering, 2017.

The proportion of women who are in teaching-only roles is reducing with time (figure 4.2D), mainly due to the elimination of these roles. A significant number of these teaching-only roles are in the languages centre (7F and 4M), which would not be expected to match the HESA data for Engineering. There are 1 female and 3 male academic-related teaching-only staff who act as course directors for masters programs. This ratio (25%F) matches the HESA benchmark.

We are examining different ways to support career progression for course directors in teaching-only roles. These include hiring course directors part-time, with the other half of the director's time being spent as a researcher, so the candidate is able to build their research portfolio with a view to moving onto a permanent role. When staff move on, some roles have been re-classified and advertised as PSS, where there is no requirement for academic or research activities.

There is currently a university-wide review into the creation and probation requirements for teaching-only roles. The new Academic Career Pathways will create a parallel teaching-only career structure along-side the existing teaching and research roles. Additionally, there is a university-wide review into the resourcing of masters courses, the results of which have yet to be announced. Any local discussions are likely to be superseded by the University level framework, making it difficult to develop concrete plans at the local level before submission.

Action 4.6: Once the outcomes of the University-wide review have been announced, run focus groups to identify priority areas and improve support for career progression. Use focus groups to identify and implement actions that will support teaching-only staff in career progress. Where appropriate we will reduce the number of teaching-only roles.

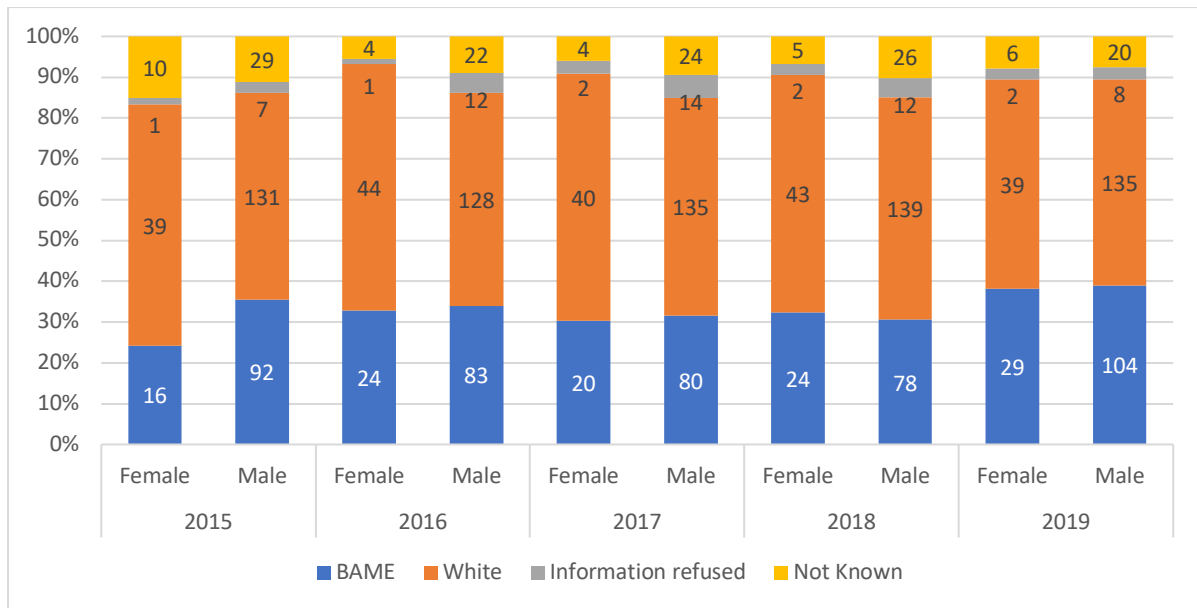


Figure 4.2E: Ethnicity of research staff by gender.

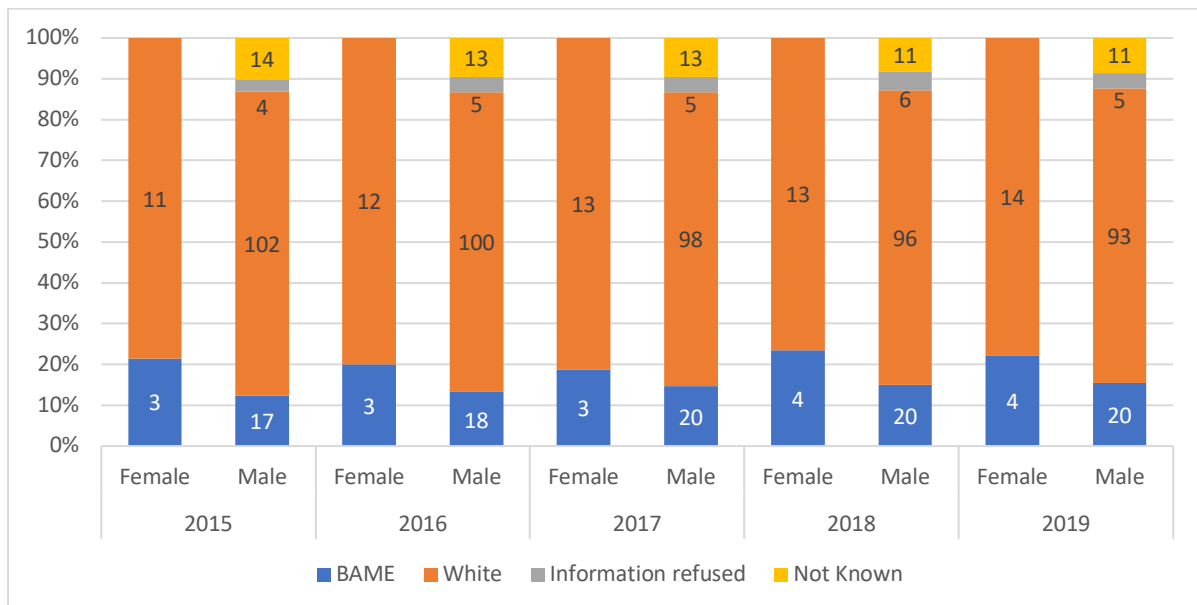


Figure 4.2F: Ethnicity of academic staff by gender.

The ethnic diversity of research staff is increasing with time and since 2016, there is not a significant difference between the proportion of male and female research staff who are BME. The proportion of academic staff who are BME matches past levels within the research staff. The proportion of female BME academic staff is higher than the proportion for male staff.

Where relevant, comment on the transition of technical staff to academic roles.

We support our technical staff in career progression, as outlined in section 5.4.

(ii) Academic and research staff by grade on fixed-term, open-ended/permanent and zero-hour contracts by gender

Comment on the proportions of men and women on these contracts. Comment on what is being done to ensure continuity of employment and to address any other issues, including redeployment schemes.

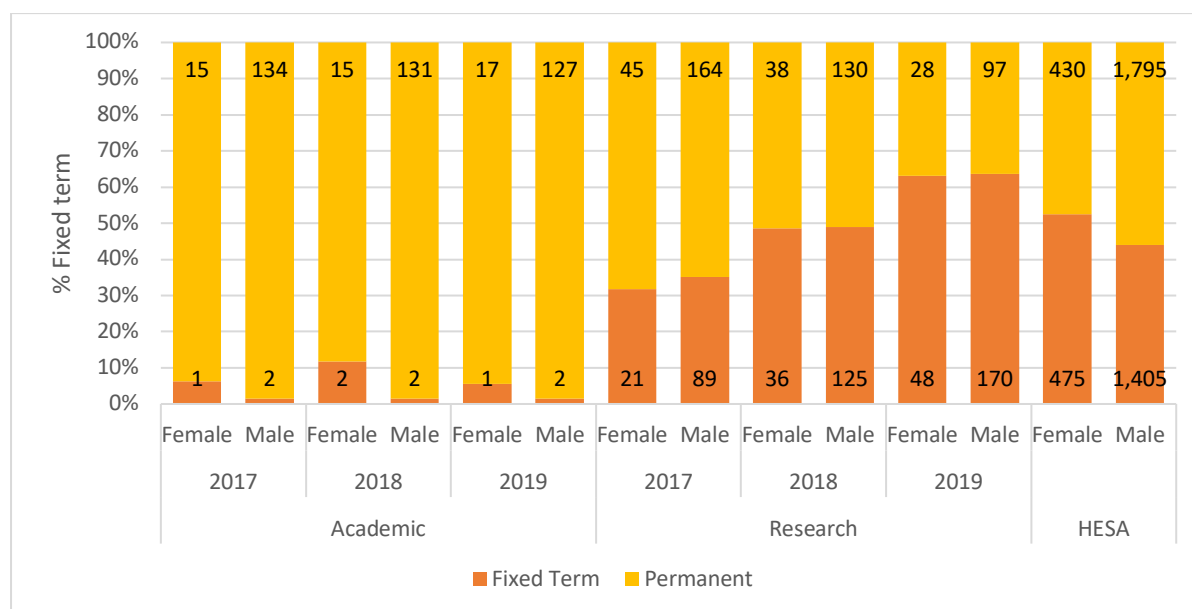


Figure 4.2F: Academic staff by contract type. HESA Data for SET Academic Staff in General Engineering in 2017/18.

The number of academic staff on fixed term contracts is very low (figure 4.2F). These are generally due to fixed-term fellowships. The proportion of research staff on fixed-term contracts has increased since 2017. Due to the nature of research funding, research staff are appointed on a fixed-term contract. Once in post, the position is changed to 'open-ended but funding limited' (listed as permanent in figure 4.2F). The increase in the proportion of researchers on fixed-term contracts is in part due to an increase in the number of new researchers, meaning they make up a larger proportion of the population. The short-term nature of research staff employment contracts is likely to continue to have a greater impact on female researchers' careers, therefore we have focused much of our action plan on career support for this group (actions 2.1-2.8).

Action 2.1: Increase uptake of annual staff review for researchers, use opportunity to promote training opportunities, promote Careers Service, encourage female researchers to consider academia, and inform of funding opportunities. This will support career progression and mitigate the effects of fixed term contracts.

Action 2.3: Promote the Careers Service to researchers. This will mitigate the effects of fixed term contracts by supporting researchers in their careers.

Action 2.4: Promote and grow the peer-to-peer mentoring scheme after the re-boot in 2019. Obtain regular feedback about training and scheme. Mentoring is an important component of career progression.

Action 2.5: Roll out the postdoc awards scheme across the department. This scheme will provide researchers with recognition.

No staff are employed on zero-hours contracts.

(iii) Academic leavers by grade and gender and full/part-time status

Comment on the reasons academic staff leave the department, any differences by gender and the mechanisms for collecting this data.

Turnover is calculated as the number of leavers divided by total staff (table 4.2G). There is currently no central mechanism to capture detailed information about why staff leave the University, but an online exit survey is being developed. Given the historically low turnover of academic staff, a compulsory retirement age of 67 has been maintained. The 2012 Employer Justified Retirement Age (EJRA) policy, prompted by the abolition of the default retirement age, assists with redressing the historical under-representation of women and BME staff, ensuring a steady flow of academic positions become available.

According to HESA data, academic staff leaving rates for General Engineering are 6.1%F and 9.8%M for UK nationals and 22%F and 21%M for non-UK nationals. Comparing these numbers to the academic turnover, the Engineering Department has similar leaving rates to the benchmark data, with no significant difference between the leaving rates of men and women.

Table 4.2G: Academic and research leavers by role and calendar year

		Female		Male	
		Leavers	Turnover	Leavers	Turnover
Academic	2017	1	6.4%	4	2.9%
	2018	1	6.2%	8	6.0%
	2019	1	5.5%	7	5.4%
Research	2017	22	32.2%	72	28.4%
	2018	24	32.9%	70	26.8%
	2019	25	33.1%	90	34.0%

Academic staff usually leave the Department to take up more senior positions in other HE institutions, or through retirement. Of the academic leavers since 2015, three were part-time, all of whom retired. Fourteen academics left by resignation (4F). The destinations of these leavers were in academia (9M, 3F) and industry (1M, 1F). More detailed data should be collected at exit interviews; however, when conducting data collection for the Athena SWAN submission it was discovered that these interviews were not taking place. Exit interviews were reinstated in early 2020, as soon as this was identified. These take place with a member of HR, who collates and anonymises feedback, which is then reported to the HoD and the SAT.

Action 3.7: Conduct academic leavers exit interviews with a member of HR. Reports sent to the HoD and relevant comments sent to the SAT.

We have two sources of information for destinations of **research staff** leavers. Between October 2016 to May 2019, the Careers Office tracked the destination of 100 researchers. Of these 100 researchers, 59% of leavers moved into academic roles, with 76% of these independent. There is also an internal leavers questionnaire for researchers, originally introduced as part of the previous application. This questionnaire was updated in March 2019 as the previous survey did not record destination reliably (some responded with destination country). The leavers questionnaire data suggests that female researchers are less likely to continue in academia (figure 4.2I). However, the low response rate to the survey (16%F, 12%M) means we require more information to be certain.

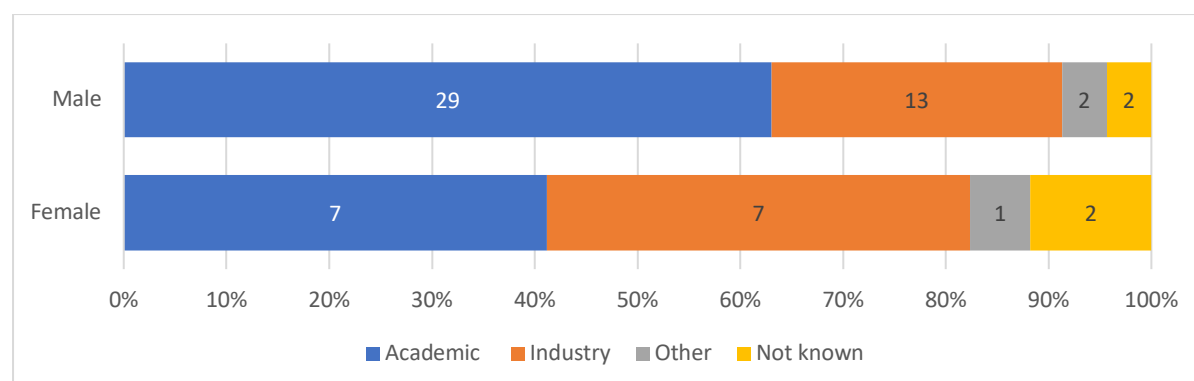


Figure 4.2I: Researcher leavers data between 2016 and 2019 from the research leavers questionnaire.

Action 2.1: Increase uptake of annual staff review for researchers, use opportunity to encourage female researchers to consider academia.

Action 2.7: We need more information about where researcher leavers are going and why, to identify whether there is an issue with female researchers being less likely to go into academia. We will get this information in three ways: through the leavers questionnaire, further focus groups and exit interviews. To improve response rates for the leavers questionnaire, there is now an (opt-in) termly raffle of a £20 Amazon voucher for respondents. We will run focus groups to identify reasons why female researchers might be more likely to leave academia. We will start running exit interviews for all researchers. These will be managed by the Research Office, who will collate data and report to the Director of Research, HoD and SAT where relevant. Actions will be developed from the results of this data collection.

5. Supporting and advancing women's careers (7,468 words)

5.1. Key career transition points: academic staff

(i) Recruitment

Break down data by gender and grade for applications to academic posts including shortlisted candidates, offer and acceptance rates. Comment on how the department's recruitment processes ensure that women (and men where there is an underrepresentation in numbers) are encouraged to apply.

Lectureship appointments are conducted within the Department by a Search Committee and Selection Committee. Appointments to Professorial positions are conducted by a Board of Electors, appointed centrally by the University. Women were proportionally more successful at being shortlisted for academic roles and receiving offers of employment (figure 5.1A), particularly when considering the two additional women hired since July 2019.

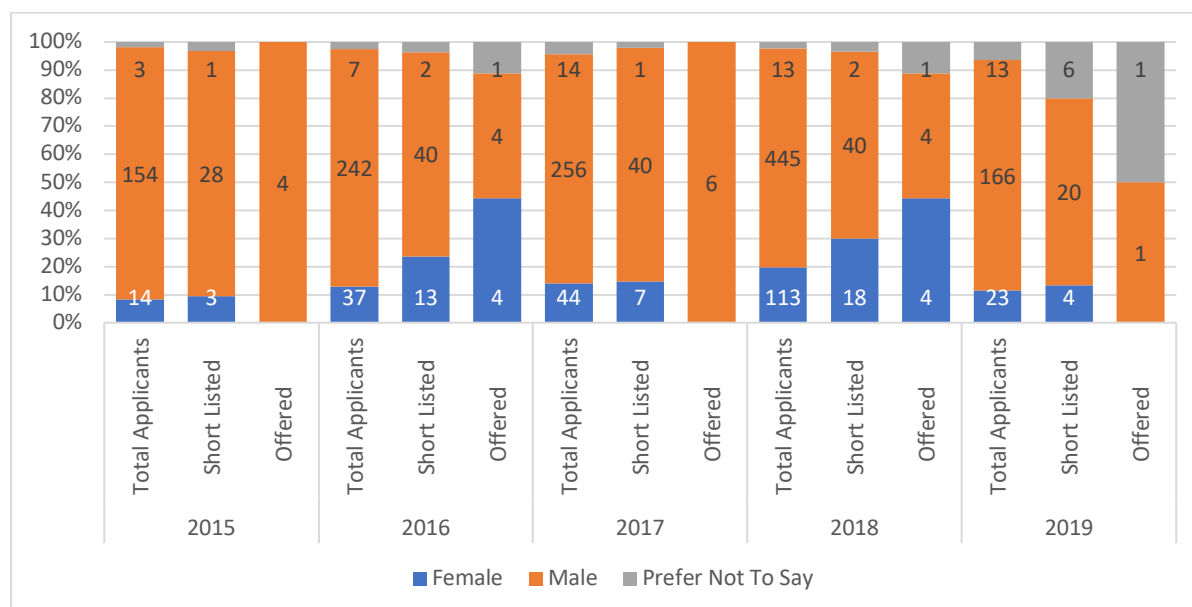


Figure 5.1A: Applications, shortlist, offers for Academic (non-Researcher) posts by gender in July 2019. Note that the data for 2019 represents 6 months, rather than a year. Two additional women academics were hired in the second half of 2019.

Achievement: Actions have resulted in the successful recruitment of 8 new female academics since our last application.

In common with other Engineering departments we face significant challenges in recruiting women to academic positions, as the proportion of women in some branches of Engineering is very low. The appointment of eight female lecturers since our last application demonstrates the impact of measures we introduced including:

- advertising via **relevant networks and women's societies**;
- encouraging applications from **strong researchers**;
- **attractive support packages**, including recruitment incentives of up to £20,000;
- details of **family-friendly policies** in the further particulars;
- use of **gender-neutral, inclusive language** in recruitment material.

The Department introduced new criteria for Search Committees in 2014 and added to these in the previous Athena SWAN application in 2016. These criteria promote equal opportunities and consistently good recruitment practice. These stipulated that:

- everyone involved in recruitment must complete the University's **E&D training and Unconscious Bias training**;
- **at least one female academic** on every Shortlisting Panel;
- **Chairs must report on steps Search Committees took to increase the number of women applicants**; shortlisting only proceeds if the Panel is convinced there was sufficient, reasonable action to ensure a diverse pool of candidates;
- Shortlisting Panels' recommendations are approved by the Faculty's Appointments Committee to ensure **consistent standards**.

As a result of the actions outlined above, the proportion of women applying for lectureships has increased (13% in 2016, 14% in 2017 and 20% in 2018). A particular success has been the Liz Acton Lectureship, an endowed University Lectureship, where the importance of past experience in and enthusiasm for supporting women in STEM was emphasised in the job advertisement. There were 111 applications, with 41 from women (37%), a much larger pool than previously.

Action 5.4: We would like to continue to increase the proportion of women applying for lectureships. In addition to existing actions we will use the University's new recruitment guidelines when constructing adverts. Job adverts will also be run through 'Gender Decoder' (<http://gender-decoder.katmatfield.com/>) to check for gendered language.

Action 3.2: Regularly obtain feedback on induction and recruitment by adding a questionnaire to the first probation form, completed within a month of starting, and the second probation form, completed at the end of the first year. The feedback from this will be used to improve the recruitment process.

The recruitment process for researchers is managed by the supervisory PI. The Department's Research Office offers guidance and support. PIs are advised to be conscious of the need to appoint more female staff and keep this in mind if they have candidates of equal merit. All recruiting PIs are required to have completed the University's E&D training, and from March 2020 they will also be expected to complete Unconscious Bias training. Recruitment training has been made available in the Department for all staff involved in recruitment, so far 4 academics have been trained.

Action 2.2: All staff involved in recruitment of research staff must complete Unconscious Bias training (part of an initiative to have all staff complete the training). Recruitment training promoted to academic staff.

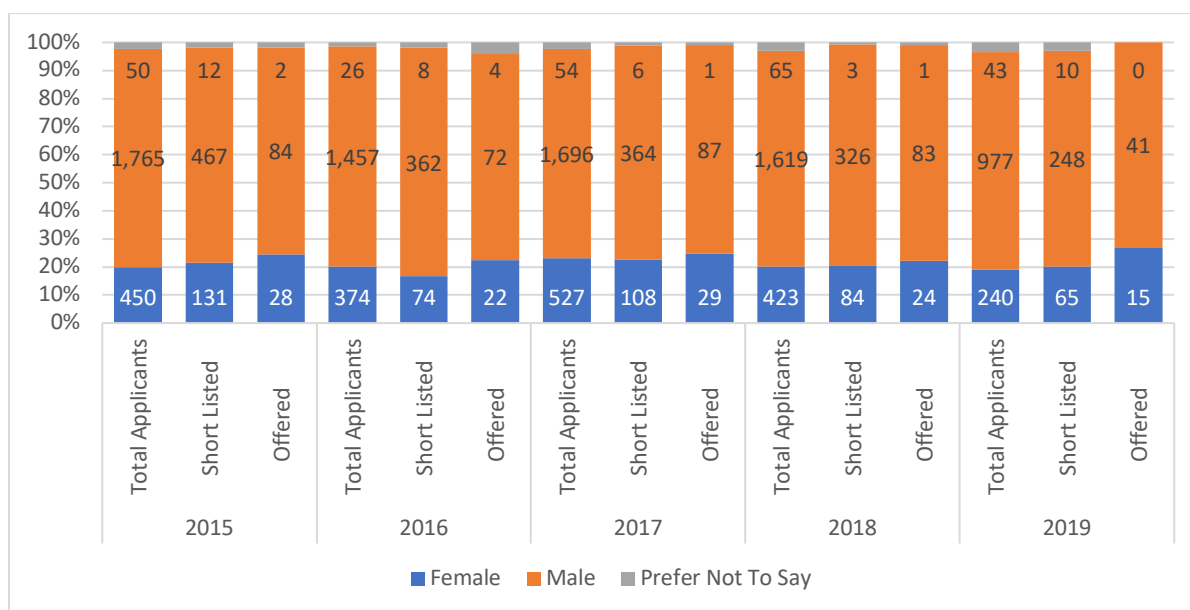


Figure 5.1B: Applications, shortlist, offers for researcher posts by gender

Figure 5.1B shows that between 2017 and 2019 female applicants for research posts are equally likely to be shortlisted (22% of applicants) and more likely to be made an offer (6%F, 5%M of applicants). In our previous application, a key leak in the pipeline was the transition from researcher to lecturer. This is no longer the case, with the proportion of female lecturers slightly higher than female researchers. However, it remains a priority to improve the experience of researchers and to encourage female researchers to consider an academic career.

Action 2.1: Increase uptake of annual staff review for researchers, use opportunity to promote training opportunities and encourage female researchers to consider an academic career.

Action 2.3: Promote the Careers Service to researchers. The Careers Service is an important and underused resource that can assist researchers in redeployment whether in academia or industry.

Action 2.4: Promote and grow the researcher peer-to-peer mentoring scheme after the reboot in 2019. Obtain regular feedback about training and scheme.

Action 2.5: Roll out the postdoc awards scheme across the department, creating recognition for researchers.

(ii) Induction

Describe the induction and support provided to all new academic staff at all levels.
Comment on the uptake of this and how its effectiveness is reviewed.

In October 2019, the Department moved from a biannual to a termly induction programme to welcome new academic staff which includes:

- a tour,
- a welcome event with a series of short presentations, including sessions tailored to different groups,
- networking opportunities,
- meetings with senior management team,
- Head of Division,
- meeting with a mentor.

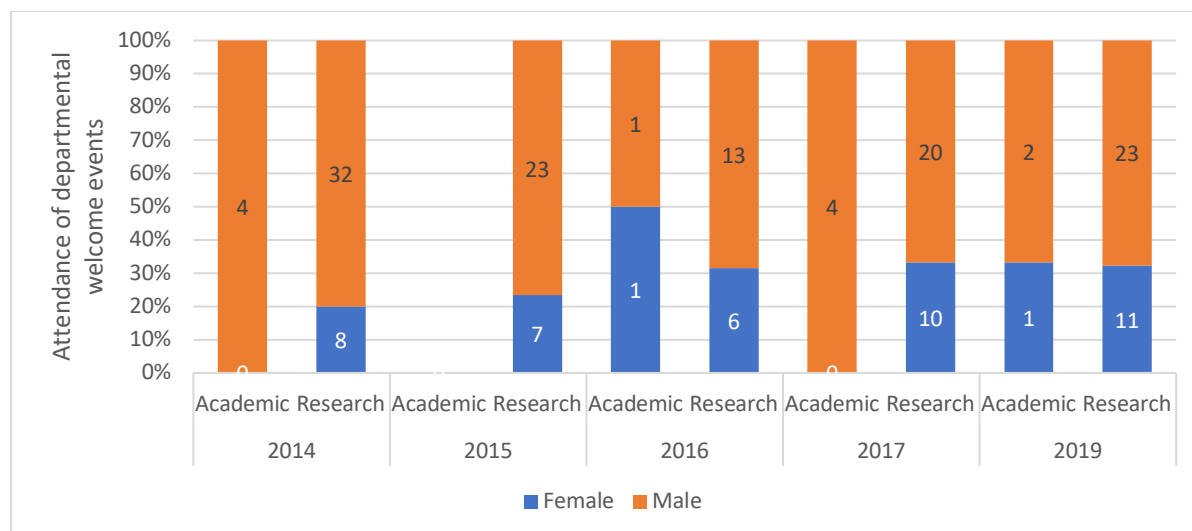


Figure 5.1C: Attendance of departmental welcome events (there were none in 2018). Uptake is difficult to estimate as attendees may have been made an offer or started in the previous year. Overall uptake between 2014-19 is 25%F and 50%M for academics and 32%F and 28%M for researchers.

The departmental induction pack includes family-friendly policies and PPD opportunities, which are reinforced at welcome meetings. These meetings also suggest relevant networking opportunities such as the termly training and networking lunches for academic and research staff. The attendance at departmental welcome events is lower for female than male academics (figure 5.1C), likely due to the lack of events in 2018 when half of the new female lecturers were hired. The university launched an induction website in 2016, which includes manager guidance and an induction toolkit, encouraging consistency of provision. An online induction module is available via PPD (figure 5.1D), although uptake is also low. Focus groups identified that some new academics were unaware of the module.

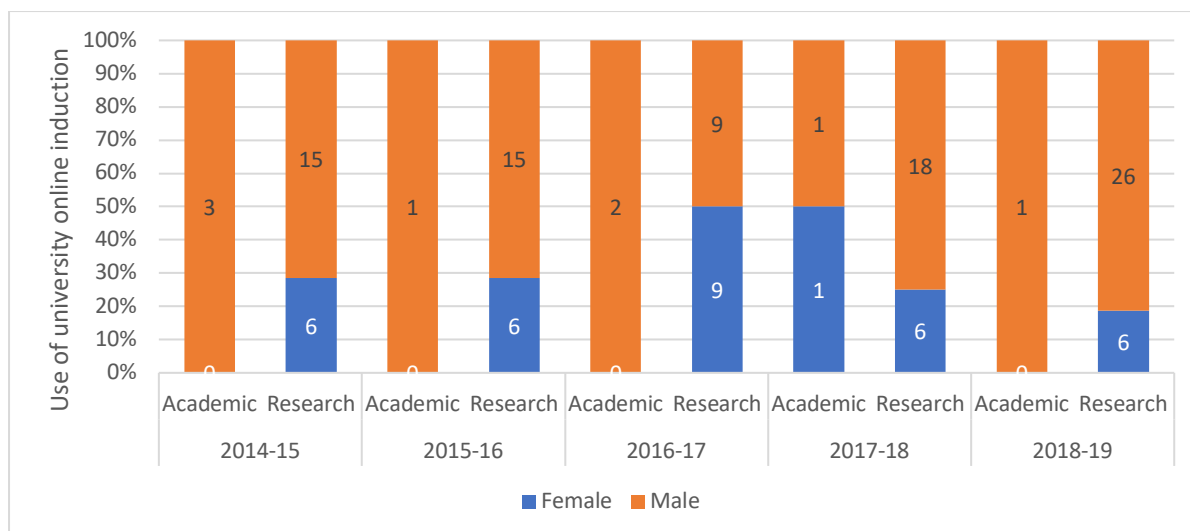


Figure 5.1D: Use of online induction by academic and research staff by gender. Note that uptake is difficult to estimate as attendees may have been made an offer or started in the previous year. Overall uptake of online induction between 2014 and 2019 is 13%F and 36%M for academics and 25%F and 21%M for researchers.

Prior to 2019, all new academics took the University's induction programme; however, this was cancelled from October 2019. The Department is developing a new programme in collaboration with PPD to support new academic staff. It is anticipated that this will improve induction as focus groups identified the need for more local information.

All **academic staff** undergo a five-year probation. Staff must demonstrate excellence and satisfactory progress in research, teaching and general contribution (both within the Department and the wider academic community). Annual probation reviews identify any actions that are needed to redress imbalances across the three areas, for example teaching masterclasses, feedback on lecture style from mentors, and a reassessment of duties. Extensions to probation may be approved for personal and professional circumstances. No academics have failed probation since the last submission.

Since November 2016, we have held annual networking events for current and recent probationers and the Probation Committee, where probationers are encouraged to discuss the process and share best practice. Anecdotal feedback on these events has been positive.

In the staff survey, 45% of academics felt their induction gave them the information and knowledge they need to do their job effectively, and 64% of academics felt their probation was well managed. We do not have data disaggregated by gender for academic induction and probation.

Action 3.1: Develop new academic induction programme and review induction pack for new academics using feedback from a focus group of new starters. Regularly obtain feedback on induction and recruitment by adding a questionnaire to the first probation form, completed within a month of starting, and the second probation form, completed at the end of the first year.

Researchers benefit from a comprehensive induction, which includes:

- a **welcome pack**, including the University's 'Staff Guide', covering topics such as maternity, paternity, dignity at work and equal opportunities;
- an **induction by the PI**;
- a **registration appointment with the Research Office** at which staff are encouraged to take advantage of the available training and networking opportunities;
- a **one-to-one meeting with a careers advisor**.

Feedback on induction and probation for researchers has been positive: in the staff survey, only 6%F and 7%M research staff reported that their induction and probation was not well managed. The majority of researchers reported that their induction had been well-managed (69%F, 70%M).

(iii) Promotion

Provide data on staff applying for promotion and comment on applications and success rates by gender, grade and full- and part-time status. Comment on how staff are encouraged and supported through the process.

Academic staff may apply for promotion during the annual University Senior Academic Promotion (SAP) process. Information about the criteria and process is available on a central website. The HR Office provide personalised guidance and support with the application process. The SAP uses a scoring model distinguishing between Research, Teaching and General Contribution. The criteria changed in 2019, to increase the importance of teaching and general contribution.

Staff survey responses indicate higher levels of awareness of the SAP amongst male staff (90%M, 69%F). It seems likely that this is in part explained by the seniority gap between male and female academics. Few academic staff think there are insufficient opportunities for career progression (15%F, 16%M). Fewer female than male academic staff perceive the career development/promotion processes as unfair (14%F vs 26%M). However, the proportion of academic staff who are definitively positive about opportunities for career progression (38%F and 55%M) and the fairness of career development processes (38%F 46%M) are both a little low.

Action 3.2: Promote staff review and increase uptake among academics. This will help tackle perceptions of fairness and opportunity for career progression by making staff more aware of the requirements of promotion, such that when they apply, they are well prepared.

Action 3.3: Raise awareness of SAP and recent changes to the scheme amongst academic staff. Recent changes at a university level, in particular to increase the significance of teaching and general contribution, aimed to make the process fairer.

Action 3.4: Highlight and increase uptake of support available for SAP such as the CV Mentoring Scheme. This can be promoted via staff review and by the SAT Divisional Champions.

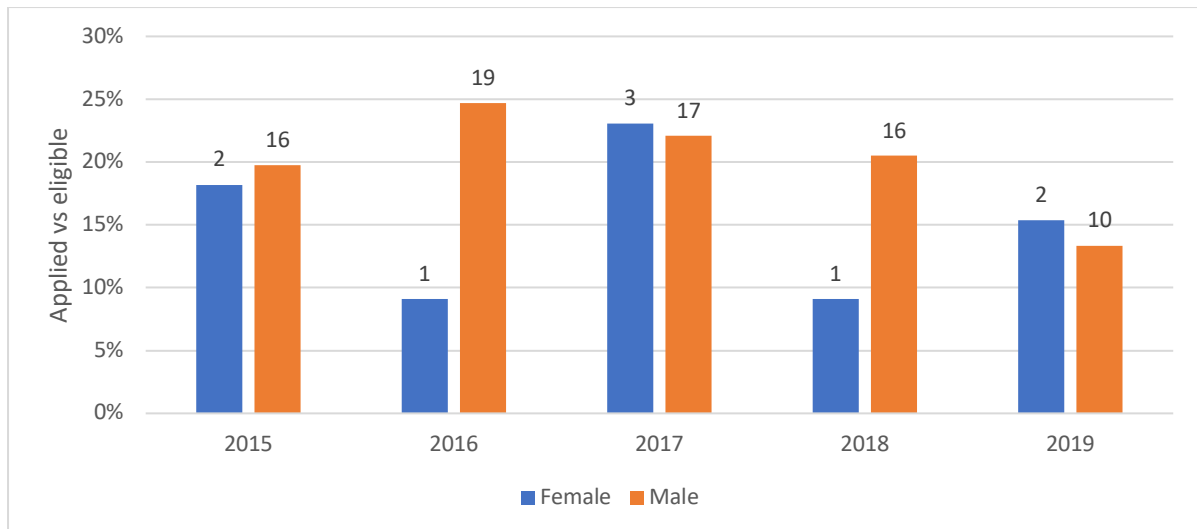


Figure 5.1F: Proportion of number who were eligible to apply who applied for senior academic promotions. Label indicates number who applied. Note that the small numbers mean that one additional woman applying for promotion in 2018 or 2016 would bring the value up to 18%.

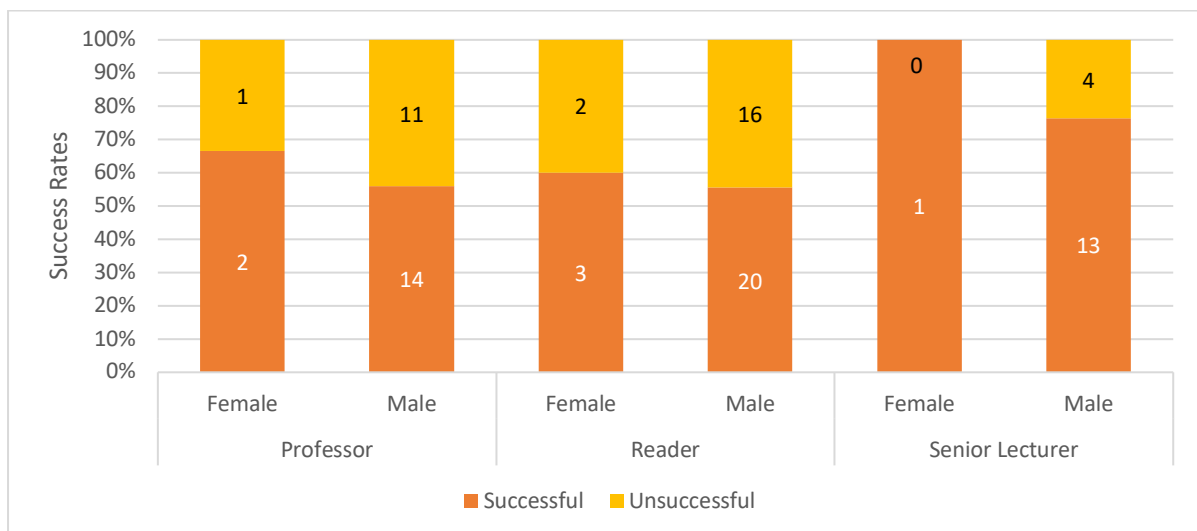


Figure 5.1G: Success rates for promotion by role and gender between 2015 and 2019.

There is not an application gap between men and women: around 20% of those eligible to apply for promotion do so (figure 5.1F). Male and female academics have similar success rates (figure 5.1G).

Researchers can apply for promotion through the annual Senior Research Promotions (SRP) exercise. All research staff are informed in October. Applications for promotion which meet the strategic needs of the department and are supported by sufficient grant funding and the Head of Division, are considered by the SRP Committee. Applications are then forwarded to the School-level Committee and the Human Resources Committee for consideration. Between 2016-19 there were 10 applications (3F), of which 4 were successful (1F), indicating similar success rates between genders.

Perceptions of the sufficiency of opportunities for career progression are similarly negative for female (41%) and male research staff (45%). We have made supporting researchers in finding an academic job one of our four priority areas in this application.

Action 2.1: Increase uptake of annual staff review for researchers. Increasing uptake of staff review will enable the support of researchers in their careers by setting goals and highlighting training opportunities.

Action 2.3: Promote the Careers Service to researchers. The Careers Service is a valuable and underused resource for helping researchers in their careers.

Action 2.4: Promote and grow the peer-to-peer mentoring scheme. Mentoring is a valuable component on career progression and has been highlighted as a key area of importance by researchers.

Action 2.5: Roll out the postdoc awards scheme across the department. This scheme will enable recognition of researchers, thus helping career progression.

(iv) Department submissions to the Research Excellence Framework (REF)

Provide data on the staff, by gender, submitted to REF versus those that were eligible. Compare this to the data for the Research Assessment Exercise 2008. Comment on any gender imbalances identified.

All women eligible for REF 2014 were included in our submission. For REF 2021, all eligible staff must be submitted. To mitigate bias during internal assessment of papers, all reviewers were required to complete online Unconscious Bias training. The completion of the mandatory E&D courses was also checked for all reviewers.

5.2. Key career transition points: professional and support staff

(i) Induction

Describe the induction and support provided to all new professional and support staff, at all levels. Comment on the uptake of this and how its effectiveness is reviewed.

PSS take part in the same termly induction programme as academic staff. Uptake of departmental welcome events is around 50% for male and female PSS (figure 5.2A). PSS have requested (in feedback collected by divisional administrators) more welcome events and other networking opportunities for new staff. Since October 2019, the welcome events have been run more frequently, and mentoring, peer training and networking opportunities have been set up.

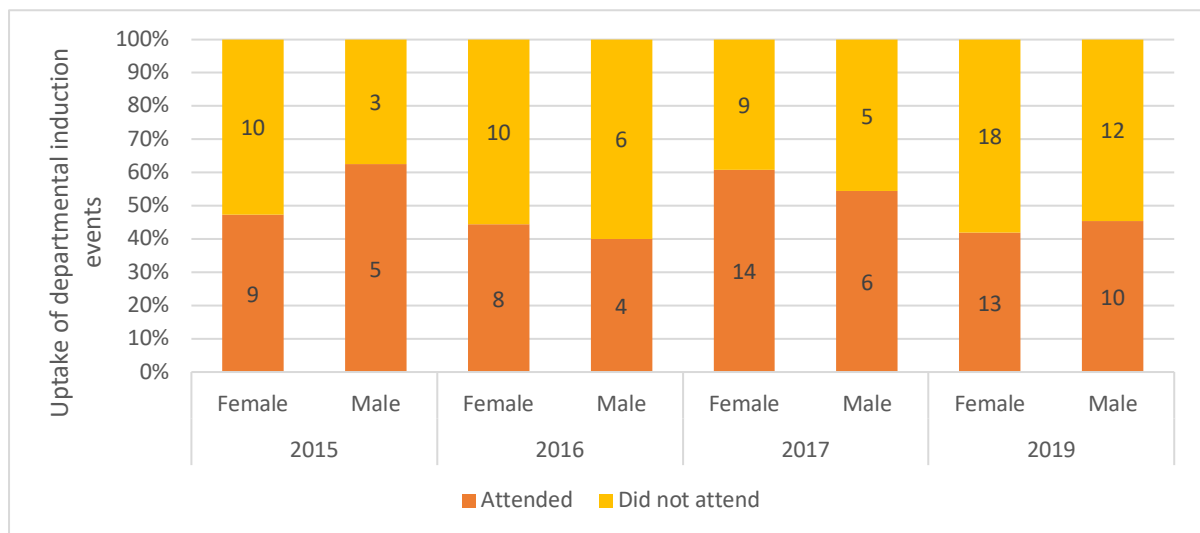


Figure 5.2A: Uptake of departmental welcome events by PSS (there were no welcome events in 2018).

The uptake of the online induction module is between 40-60% (figure 5.2B). University-wide “Welcome to Cambridge” induction events run termly and are available for all new staff. Uptake is low: around 12%F and 10%M of new PSS attend. This event is primarily for those who are new to Cambridge, which is often not the case with PSS.

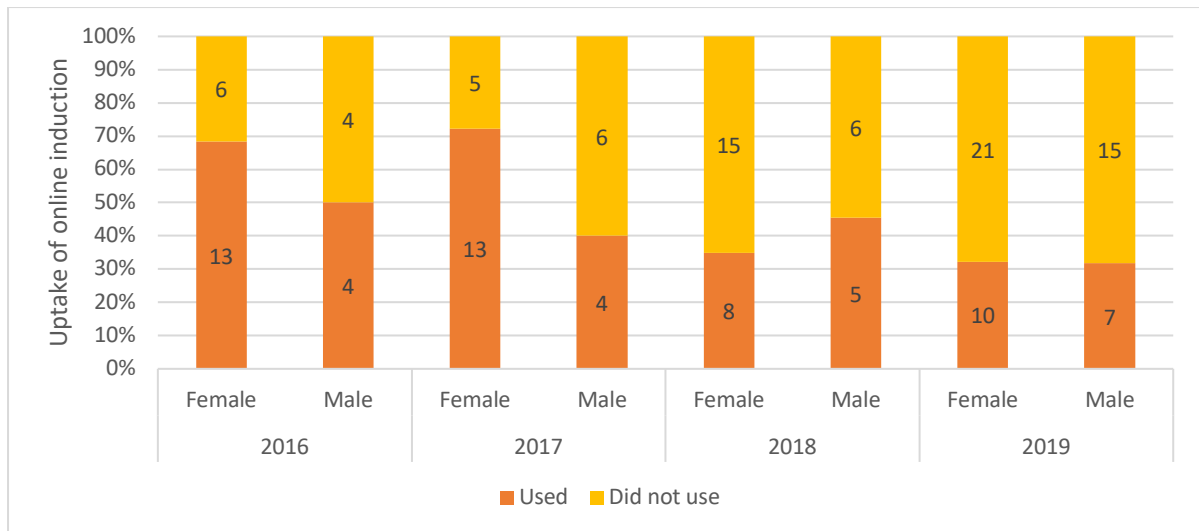


Figure 5.2B: Uptake of online induction by PSS.

We have limited data on the experience of PSS with induction. In the staff survey, 70% of female assistant staff (69% overall) responded that their induction had given them the skills they need to do their job effectively.

Action 4.4: We need more data on the views of PSS about induction. This will be obtained via focus groups of new starters. Data will be used to identify actions to improve uptake of induction events and experience of PSS with induction.

(ii) Promotion

Provide data on staff applying for promotion, and comment on applications and success rates by gender, grade and full- and part-time status. Comment on how staff are encouraged and supported through the process.

PSS employed for a minimum of 12 months are eligible to apply for a salary increase for a sustained exceptional contribution or a single payment for a time-limited contribution during the annual Contribution Reward exercise. All eligible staff are informed of the application process in November and supported in making applications by both the HR Office and the respective Divisional Administrators. All applicants are also encouraged to seek the support of their line manager or Head of Division. There is no clear pattern in application rates, with the average rate at 13% for both male and female PSS (figure 5.2D). The success rates of female applicants are generally similar to or higher than the success rates of male applicants (figure 5.2E).

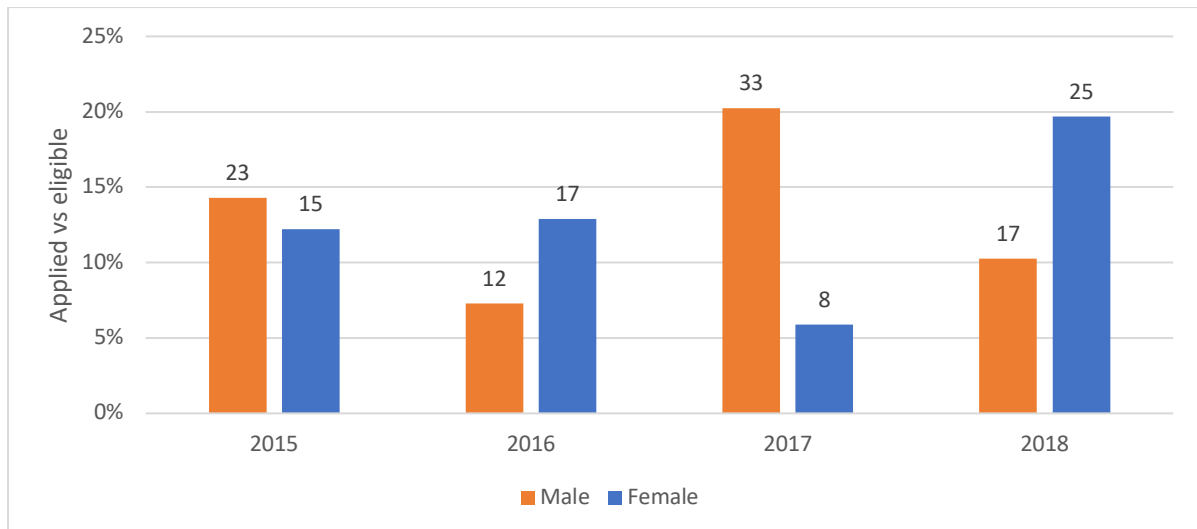


Figure 5.2D: Proportion of people who were eligible for a contribution increment who applied. Label is number who applied for a contribution increment. Eligible number estimated from a count of all PSS staff.

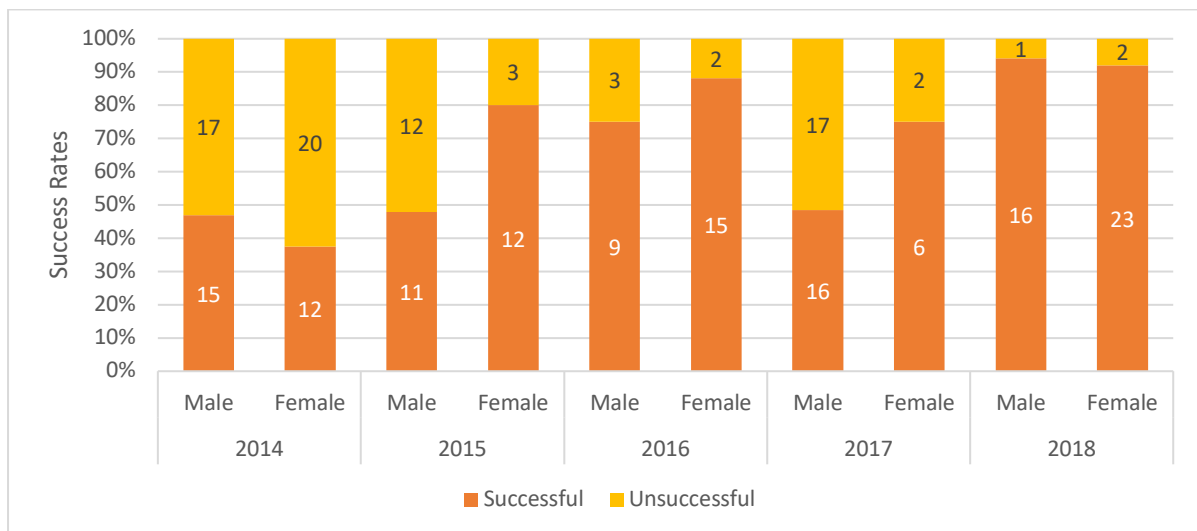


Figure 5.2E: Success rates for PSS contribution increment applications by gender.

When the duties and responsibilities of the PSS post have significantly increased, the HoD can consider updating and re-grading the role. There are no meaningful statistics on the re-grading applications, as they are made very infrequently.

Occasionally promotion opportunities emerge through the reorganisation of a departmental function, such as the Technician Review in 2015 and the Research Grants Support Review in 2016. Both these reorganisation processes resulted in PSS promotions. During the Technician Review, the management structures for departmental laboratories was reviewed, enabling senior technicians to apply and be appointed into higher grade managerial posts. Laboratory Managers were appointed to oversee the operations, alongside Divisional Laboratory Managers. At the end of these fixed term managerial appointments other departmental technicians are given the opportunity to apply for the positions, enabling career progress.

Perceptions of the sufficiency of opportunities for career progression are more positive for female assistant (56%F, 39%M) and academic-related (50%F, 19%M) staff. Negative perceptions are also less prevalent amongst female assistant (29%F, 58%M) and academic-related staff (58%F, 22%M).

Action 4.1: To improve support for career progression, increase uptake of staff review for PSS. Use the opportunity to explore mechanisms for career progression, including drawing up training plan and career goals.

Action 4.2: To improve support for career progression, increase uptake of staff review training for managers of PSS. Training for staff review will enable managers to provide better advice to their staff.

Action 5.2: To improve support for career progression, increase awareness and provision of information around PSS recognition and career development schemes. These include: promoting professional registration for technicians; membership of professional bodies; increase visibility of contribution increment schemes; scope out a recognition scheme; encourage engagement with PPD secondment programme. Use focus groups to identify which schemes are most important.

5.3. Career development: academic staff

(i) Training

Describe the training available to staff at all levels in the department. Provide details of uptake by gender and how existing staff are kept up to date with training. How is its effectiveness monitored and developed in response to levels of uptake and evaluation?

The University's PPD team co-ordinates a portfolio of training combining workshops and online modules including Inclusive Leadership Development and Professional Services Career Development programmes, and a wide array of vocational training. The Department complements PPD's programme by offering varied training programmes to all staff. Since 2015 the Department has run three leadership ILM programmes (levels 3 and 5) and established a successful lunchtime training programme. All training opportunities are advertised through the departmental and PPD webpages, on the weekly Departmental Bulletin and a bi-weekly email to all staff.

The uptake of training is generally higher for female than male academic staff (67%F, 36%M) and researchers (54%F, 30%M). Staff survey results indicated this is not due to academics not knowing where to find training: few academics (8%F, 7%M) did not know where to find information on training (0%F, 3%M for researchers).

Between 2014 and 2019, 37 academics (9F) and 14 researchers (9F) took part in leadership training sessions. According to the 2019 staff survey, 62% of woman academics had received leadership training (36%M), and 85% would like to undertake more management training (49%M).

Action 2.1: Increase uptake of annual staff review for researchers, use opportunity to promote training opportunities.

Action 3.2: Increase uptake of staff review for academics, use opportunity to promote training opportunities.

Action 3.8: Run more focus groups across divisions to identify training and communication gaps, incorporate the results into practice.

Achievement: Completion rates for Equality and Diversity training are 100% for academics.

Following the Department's Silver Award in 2016, **online Equality and Diversity training** was made a requirement for new starters, who complete E&D training as part of their induction. As a result, completion rates of this training are 100% for academics, a goal from our last submission (figure 5.3A).

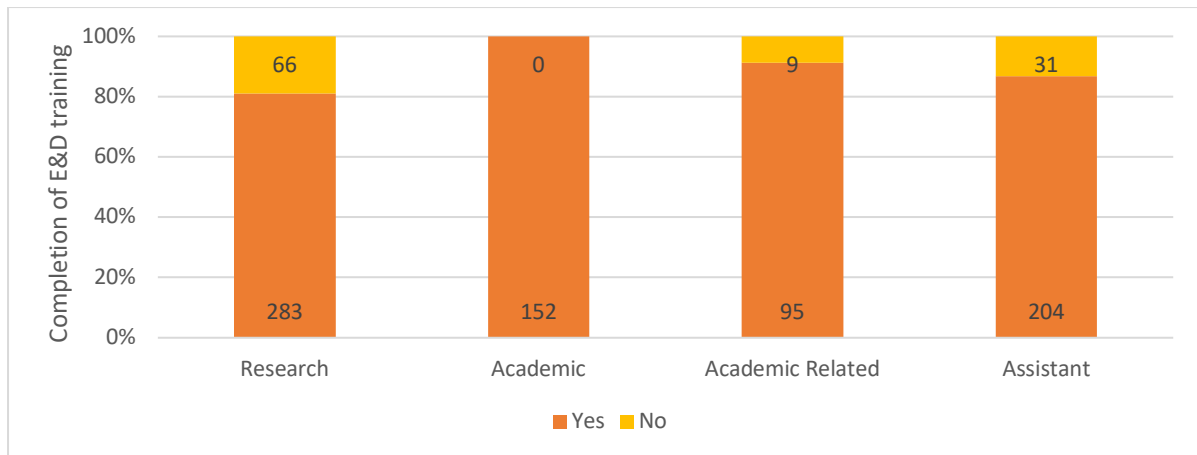


Figure 5.3A: Completion rate for online equality and diversity training for academic, research and professional staff.

The completion rates for online **unconscious bias** (UB) training are lower, as this was only required when on a search committee (introduced in the last submission). The Department is now making UB training compulsory for all staff and has distributed guidance on actions that should be taken to mitigate UB.

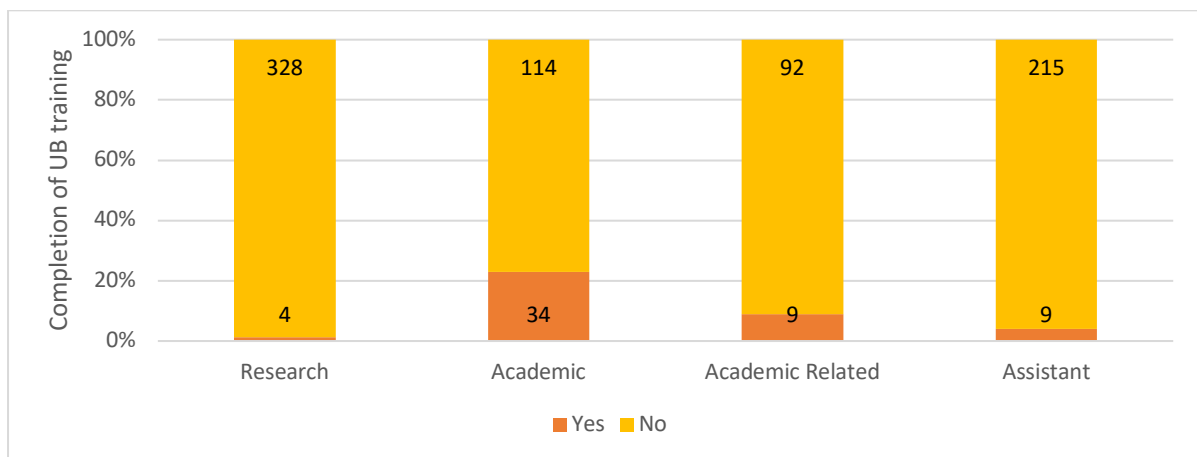


Figure 5.3B: Completion rate for online unconscious bias training by role.

Action 2.2: Unconscious bias training completion rates are low; these will be increased by making training compulsory for current staff and asking new staff to complete the training on their first day.

Action 4.5: The introduction of HR updates to division heads will enable continuation of high levels of uptake of E&D training, improve unconscious bias training rates, and improve uptake of staff review.

(ii) Appraisal/development review

Describe current appraisal/development review schemes for staff at all levels, including postdoctoral researchers and provide data on uptake by gender. Provide details of any appraisal/review training offered and the uptake of this, as well as staff feedback about the process.

Members of academic staff are reminded of the need for staff review and development (SRD) every two years; the HR and Research Office supply the reviewer and reviewee with the relevant information and encourage them to conduct a review and set targets. Researchers are asked to do SRD annually, due to their shorter contracts. The Department has organised in-house SRD training for both reviewers and reviewees; new managers are also referred to the PPD online SRD training. The uptake of training for SRD has been low: two academics (1F) and five researchers (3F) have taken the training.

The SRD completion rate for researchers has increased significantly in the three years since the last Athena SWAN application (figure 5.3C). We attribute this increase to the promotion of SRD performed as a result of the last Athena SWAN application. Perceptions of the usefulness of their most recent SRD are more positive for female than male researchers (86%F, 63%M).

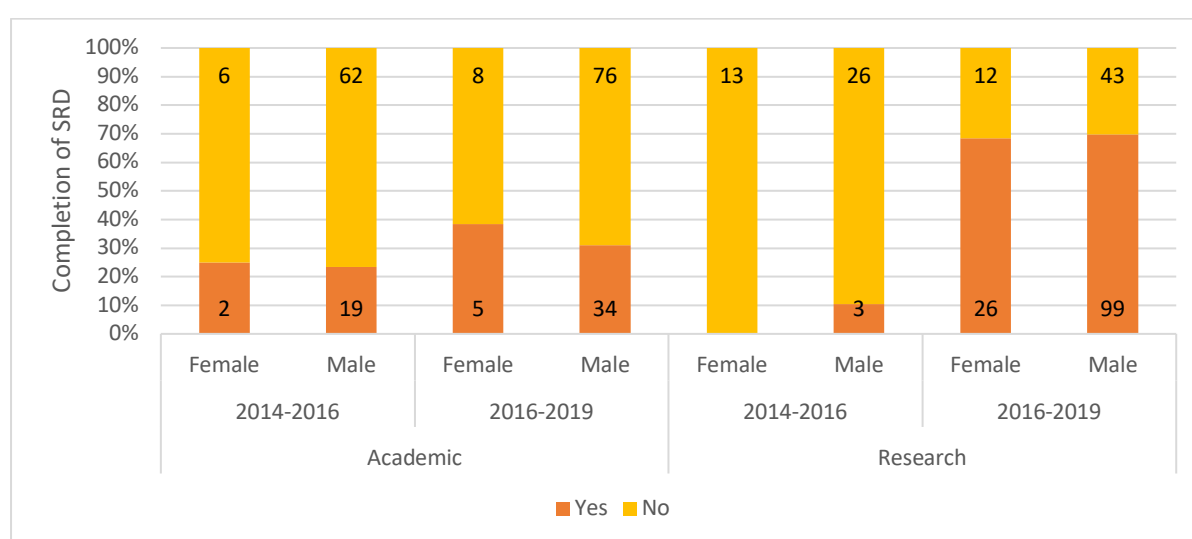


Figure 5.3C: Completion rates for staff review for academic and research staff by gender from October 2014 to September 2016 and from October 2016 to July 2019.

Completion rates of SRD have increased slightly for academics (figure 5.3C). In compiling the Athena SWAN submission, we have identified issues with data collection that have meant that academics are not reliably contacted to be asked to complete SRD and completion has not been reliably recorded. This issue has not affected researchers, who are contacted by the Research Office rather than by HR. This is reflected in the data from the staff survey where 53% of male academics indicated that they had had SRD within the last two years, higher than the 30% that figure 5.3C would suggest. Promoting SRD to academics is a key area of focus, as data from the staff survey suggests only 46% of female academics feel they have had the opportunity to discuss their development needs and performance regularly.

Action 2.1: Promote annual staff review for researchers, using the opportunity to encourage female researchers to consider academia and promote training opportunities. The Engineering Department Postdoc Committee (EDPC) website now has information about staff review and encourages researchers to complete staff review annually.

Action 3.2: Promote staff review for academics. Improve internal data collection, ask staff to do SRD if they have not in the previous year.

(iii) Support given to academic staff for career progression

Comment and reflect on support given to academic staff, especially postdoctoral researchers, to assist in their career progression.

Support for academics for career progression is discussed in section 5.1.

"I couldn't wish for a better place to work at ... helped me grow professionally and personally."

– Female researcher who left in 2019 to accept a permanent lectureship

The department has a dedicated Researcher Development Coordinator to organise training for researchers and PhD students. One-hour confidential Life Coaching sessions are available to discuss career progression. Between 2016-19 these were taken by 61 researchers (30F). Additionally, researchers can discuss plans for personal and professional skills development in one-to-one skill sessions. Between 2016-19 these were taken by 47 researchers (22F).

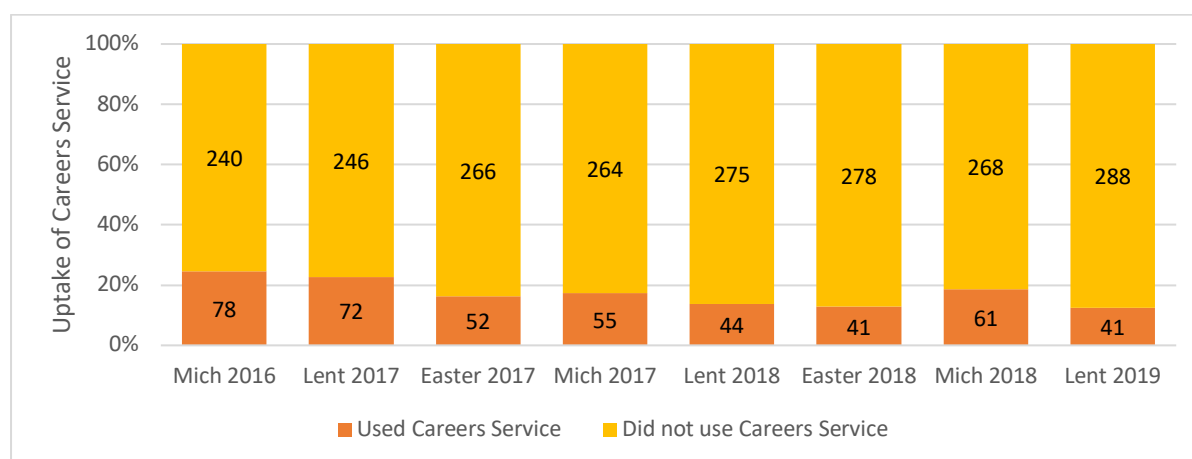


Figure 5.3D: Use of the University Careers Service by Engineering researchers.

The University Careers Service (CS) provides career development resources, including careers events and two female professional careers advisors for engineering researchers who provide one-to-one careers advice; feedback on applications and CVs; and practice interviews. Uptake has been relatively low and has decreased (figure 5.3D), suggesting that more could be done to promote the CS to researchers. Gender is known for a subset of those that used the CS, of these 35% were female (56/159). The average proportion of female researchers was 22% (71/321), indicating that women are more likely to use the CS than men.

Action 2.3: Promote the Careers Service to researchers. This can be done via the mentoring scheme, induction and welcome events. The Careers Service is now advertised on the Engineering Department Postdoc Committee website. A question has been added to the leavers survey to identify whether leavers used the Careers Service and if not then why.

The department runs a **peer-to-peer mentoring scheme** for researchers, with termly training sessions. A pilot scheme was originally run in Division A and then rolled out across the department as part of the last submission. There were major issues with the organisation of the scheme when it was scaled up, particularly in pairing participants and keeping track of

available mentors. In response, the SAT developed an online database, to which researchers can sign up and which automatically keeps track of which researchers are still in the department. After first training session in 2019, there were 14 researchers (7F) signed up as wanting to have a mentor and 15 (8F) signed up to be mentors.

Action 2.4: Promote and grow the peer-to-peer mentoring scheme after the re-boot in 2019. Obtain regular feedback about training and scheme from participants.

The University has a number of award schemes for staff and students that recognise their contributions, which researchers are largely not eligible for. A pilot **Postdoc Awards Scheme** was carried out in Division E.

"[The postdoc award] shows commitment from the IfM leadership towards recognition, growth and career development of postdoctoral researchers".

– Dr Masood, former lead of Postdoc Chairs' Network

Awards are for Research, Teaching, and Academic Citizenship. Nominees are judged relative to their career stage, with their FT/PT status taken into consideration. Winners receive £250. The pilot ran in October 2019 with 28 nominations and 6 winners (4F) (figure 5.3E). This scheme received strong support from the Vice-Chancellor and is being publicised to other departments via the Postdoc Chairs' Network.



Figure 5.3E: The winners of the University's first Postdoctoral Awards

Action 2.5: Roll out the postdoc awards scheme across the department. Publicise postdoc award scheme, encouraging inclusivity of nominations. Evaluate scheme using feedback from postdocs, both through a questionnaire sent to nominees, focus groups, and the staff survey.

The Cambridge Centre for Teaching and Learning offers the Teaching Associates' Programme, designed for Cambridge early-career academics and researchers (including non-first year PhD students) and is accredited by the Higher Education Academy. Since 2014, 33 members of the engineering department have taken part (8F).

(iv) Support given to students (at any level) for academic career progression

Comment and reflect on support given to students at any level to enable them to make informed decisions about their career (including the transition to a sustainable academic career).

College Directors of Studies support undergraduates and can provide career advice. PhD students have both a supervisor and an advisor who acts as a second source of advice on career progression. There are two trained Graduate Mediators (1M, 1F) to deal with any student/supervisor relationship issues.

Training is provided for both undergraduates and PhD students by the Engineering Library, who run courses on writing, referencing, and presenting. The Language Centre in the Engineering Department provides language courses (Chinese, French, German, Japanese and Spanish) for free to students.

PhD students develop their teaching skills by tutoring undergraduates and demonstrating labs. The department mandates that PhD students undergo compulsory Researcher Development Course (RDC) in the 1st year. These are run by each division and include presentation skills, searching literature, and report writing.

Signposted on our recently updated Graduate Office website are university run:

- Writing skills mentoring sessions;
- Researcher Development Framework;
- STEMM Research Skills;
- a wide range of computing courses;
- careers events, workshops and face-to-face sessions with students.

(v) Support offered to those applying for research grant applications

Comment and reflect on support given to staff who apply for funding and what support is offered to those who are unsuccessful.

The department maintains an online list of funding opportunities and new opportunities are advertised through the departmental bulletin. Grant applications are supported by a knowledge transfer team, who suggest funding sources and industrial engagement. The grants team ensure compliance with sponsor's rules. The two teams also run mock interviews/panels and give feedback on draft proposals. The grants team offer one-to-one meetings with researchers and faculty about their research plans and will actively seek out funding sources.

Researchers can be Researcher Co-Investigators on research council grants and named Co-Investigators on grants funded by industry. Since December 2018, researchers can also apply for grants in their own name. These must be small grants (<£30k) if they are a Research Associate or Senior Research Associate, but can be larger if they are a Principal Research Associate or hold a prestigious fellowship.

Male and female academics have very similar success rates (figure 5.3A). However, female researchers have a lower success rate than male researchers. It should be noted that numbers for researchers are very low: there were only 31 grant applications from female researchers over the entire 8-year period.

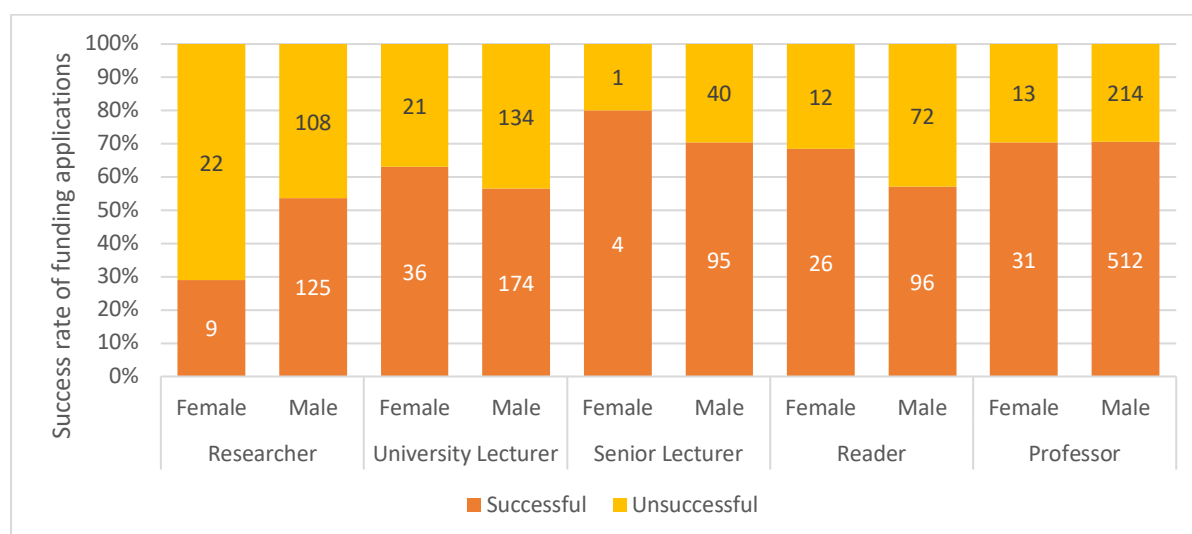


Figure 5.3F: The success rate for funding applications by gender between 2013 and 2019.

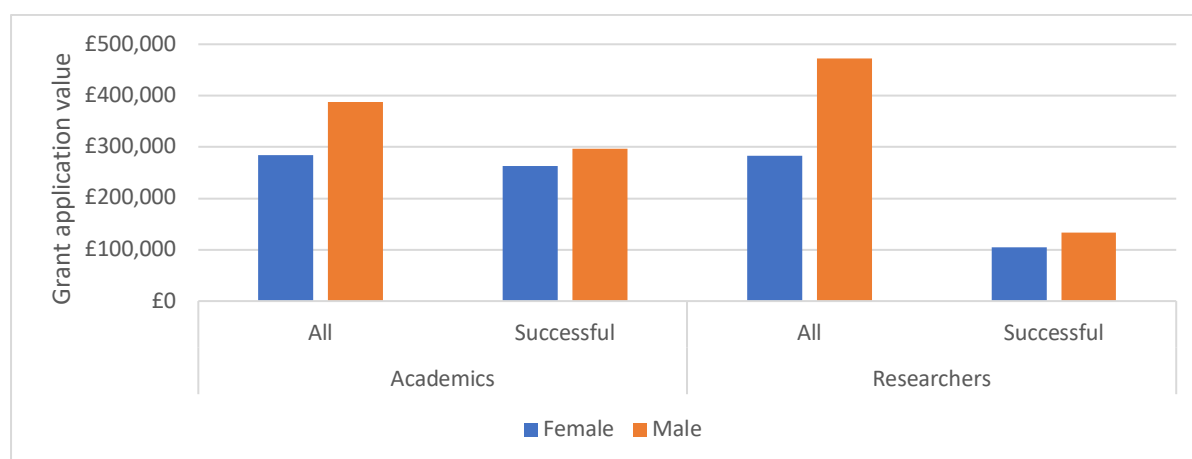


Figure 5.3G: Average value of grant applications from academics, for all applications and for successful ones, split by gender between 2013 and 2019.

Between 2013-19, the average proportion of female academics was 10.1% and 10.4% of grant applications came from female academics, indicating that there is not a gap in application rates. It is not possible to calculate the application rates for researchers as the number of eligible researchers is not known. The difference in the mean value of successful applications between genders for academics is not statistically significant (figure 5.3G).

We link the low application rates of female researchers to the low numbers of women continuing in academia. We will address this issue in two ways: publicise the ability to apply for grants more widely, and support and encourage female postdocs to continue in academia. Our efforts to publicise this scheme more widely include prominently advertising the scheme on the research office website and on the EDPC website.

Action 2.1: Increase uptake of annual staff review for researchers, use opportunity to promote opportunities to apply for funding and encourage female researchers to consider a career in academia.

Action 2.3: Promote the Careers Service to researchers. This will support researchers in academic career progression and may encourage female researchers to consider an academic career.

Action 2.4: Promote and grow the peer-to-peer mentoring scheme after the re-boot in 2019. Obtain regular feedback about training and scheme. Publicise the ability to apply for funding through the scheme and support researcher career progression.

Action 2.5: Roll out the postdoc awards scheme across the department. This will support researchers in career progression.

5.4. Career development: professional and support staff

(i) Training

Describe the training available to staff at all levels in the department. Provide details of uptake by gender and how existing staff are kept up to date with training. How is its effectiveness monitored and developed in response to levels of uptake and evaluation?



Figure 5.4A: Prince Charles with technicians Les Chapman, Oliver Wadsworth (currently undertaking a Higher Apprenticeship in Mechanical Engineering and HND), and Liam Cohen (starting his Higher Apprenticeship and HNC in September 2020)

The PPD provides career development programmes and opportunities for PSS, such as the Inclusive Leadership Development and Administrator Development Programmes, and the opportunities provided by the Technician Commitment launched in 2017. In June 2019, the University introduced the Professional Services Career Development Programme (CDP) to reduce the University's gender pay gap and support career progression. The CDP is for PSS and particularly welcomes women, BAME staff and other under-represented groups. The programme is in a pilot phase during 2019-21.

"Very useful in raising awareness. I have a better understanding of where misunderstandings are likely to arise." - Female administrator at Intercultural Communications training

As outlined above, the Department offers a variety of training to all staff. Since 2015, the Department has run three leadership and management training programmes (ILM3 and 5). These have enabled PSS to apply for managerial posts within and outside the department. The departmental technician apprenticeship scheme has also provided suitably qualified technicians for the department and met the needs of the technician succession plan.

“a wonderful opportunity to recognise and reward staff from across the Department of Engineering”

– Emma Stone at the ILM5 graduation ceremony

Staff are notified of training opportunities through the departmental administrator and technician network, through screens and websites, and the departmental bulletin. Staff are also approached directly, if they have requested training at SRD, or if training is deemed appropriate/necessary for the development of their post or their personal skills.

From 2015-2019, PSS attended 59 different types of training sessions. Around 35%F and 35%M staff (53F, 66M) took advantage of training available, with female staff attending 179 training sessions and men attending 190 sessions.

“It would be good to have more discussion and maybe a longer session with some case studies and a workshop.” – Feedback from a female technician that was used to inform topics for future training sessions

Feedback is collected and used to identify further training needs. Feedback has been positive, with requests for more training on specific topics, such as Intercultural Communication; the Department has set up the requested sessions wherever possible. The effectiveness of training is clearest in cases such as probation or project management. Before training (in 2018) there were two PSS who failed probation, but since managers were trained, there have been no probation failures. The effect of good project management practices in the departmental Workshops is visible in the increase in research income.

(vi) Appraisal/development review

Describe current appraisal/development review schemes for professional and support staff at all levels and provide data on uptake by gender. Provide details of any appraisal/review training offered and the uptake of this, as well as staff feedback about the process.

As described in more detail above, members of staff are approached for SRD every two years. Since 2016, 12%F and 13%M PSS have had staff review training, bringing the total number with training to 25 women and 37 men (17%F, 20%M). In the staff survey, 67% of female assistant staff (67%M) said they found SRD useful. The numbers were slightly higher for academic-related staff (69%F, 83%M).

Following a restructuring in 2017, the Information and Computing Services (ICS) are piloting a new SRD process for the Department. The process entails annual reviews followed by monthly meetings, SMART targets being set, as well as further guidance.

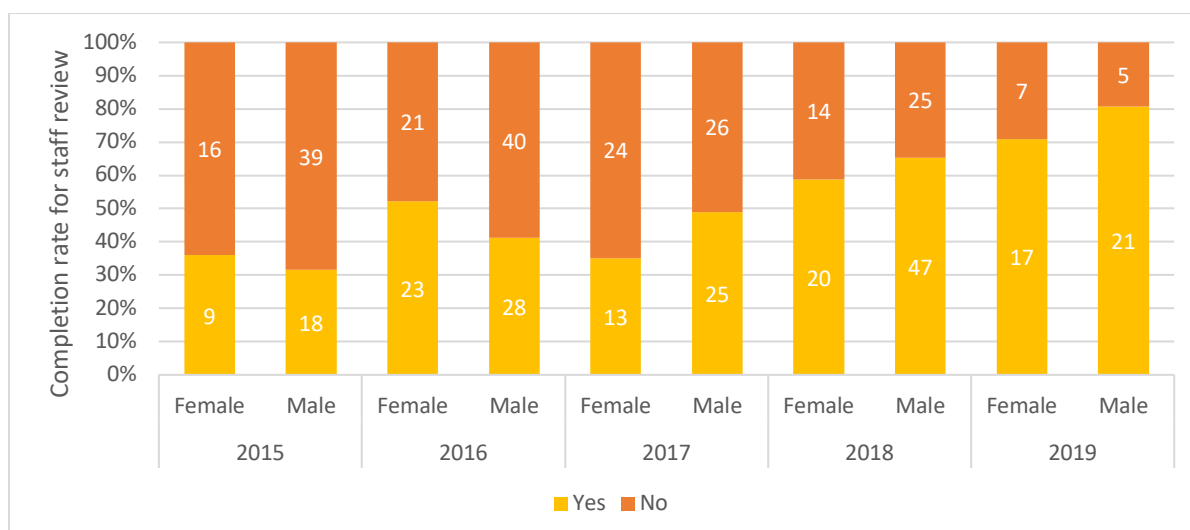


Figure 5.4B: Completion rates for staff review for PSS between 2015 and 2019 shows a steady increase in the uptake of staff review over the last three years. The uptake from women appears to be lagging slightly behind that of male staff.

"I found it valuable to hear the others' views and experiences of SRD, and to get clarity on the process and its aims."

- A male manager at SRD training

Action 4.1: Aim to have all PSS complete staff review by the next Athena SWAN application.

Action 4.2: Although the majority of staff said they found their last staff review useful (assistant 67%F, 67%M; academic-related 69%F, 83%M), these could be improved upon. Increase uptake of staff review training for managers of PSS. The ICS pilot SRD process will be reviewed in 2021, and if found successful, other departmental groups will be supported to set up similar schemes.

(ii) Support given to professional and support staff for career progression

Comment and reflect on support given to professional and support staff to assist in their career progression.

PSS are supported in career progression through access to training and by the mechanisms described in section 5.2. Due to the nature of the graded PSS positions, career progress within the post is usually not possible, and to progress staff often need to seek alternative positions elsewhere. Occasionally in response to changed operational needs PSS positions are regraded when the duties of the post are updated; however, this is rare (see section 5.2). Many PSS progress by moving to roles elsewhere in the university. PSS are encouraged to seek out secondments advertised by PPD, both within and outside the Department.

Action 4.3: Run focus groups with PSS staff addressing career progression, identify and put into place relevant actions. Promote professional registration for technicians and membership of professional bodies. Increase visibility of contribution increment schemes. Consider departmental or school awards or other recognition scheme. Encourage engagement with PPD secondment programme.

5.5. Flexible working and managing career breaks

Note: Present professional and support staff and academic staff data separately

(i) Cover and support for maternity and adoption leave: before leave

Explain what support the department offers to staff before they go on maternity and adoption leave.

Staff wishing to take maternity or adoption leave are provided with information and have a meeting with a member of HR who talks them through the practical arrangements, such as how to arrange Keeping in Touch (KIT) days, maternity pay, accruing annual leave and when to send in relevant forms. The Safety Office carries out pregnancy risk assessments. Academics discuss arrangements for teaching cover with their Head of Division. Mothers are entitled to time off with pay in order to attend ante-natal appointments, which may include classes. Employees whose partner is pregnant are entitled to time off to go to two appointments.

(ii) Cover and support for maternity and adoption leave: during leave

Explain what support the department offers to staff during maternity and adoption leave.

The University offers enhanced maternity, adoption and shared parental leave (SPL) pay with 18 weeks full pay, 21 weeks SMP and 13 weeks unpaid leave. Employees are entitled to 10 KIT days with full pay during leave. When adopting, one of the parents may take adoption leave, the other parent is entitled to take paternity leave. To cover work while staff are on leave, teaching duties are reassigned and supervision of researchers and contracts may be delegated to a colleague.

(iii) Cover and support for maternity and adoption leave: returning to work

Explain what support the department offers to staff on return from maternity or adoption leave. Comment on any funding provided to support returning staff.

Staff returning to work are initially given a lighter teaching load and may be given longer to fulfil probation requirements. The Department accommodates requests for teaching to be scheduled around family commitments where possible. Many academics also choose to extend their leave by taking sabbatical leave. Employees also have access to My Family Care, which provides access to emergency childcare and a network of adult and eldercare.

There are seven sites that make up the department. Four out of these seven already have private rooms where breastfeeding mothers can express milk and three have a secure fridge to store milk. The Whittle Laboratory has a private room included in the designs for the new extension. The Nanoscience Centre currently shares facilities with the Electrical Engineering

Department next door. The Schofield Centre has a policy to make a room available when needed, due to limited space.

	Private room	Secure Fridge
Trumpington Site	Yes	Yes
Whittle Lab	No (included in new extension)	No
Civil Engineering	Yes	Yes
Electrical Engineering	Yes	Yes
Nanoscience Centre	No (shares with Electrical)	No
Institute for Manufacturing	Yes	No
Schofield Centre	When needed	No

Action 4.8: We wish to support new mothers by ensuring there is a private room and secure fridge in every building for expressing and storing milk. We will also ensure priority parking for carers.

The **Returning Carers Scheme** (RCS) offers up to £10,000 to academic and research staff to support academic activity and build up the research profiles of those going on, or returning from, a period away from work for caring responsibilities. RCS supports a variety of costs, e.g. travel to conferences, inviting collaborators to Cambridge, technical and teaching support, equipment and/or start-up funding. Applications can be made prospectively or up to 5 years after returning to work.

“I am at a conference in the US – this was made possible by the returning carers fund, and it has led to new opportunities: I will be acting as co-chair next year.” – Dr Alexandra Brintrup, Lecturer

Between 2013-2016, there were 9 applications for the RCS from the Engineering Department (all women), of which 8 were successful. Between 2016-2019, there were 12 applications (10F), of which 10 were successful (9F). The high success rate for this scheme is promising and we will continue to promote the scheme to researchers and academics. We do not have exact numbers of those eligible, however, using the numbers for paternity and maternity leave, we estimate these to be at least ~14F, ~20M, making uptake approximately 70%F and 10%M.

Action 3.6: Promote the Returning Carers Scheme to academics and researchers via the EDP website; using directed emails; encouragement from SAT and the Departmental Administrators; and by publishing case studies on departmental intranet. Awareness of the scheme will be monitored in the staff survey.

(iv) Maternity return rate

Provide data and comment on the maternity return rate in the department. Data of staff whose contracts are not renewed while on maternity leave should be included in the section along with commentary.

Provide data and comment on the proportion of staff remaining in post six, 12 and 18 months after return from maternity leave.

Our last action plan aimed to have 100% of academic and academic-related staff return to work after maternity leave and to increase the proportion of female researchers who return to work from 50%. We have succeeded on both counts, with 60% of female researchers still employed 12 months after returning from maternity leave.

Achievement: 100% of academic and academic-related women who took maternity leave returned to work and are still employed.

Maternity return rates for academics remain high (table 5.5A), with all academics returning to work. Of the researchers who left before 12 months, 5 out of 6 left because they had completed their contracts. All assistant staff that left before 12 months resigned. Only two academic-related PSS took maternity leave, they are both still employed. PIs strive to keep research positions open during and following the maternity leave period, although this can be difficult due to the short-term nature of the positions and funding restrictions.

Staff category	No. staff who took maternity leave	Still employed after 18 months	Left between 12-18 months	Left between 6 -12 months	Left before 6 months
Academic	5	5 (100%)			
Researcher	15	8 (53%)	1 (7%)	3 (20%)	3 (20%)
PSS	18	13 (72%)		2 (11%)	3 (17%)

Table 5.5A: Uptake of maternity leave between 2015 and 2019. Two of the PSS are academic-related, they both are still employed.

(v) Paternity, shared parental, adoption, and parental leave uptake

Provide data and comment on the uptake of these types of leave by gender and grade. Comment on what the department does to promote and encourage take-up of paternity leave and shared parental leave.

Paternity leave entitles partners to two weeks of full paid leave within 8 weeks of birth. Employees who are expectant fathers or partners may take time off during working hours on two occasions to accompany their pregnant partner/the child's mother to ante-natal appointments.

Staff category	Paternity Leave	Shared Parental Leave
Academic	4	1
Researcher	28	2
Academic-Related	2	0
Assistant	5	0

Table 5.5B: Uptake of paternity leave and shared parental leave between 2015-2019. All numbers are for men.

Parents can also take ordinary parental leave (OPL): up to 18 weeks unpaid leave for each child, at any time up until the child's 18th birthday. Between 2015-2019, one female academic took adoption leave, one female academic took OPL, and one male assistant staff member took OPL. From focus groups of recent academic fathers, many male academics choose to take a sabbatical rather than paternity leave as two weeks is not considered sufficient.

Action 5.5: Campaign in the university to increase provision for paternity leave. Promote shared parental leave in the department.

(vi) Flexible working

Provide information on the flexible working arrangements available.

The University's Flexible Working Scheme is available to all staff and is particularly promoted within the maternity package to encourage women to return to work. Staff first discuss their proposal with their immediate supervisor before applying formally for flexible working. The Department's HR staff provides individualised advice. The university system does not currently record unsuccessful applications for flexible working, this was recorded internally in the small number of cases where this occurred. Since 2015, there have been 34 applications for flexible working (21F, 13M). Of these, 30 were agreed, 1 was agreed with amendments, and 3 were not agreed due to operational needs of the Department.

The majority of applications are for caring responsibilities (figure 5.5C). Applications to work flexibly in preparation for retirement are increasingly common among academics. Researchers often request flexible working when they launch a start-up and need to reduce their hours to accommodate this new venture. Other reasons for flexible working requests include: fitting in with a dependant's care arrangements; coping with a disability; and combining part-time University employment with other professionally-related work.

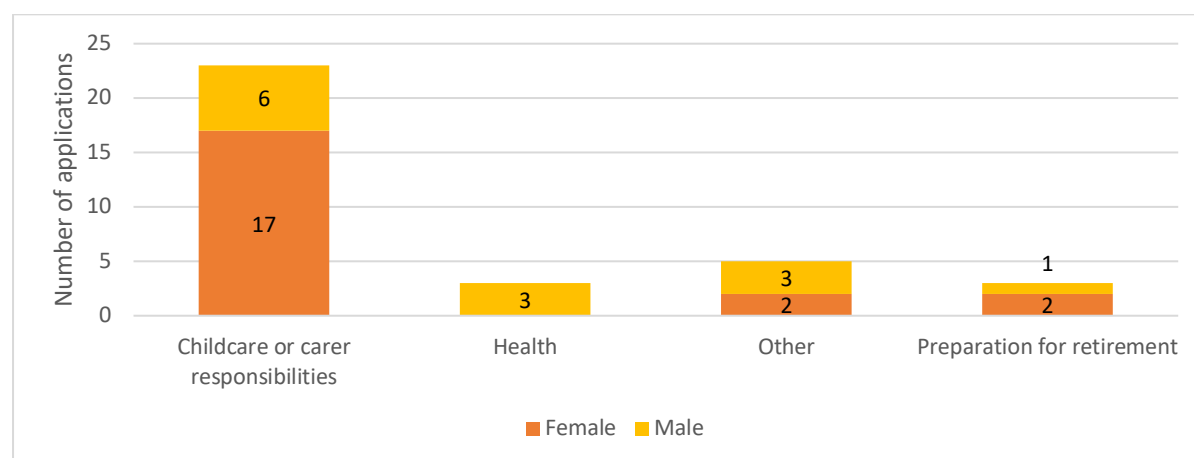


Figure 5.5C: Reason for flexible working applications by gender since 2015

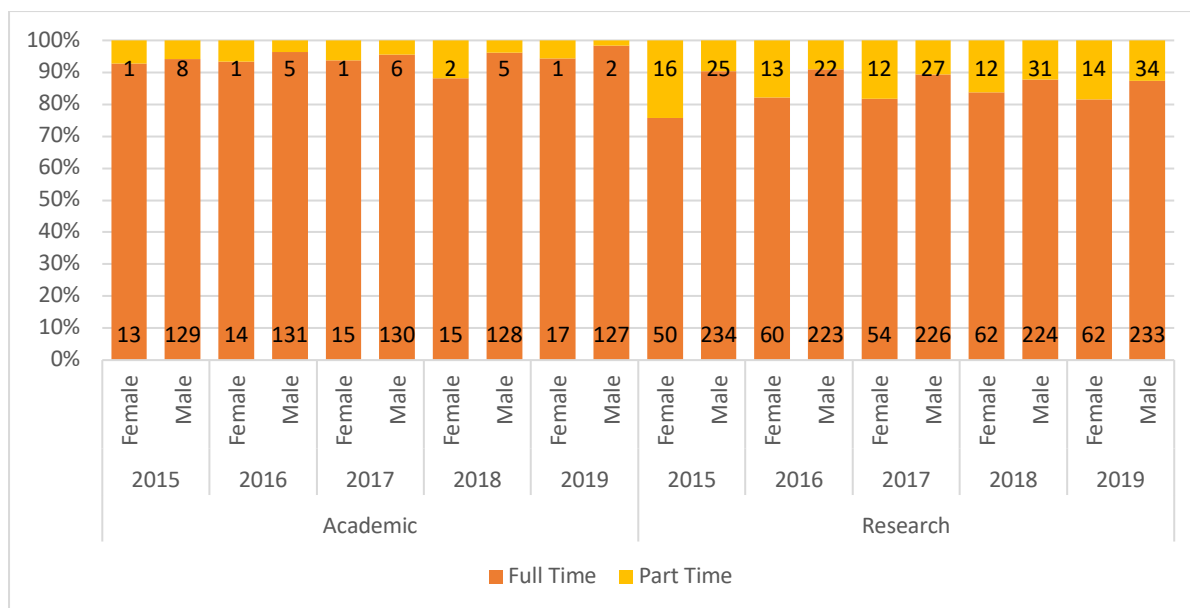


Figure 5.5D: Academic and research staff, full/part-time by gender.

The number of academic staff who choose to go part-time is very low (figure 5.5D). The proportion of research staff who are part-time is somewhat higher, with more women part-time than men.

A larger proportion of female than male PSS work part-time (figure 5.5E). According to the staff survey, women in the department have a high satisfaction with flexible working arrangements: 88% responded positively to the question “I have made a formal request to work flexibly, I am satisfied with the outcome”. However, the number of responses to this question was small enough that the data cannot be further resolved.

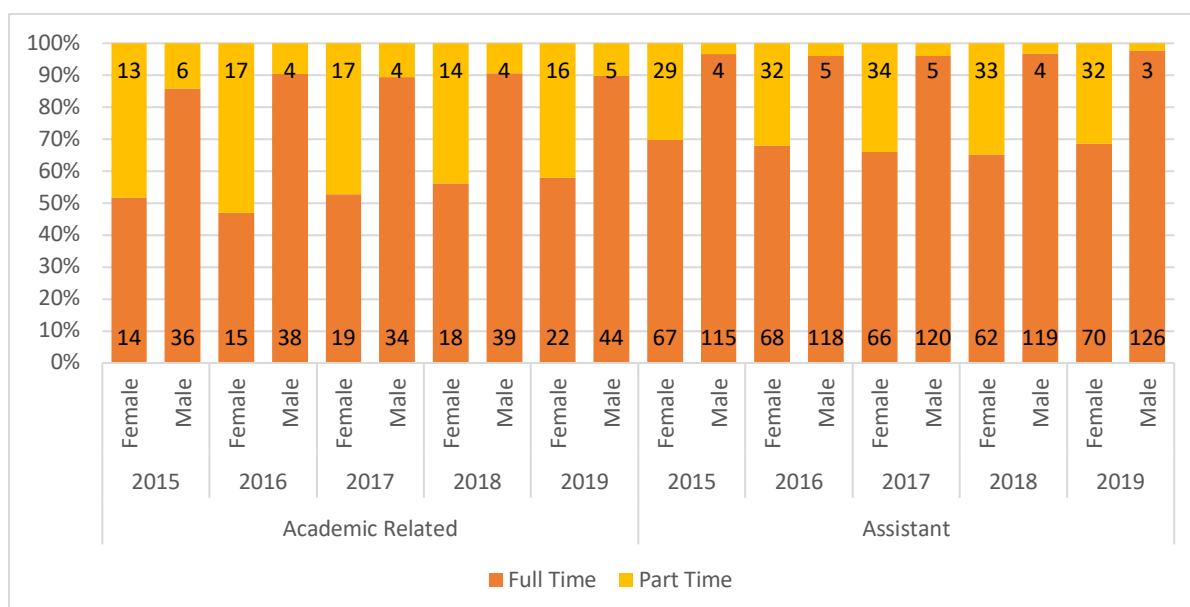


Figure 5.5E: Professional and support staff, full/part-time by gender.

The staff survey also asked for responses to “I am satisfied with the support and flexibility offered to help me balance my work and home life”. Female staff indicated varying levels of

satisfaction across roles with academics significantly less satisfied (46% positive, an improvement from 30% in the 2016 staff survey), than other groups (academic-related: 71%, assistant: 74% and research: 75%). However, female academics are generally neutral on this question rather than negative: only 8% of female academics said they were not satisfied with support.

Academics generally have a large amount of flexibility in when they do their work compared with other groups, therefore we link the low positive responses to this question to the high proportion of academics who say they are not able to strike the right balance between their work and home life (54%F, 41%M). Focus groups identify that there are particular times of year that are difficult for teaching.

Action 3.5: To improve work-life balance for academics we will aim to reduce and redistribute teaching workload. To do this we will put together a teaching calendar, with estimated task length and date. By this we aim to ensure that tasks related to teaching are more evenly distributed across the year.

(vii) Transition from part-time back to full-time work after career breaks

Outline what policy and practice exists to support and enable staff who work part-time after a career break to transition back to full-time roles.

Returning staff can apply for flexible working, or for the Graduated Return Scheme, which allows them to return to work initially for a minimum 20% of full-time, increasing their hours until they are back to full-time within 12 months of returning.

Staff returning to work are initially given a lighter teaching load and may be given longer to fulfil probation requirements. The Department accommodates requests for teaching to be scheduled around family commitments where possible. Many academics also choose to extend their leave by taking a sabbatical.

5.6. Organisation and culture

(i) Culture

Demonstrate how the department actively considers gender equality and inclusivity. Provide details of how the Athena SWAN Charter principles have been, and will continue to be, embedded into the culture and workings of the department.

The survey found that just 23% of academic women were satisfied with the support given to manage stress, 46% felt that they had sufficient flexibility to balance their home and working lives, and 62% felt able to contribute their views about changes to their roles. The latter two questions received relatively few negative responses (8% and 15%), whilst the higher proportion of negative responses (31%) on the question of managing stress suggests that this is an area of concern.

To improve the support for managing stress, the Department nominated seven staff members representing different divisions and departmental sites as Wellbeing Advocates in 2019, in line with the University's wellbeing initiative. This is complemented by a wellbeing network, with representatives from all staff groups. This group meets termly to discuss and coordinate departmental and divisional wellbeing events; the wellbeing advocates have been allocated a budget for events in their respective divisions. In addition to divisional wellbeing events, such as mental health first aid training, training for coping with stress and tea&talk fundraising mornings, the department is holding the first wellbeing fair in June 2020 to publicise the initiative and offer information on facilities and policies related to staff wellbeing.

"The Mental Health Awareness & Support Skills Workshop was a very helpful introduction to ways in which I can better support the people around me" - a male academic and first aider

We will continue to offer and develop formal and informal networking opportunities to staff at all levels. These include annual lunches for academics on probation, termly coffee mornings for professional support staff, lunchtime guided walks and yoga (introduced as part as the last submission). Weekly Equality & Diversity Wellbeing coffee corners have also been run in the IfM, along with the weekly Collaborative Cake sessions to encourage discussion of diversity issues in the department.

Action 4.3: To improve support for managing stress, we will organise more mental health related training (mental health first aid, supporting staff and students with mental health conditions) in collaboration with the DRC and PPD.



Figure 5.6A: Researchers and PhD students gather for an Equality and Diversity Wellbeing Corner in the IfM (Division E).

A pilot programme of **Women in Engineering Coffee Mornings** at the start of every term was started in October 2018, with the aim of highlighting the excellent women in the department, building informal mentoring relationships and as a source of information on the experiences of women in the department. These have been particularly well attended by female postdocs, who are a group of particular focus. Feedback has requested that these run more frequently.

“It was a great chance to chat to researchers and academics from across the department and hear about their experiences.” – Female PhD student

Action 2.6: Run Women in Engineering Coffee mornings twice a term, obtaining feedback.

An action from the previous submission was to make use of social media to communicate across the department. In 2018-2019, we organised a “twitter take-over” of the Engineering Diversity twitter account (figure 5.6B). Our 8 participants included a mix of genders and ethnicities, with researchers, PhD students and PSS taking part. As a result, the @EngDiversity twitter account increased followers from 1,818 in 2016 to 2,865 in 2020.



Figure 5.6B: A selection of the “tweeters in residence” for the @EngDiversity twitter takeover.

(ii) HR policies

Describe how the department monitors the consistency in application of HR policies for equality, dignity at work, bullying, harassment, grievance and disciplinary processes. Describe actions taken to address any identified differences between policy and practice. Comment on how the department ensures staff with management responsibilities are kept informed and updated on HR policies.

The University policies related to staff and their conduct, such as Dignity at Work, equality and diversity, disciplinary action and grievances, and staff-student relationships are applied in the department. The application of policies within the department is consistent, as all processes are run centrally by the HR and Research Offices, who refer to School of Technology HR for guidance as necessary. They also ensure that staff with management responsibilities are informed and updated on HR policies, either through email, training events or via Heads of Division in the Academic Committee. As the uptake of training events has not been high, most information will be disseminated through other means; the route through Heads of Division worked well to ensure E&D training is completed by all staff, and the same method will now be applied to the new requirement for managers to complete unconscious bias training. As HR updates to Heads of Division lapsed, we will reintroduce them.

Action 4.5: Reintroduce HR updates to Heads of Division, including policy changes to be disseminated to divisional managers.

An action in the last submission was to publicise Dignity at Work procedures. In October 2017 the University launched the “Breaking the Silence” campaign to recognise and prevent harassment and sexual misconduct. This initiative resulted in:

- **A website serving as a single point of reference for staff and students** with detailed guidance, advice and sources of support including a diverse recruitment framework.
 - A new Sexual Assault and Harassment Advisor linked to Student Counselling.
 - Links to relevant policies and procedures.
 - An anonymous reporting portal for staff and students.
- **‘Where Do You Draw the Line?’ training** developed to initiate conversations about inappropriate behaviour. Two training sessions were run in the Engineering Department on 2 April and 28 May 2019, with 46 staff members in attendance. Staff who were unable to attend are encouraged to attend further sessions run by PPD.

Achievement: The proportion who are aware of the procedures for reporting bullying and harassment has increased from 41% to more than 70%.

As a result of this and other actions within the department, there have been significant improvements. In 2016, only 41% of women in the department (40%M) were aware of the procedures for reporting bullying and harassment. In the 2019 survey, 72%F and 73%M knew how to report incidents. We will continue to work on communicating procedures, in particular to researchers, as only 50% of female researchers were aware of reporting procedures compared with 69%, 75% and 82% for female academic, academic-related and assistant staff respectively. In the 2016 staff survey, 17% of female staff had experienced bullying or harassment in the workplace, in 2019 this has fallen to 11%. The numbers for men have also fallen, from 10% to 8%.

In the 2016 survey only 41% of female researchers and 50% of female academics felt able to report bullying or harassment without worrying that it would have a negative impact on them.

These numbers have not improved in the 2019 survey, where 41%F researchers and 46%F academics felt confident the University would take appropriate action if they had an issue with being treated fairly in the workplace.

There are currently significant changes being made to the process of responding to complaints about bullying and harassment, to make the process more efficient and fair. In his State of the Union speech in 2019, the HoD spoke of the importance of treating each other well, making it a key aim to call out bullying and highlighting new ways to report and discuss issues. The HoD made it clear there would be no tolerance for bullying behaviour and encouraged other members of the department to call out bad behaviour when they saw it.

Action 4.7: Establish new mechanisms for responding to complaints about bullying and harassment. Promote ‘Where do you draw the line?’ training. Examine impact of improvements in procedures in the next staff survey.

(iii) Representation of men and women on committees

Provide data for all department committees broken down by gender and staff type. Identify the most influential committees. Explain how potential committee members are identified and comment on any consideration given to gender equality in the selection of representatives and what the department is doing to address any gender imbalances. Comment on how the issue of ‘committee overload’ is addressed where there are small numbers of women or men.

The proportion of women on departmental committees is shown in the table below. The Admissions Committee is not included as there is no fixed membership. The percentage of female academics on almost all committees is higher than the percentage in the department, with the exception of the examinations committee and the promotions committee. On all other committees, except for the SAT, there has been an increase in the proportion of women. With the introduction of new members to the SAT, in particular from PSS groups, there was an effort to *reduce* the overall proportion of women. The examinations and promotions committees necessarily require more senior staff. The proportion of senior staff (Reader/Professor) who are female is 10%, which matches the proportion of women on these committees. As a department we need to be wary of committee overload as the proportion of women on committees is generally higher than the proportion of women in the department. Committee membership is recorded in the workload allocation (section 5.6v).

Committee*	2016			2020		
	F	M	%	F	M	%
Academic Committee	2	10	18%	2	9	18%
Selection Committee**	2	5	29%	4	2	67%
Degree Committee	3	14	18%	4	12	25%
Director of Studies Committee	8	67	11%	14	88	14%
Examinations Committee	2	12	14%	1	11	8%
Faculty Board	4	22	15%	9	14	39%
Library Committee	4	13	24%	4	7	36%
Postdoc Committee	3	8	27%	6	5	55%

Probation Committee	2	7	29%	3	4	43%
Promotions Committee	2	8	20%	1	9	10%
SAT	12	6	67%	12	11	52%
SSJC	4	10	23%	11	10	52%
Teaching Committee	2	14	13%	2	13	13%

* Numbers exclude secretaries.

**Selection Committee replaces Appointments Committee.

(iv) Participation on influential external committees

How are staff encouraged to participate in other influential external committees and what procedures are in place to encourage women (or men if they are underrepresented) to participate in these committees?

Male and female academics from the department both take active roles in the research community. Survey data from 2019 shows that 82% of female academics have been involved in the organisation of research conferences (70%M). Similar proportions of male and female academics are editors for journals (35%F, 40%M). Similar proportions have also held national/international research advisory board memberships (12%F, 17%M) and have served on peer review panels (24%F, 20%M). Participation on influential external committees can be counted towards the general contribution requirement for promotion.

(v) Workload model

Describe any workload allocation model in place and what it includes. Comment on ways in which the model is monitored for gender bias and whether it is taken into account at appraisal/development review and in promotion criteria. Comment on the rotation of responsibilities and if staff consider the model to be transparent and fair.

All teaching duties are published openly in the Department's teaching duties database, with a points-based scheme used to balance loads across all teaching staff. This degree of transparency is unusual within the University and our system has been used as an example of good practice by several other departments. Teaching duties are allocated by the relevant Subject Group Chair and Head of Division in liaison with the Teaching Office. These duties are reviewed annually.

Administrative roles, committee memberships and formal contributions to outreach are also recorded in the teaching office database. From 2020, the Athena SWAN academic lead will be assigned teaching points, as it was felt it was important to explicitly acknowledge the significant workload involved.

Action 4.9: Review teaching points, looking for hidden labour – e.g. when points are assigned retrospectively.

Action 3.5: Focus groups identify that there are particular times of year where workload is very high. Establish teaching timetable, with estimated task length to evenly distribute workload across the year.

(vi) Timing of departmental meetings and social gatherings

Describe the consideration given to those with caring responsibilities and part-time staff around the timing of departmental meetings and social gatherings.

As per the last submission, it is departmental policy that all meetings should be held between 09:30 and 15:00 and avoiding bank holidays. Although it would be desirable to also avoid half-terms, the week of half-term represents too large a proportion of term-time. The Teaching Office works with staff to schedule activities around family commitments.

Social gatherings organised by the departmental offices, such as seminars, staff events or coffee mornings are held within the core working hours; events arranged by smaller divisional entities such as research groups can also include social gatherings in the evenings. Regular departmental events circulate among the different sites, e.g. training events alternate between sites, the Academic Committee holds half their meetings at a West Site location. The departmental welcome lunch and staff parties adopted a similar pattern in 2019.

Staff are given ample notice of departmental events, enabling them to adjust their caring arrangements if necessary. Regular meetings and events are not scheduled for the same weekday, allowing members of staff working part-time to attend. The department has a policy for compensating staff for care and transport costs incurred in cases when the staff member's presence is required and scheduling adjustments cannot be made, for example when the participation of a part-time member of staff on their non-working day was deemed vital for a HR process meeting to go forward.

(vii) Visibility of role models

Describe how the institution builds gender equality into organisation of events.

Comment on the gender balance of speakers and chairpersons in seminars, workshops and other relevant activities. Comment on publicity materials, including the department's website and images used.

The department runs a wide array of seminar series in the different divisions (figure 5.6C). Divisions A, B, and C have all increased the proportion of female seminar speakers since the last submission. Division D and F have decreased slightly (D: 24% to 23%, F: 9.9% to 9.2%), both reductions are equivalent to one fewer female speaker over three years. There were issues with data collection for Division E, which means we were not able to obtain gender for around 40% of the seminars since 2017, therefore the reduction remains to be investigated.

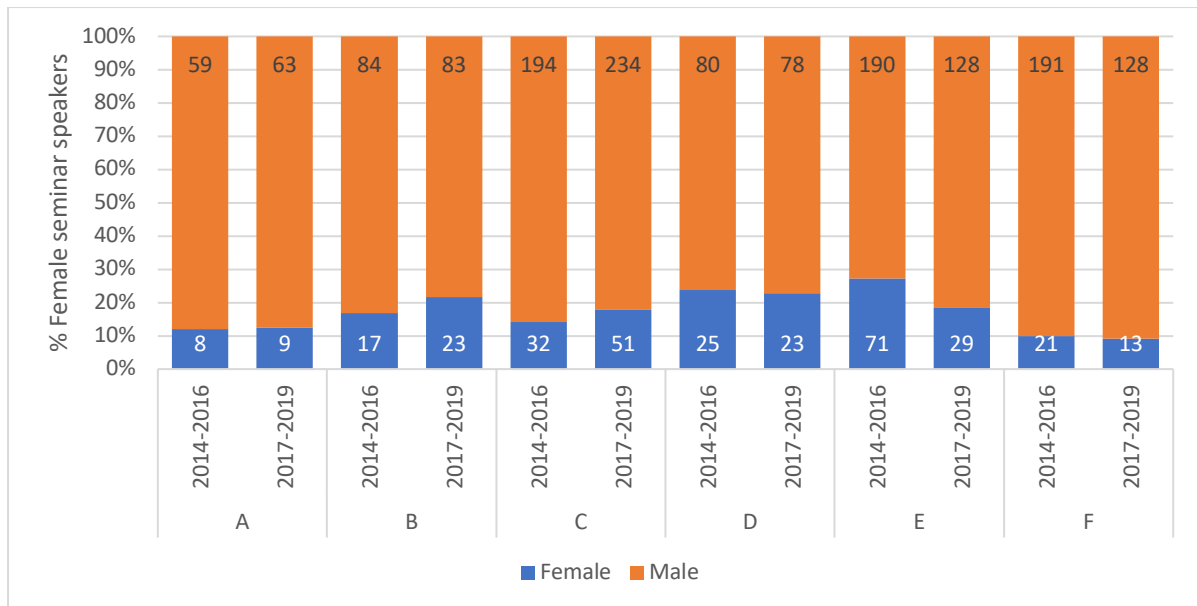


Figure 5.6C: Proportion of female seminar speakers by division between January 2014 and December 2019.

Action 5.9: We now have a baseline for the proportion of female seminar speakers for each division. This information will be circulated to subject groups and seminar series organisers will be encouraged to consider diversity of speakers when compiling invitations to speakers.

An action from the last submission was to increase the visibility of news stories that are related to women on the department website (figure 5.6D). Between 2017 and 2019, we have substantially increased the ratio of front-page articles relating to women to those relating to men (from 0.63:1 to 0.84:1).

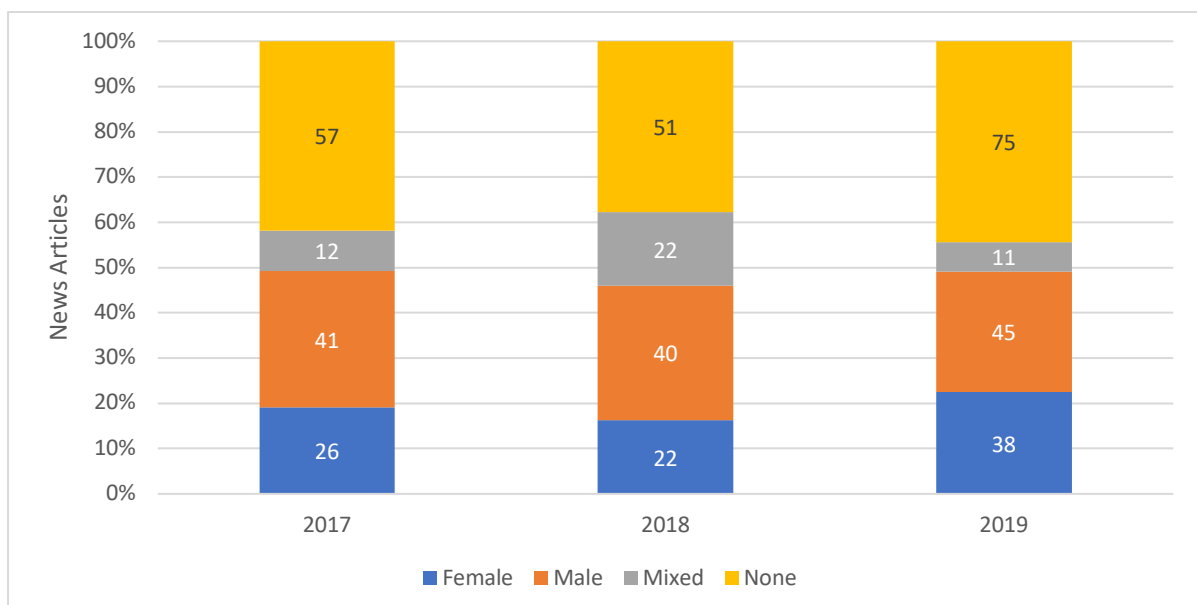


Figure 5.6D: Proportion of images associated with departmental news articles that are all female, all male, mixed gender group, or no gender.

In 2019-2020 we ran an **Engineering Diversity Poster Competition**, an action from our last submission, which aimed to increase visibility of role models by increasing the number of portraits of women around the department (previously almost all portraits were of men). Posters from the previous competition, themed around Women in Engineering, are on permanent display in the Library. The competition received over 30 entries, with women making up the vast majority of nominated engineers.

Action 1.6: Improve visibility of female role models by displaying Engineering Diversity Posters in lecture theatres and new common room.



Figure 5.6E: Winner and runner up for the poster competition.

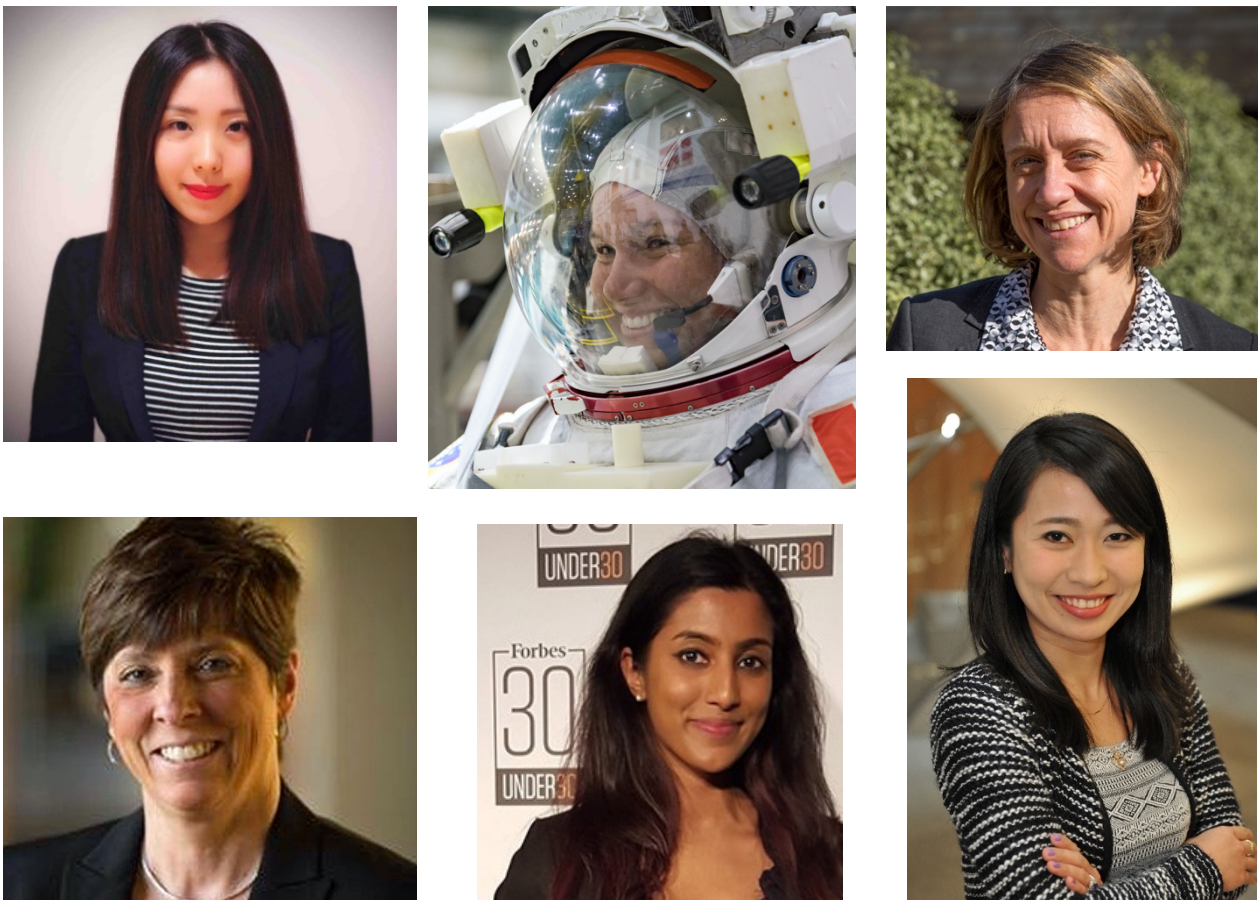


Figure 5.6F: Some of the speakers from our Inspirational Engineers Seminar Series

An action from the previous submission (in response to focus group feedback) was to run an **Inspirational Engineers Seminar Series**, whereby divisions take it in turns to invite a high-profile woman from industry or academia to speak. Speakers have included industry leaders from Tesla, Google, Boeing, ARUP and the Canadian Space Agency. There are generally between 20-30 attendees, with 95 attendees for the talk by Dr Jenni Sidey-Gibbons, a lecturer currently on leave to train as an astronaut.

(viii) Outreach activities

Provide data on the staff and students from the department involved in outreach and engagement activities by gender and grade. How is staff and student contribution to outreach and engagement activities formally recognised? Comment on the participant uptake of these activities by gender.

The Engineering Department is involved in a huge array of outreach activities, involving around 800 students a year (figure 5.6G). The majority of these events involve state secondary schools, but we also work with primary schools and sixth forms. Outreach is formally recognised for staff through the teaching office database.

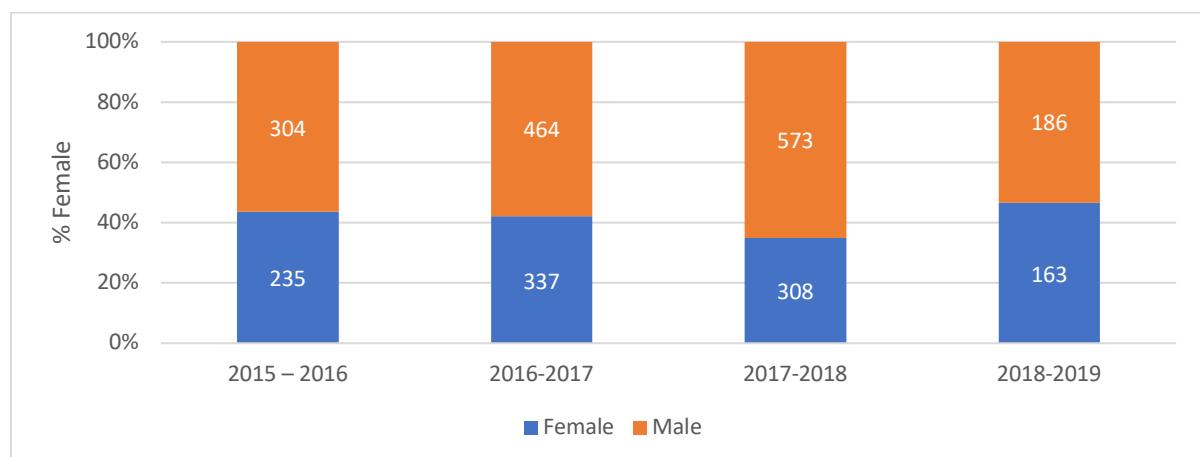


Figure 5.6G: Outreach by student gender. In 2019 reporting switched to HEAT system, which does not record gender for the majority of participants.

An action from our last submission was to capitalise on national initiatives such as **International Women in Engineering Day (INWED)**. Our Athena SWAN flagship outreach event celebrates INWED. In 2019, the Department hosted an event for 26 year 8 and 9 girls from state schools, encouraging them to discover engineering through discussions with members of the engineering department and a workshop. The day began with a lunch, with posters of inspirational female engineers and staff. Students then attended a short lecture on how broad and creative engineering is, followed by a workshop where students built a 1.8-meter-long origami emergency shelter. After the workshop, students attended an afternoon tea and talk in small groups with female undergraduates, PhD students, post-docs, academics and technicians from CUED.



"I learnt from the [PhD and undergraduate] students that engineering gives a lot of opportunities for my future." – Student feedback

The students were surveyed at the end of the event and results indicated that 73% of the pupils thought of engineering differently after the day. Eleven students underlined that they were previously unaware of the number of different types of engineering.

"It is the first time that I properly considered engineering as an option." – Student feedback



6. Case Studies: Impact on Individuals (881 words)

Two individuals working in the department should describe how the department's activities have benefitted them. The subject of one of these case studies should be a member of the self-assessment team. The second case study should be related to someone else in the department. More information on case studies is available in the awards handbook.

SAT Case Study: Claire Barlow, Deputy Head of Department for Teaching

I joined the Engineering Department as a postdoc, and immediately felt welcome. Working environments are always very important to me: I value congenial colleagues, and have been fortunate in this department to be surrounded by helpful, supportive and inspirational people at all levels. One particularly rewarding aspect has been working alongside technicians and learning experimental expertise from them. The department was very male-dominated at that time, with only two female faculty members and with gender-biased language the norm. I did not feel disadvantaged as a result of gender at the time, and it is only in retrospect that I understand how much these factors can influence women's expectations. Athena SWAN has been very influential in changing the way the department presents itself.



I was appointed to a lectureship in part of the department that is based off-site as a self-contained organisation with its own culture and running its own courses. I soon found myself Director of the undergraduate course, a post I held for a decade. This experience made me a natural candidate to take charge of the whole undergraduate teaching operation in the Engineering Department, and led to my serving as Head of Department for a time. All this has been achievable only because the majority of my colleagues have been wonderfully helpful and supportive.

Although my experience of the department has been generally good, I have been very aware that others have had less positive experiences. Athena SWAN has provided a strong impetus for changing the culture in ways that I believe are fundamental to a vibrant and supportive community.

The increasing visibility of women in the department since the last Athena SWAN submission has been very welcome. The 'wall of women' in the library resulting from our previous women in engineering poster competition is so popular that it has been made a permanent display. We have seen the appointment of more women academics, prominence of such events as the inspirational engineers talk series and more women featuring in news items and external publicity.

The university environment is stressful for everyone; changes for the better are happening but we do not always recognize the increased load that new initiatives place on academic and administrative staff. Going with this has been increasing understanding that discussing wellbeing and work-life balance is acceptable. Athena SWAN has helped us to put in place a network of 'go-to' contacts for staff at all levels throughout the Department so that there is always someone who can be approached in confidence for support and guidance.

The Engineering Department has provided a working environment which has allowed me to contribute in ways that use my skills to best advantage, and that I enjoy. The Department has provided fertile ground for the Athena SWAN agenda, and I have seen, and promoted, gender equality as part of a much larger landscape of encouraging diversity, tolerance and a culture of mutual support within our community.

Non-SAT Case Study: Dr Judith Farman, Research Associate in Turbomachinery

I've been working for fifteen years since initially graduating, and the Department of Engineering is my fourth employer. The Department is by far my best employer with regards to supporting me in my professional and personal life, particularly in seeking out the balance between the two. I've found the department to be a wonderful place to work, promoting collaboration and friendship as well as technical excellence. The atmosphere is open to combating sexism at the roots and allowing open and frank discussions.



Back in 2017/2018, I had a particularly challenging pregnancy with significant risk to the lives of both me and my child. The Department (specifically the Whittle Laboratory) was extremely understanding. I was actively encouraged to put my well-being first. The necessary safety arrangements were put in place so that I didn't need to do any lifting, manual handling or handle chemicals despite my project involving the build of an experimental rig. In addition, I was encouraged to use flexible working.

I ensured that I was making up hours missed due to frequent appointments but was never pressured into doing so. At 23 weeks I needed to be rushed to hospital and my senior colleague, left visiting clients, to drive me directly to the hospital. At 32 weeks I was hospitalized for the remainder of my pregnancy. I was actively encouraged to look after myself and not push myself to work. On returning to work I was allowed the flexibility to work from home, which significantly helped when my little one inevitably fell ill. Conference calls have been set-up when required so I can dial in to meetings.

My PI has actively encouraged me to widen my technical expertise and facilitated me taking on additional responsibilities. In the first instance I was given the flexibility to start supervising both third year courses within the department and first year courses at Newnham College. I have more recently been given the opportunity to lecture to Masters level students on

Renewable Energy. I've been encouraged to take on increased responsibility on my research project, reporting to the funding body monitoring office and responsibility for the financial forecasting and claims. I'm being actively encouraged to develop my skills and portfolio of work to facilitate future promotion.

7. Further Information (69 words)

Please comment here on any other elements that are relevant to the application.

We have aimed to become more inclusive as a department, marking LGBTQ+ history month in February 2018 and 2019. We ran a trans-awareness session in February 2019 and we have plans to ensure access to gender-neutral bathrooms in each building of the department (beginning with the Trumpington site and the new Civil Building). We have a trans-awareness training session (which will take place over Zoom) planned for summer 2020.

Action 5.1: Run regular trans-awareness sessions. It is difficult to monitor feedback directly without impacting privacy, therefore the success of this action will be measured by the training uptake.



8. Effects of COVID-19 (262 words)

The major impact of the coronavirus pandemic has been that we were not able to run all of our planned focus groups, meaning some of these have been put into the action plan, rather than being performed before submission. The difficulties encountered in organising focus groups were in part due to the complications of doing them online. However, the major barrier has been due to many staff having significantly increased caring loads, which has reduced our capacity. Some focus groups went ahead online and we have made use of other mechanisms, such as email and questionnaires to obtain data.

Some actions will need to be adjusted, e.g. analysis of exam results (action 1.1). Examinations this year have been carried out remotely, with students downloading questions then uploading their scripts. We are curious as to how this very different examination procedure will affect exam results and the gender attainment gap.

The timing of online departmental meetings has been adjusted to account for those with caring responsibilities during the pandemic, with meetings starting at 11:00 am or 2:15 pm, after consultation with staff. This is an adjustment to the usual core hours described in the submission. During lockdown, there has been a weekly wellbeing email to all staff, and the department has been hosting a weekly wellbeing coffee morning. The Wellbeing Fair planned for June has been postponed.

We have plans to run a survey and focus groups in early 2021 to identify whether there have been differing effects of the pandemic on male and female staff, as has been found in other disciplines.⁷

Action 5.8: Run survey and focus groups to identify impact of pandemic on staff, identifying any gender disparities. Report results to SAT and Faculty Board. Identify actions from results and put these into place.

⁷ <https://voxeu.org/article/who-doing-new-research-time-covid-19-not-female-economists>

9. Action Plan

The Department's top priorities arising from the data and consultations are:

1. Address the **gender attainment gap** in the undergraduate engineering degree.
2. Support **researchers** in the transition to an academic career.
3. Support academic staff in **induction and promotion**.
4. Increase **support for staff and student wellbeing**, including managing stress and reducing workload.

Ongoing and unchanged successful actions from previous application:

- Regular SAT meetings.
- SAT membership expanded to include representatives from more staff groups.
- Inspirational Engineers Talks once a term.
- Postdoc mentoring training sessions run termly.
- Gender balance of departmental committees has improved.
- Outreach is strong, with SAT presence at open days.
- Important meetings and official departmental events scheduled within core hours and avoiding bank holidays.
- A second Engineering Diversity Poster competition has run, with plans to repeat this bi-annually.
- Wellbeing initiatives (such as weekly yoga classes and collaborative cake events) are embedded in the department.
- Changes to recruitment have resulted in a significant increase in the number of women lecturers.
- Images for Engineering admissions and main website are chosen with the aim of highlighting the diversity of the department.
- Significant outreach efforts targeting female students, to keep our undergraduate application rates for women high.
- Offer and develop formal and informal networking opportunities to staff at all levels. These include annual lunches for academics on

probation, termly coffee mornings for professional support staff, lunchtime guided walks and yoga.

Priority actions highlighted in green.

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
Section 1: Address the gender attainment gap in the undergraduate engineering degree						
1.1	a) Analyse UG gender attainment gap on a module-by-module basis b) identify further actions to reduce the gap	To identify suitable actions to reduce the gender attainment gap at all levels, more detailed analysis is required that is not possible using current data. Marking spreadsheets for modules have been updated to include a hidden gender field and the future data analysis will use this new data which was not previously available.	a) Data analysis sent to Teaching Committee and Subject Groups b) Gender attainment gap a standing item on the Teaching Committee meeting where actions will be identified c) Evaluate and review actions taken	Teaching Group Secretaries, Academic Lead	a) In August 2020 and then annually b) Actions identified in Michaelmas Term Teaching Committee meeting 2020 and then annually c) Target to be evaluated in 2024	To have answered the 4 questions in section 4.1: 1. The gender attainment gap for individual modules or papers. 2. The difference in attainment gap between 4th-year coursework and exams. 3. The difference in attainment gap between 4th-year projects and modules. 4. Any connection between attainment gap in 3rd-year and 4th-year and the proportion of women in a class. Reduce gender attainment gap from around 10-15% to <5% by 2024 (i.e. within the noise).

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
1.2	Reduce UG student workload during term in years 1 and 2	<p>Workload during term is high, this may be contributing to the gender attainment gap¹.</p> <p>Currently there are ~200 hours of lectures and 150-200 hours of labs (140 in 1st year, 200 in 2nd year). This is comparable load to other engineering courses but confined to only two and a half terms of eight weeks.</p>	<p>a) Reduce lecture content in 1st and 2nd year by 20%</p> <p>b) Reduce number of labs to 20 per year in 1st and 2nd year</p> <p>c) Move content to online learning students can access outside of term</p>	Deputy HoD for Teaching	Reduce yearly, reaching target in 2023	<p>Lecture content reduced by 20% in 2023.</p> <p>Number of labs reduced to 20 per year in 2023.</p> <p>We may choose to modify these targets if we have good pedagogical reasons for doing so.</p> <p>Reduce gender attainment gap to <5% by 2024 (i.e. within the noise)</p>
1.3	Review undergraduate assessment	<p>Currently UG assessment is via coursework and highly time-constrained final exams which may be contributing to the gender attainment gap.</p> <p>The Part 1 review will examine methods of assessment. The gender attainment gap will be considered as part of this review.</p>	<p>a) Assessment review and recommendations reported to Teaching Committee</p> <p>b) Recommended actions rolled out</p> <p>c) Evaluate efficacy of actions on gender attainment gap</p>	Deputy HoD for Teaching	<p>a) Review of assessment undertaken by 2022</p> <p>b) Changes rolled out in 2023</p> <p>c) Changes evaluated in 2024</p>	<p>Changes in assessment as a result of the review incorporated into the undergraduate degree</p> <p>Reduce gender attainment gap to <5% by 2024 (i.e. within the noise)</p>

¹ Schubert, R., & Marinica, I. (2018). Gender Attainment Gaps.

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
1.4	Increase proportion of lectures given by women in Years 1 and 2	There is evidence that increasing the % of female lecturers reduces the gender attainment gap, both from our own data (figure 4.1H) and in the literature. ² Currently 3% of lectures in Y1 and 8% in Y2 are given by women, compared to 12% women academics in the department	a) Increase % of lectures given by women b) % of lectures included in the yearly briefing sent to teaching groups	Deputy HoD for Teaching Subject Group Chairs	Yearly increases, reaching target in 2021-22	% of lectures given by women to match the % of female academics in the department Reduce gender attainment gap to <5% by 2024 (i.e. within the noise)
1.5	Unconscious bias training required for all supervisors	We need greater awareness of unconscious bias and mechanisms of reducing it and its impact on attainment. We have no current data for uptake from supervisors as training was not tracked.	All new supervisors mandated by Deputy HoD to complete UB training at the beginning of each academic year	Deputy Head of Teaching	By October 2021, and annually	100% of new supervisors have done unconscious bias training Reduce gender attainment gap to <5% by 2024 (i.e. within the noise)
1.6	Highlight role models	Reduce stereotype threat by highlighting women role models ^{3 4}	a) Display Engineering Diversity Posters in new common room	Academic Lead Library Rep	a) Display by August 2020	Posters on display in common room

² Carrell, S. E., Page, M. E., & West, J. E. (2010). Sex and science: How professor gender perpetuates the gender gap. *The Quarterly Journal of Economics*, 125(3), 1101-1144.

³ Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test performance. *Personality and Social Psychology Bulletin*, 28(9), 1183-1193.

⁴ McIntyre, R. B., Paulson, R. M., & Lord, C. G. (2003). Alleviating women's mathematics stereotype threat through salience of group achievements. *Journal of Experimental Social Psychology*, 39(1), 83-90.

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
			b) Evaluate impact of the posters		b) Evaluate by August 2021	Positive feedback from students on the display
1.7	Develop online learning resources for mental rotation and visualisation.	<p>Previous research has suggested that differences in achievement in STEM may be in part due to gendered difference in ability at mental rotation.^{5 6}</p> <p>Interventions elsewhere have indicated that this difference can be reduced or even eliminated by training.^{7 8}</p>	<p>The new training will be taken by students before they arrive in Cambridge, replacing part of the existing pre-course material.</p> <p>Improvements in spatial reasoning will be measured by pre- and post- tests of mental rotation ability, before and after the training module is taken.</p> <p>We also plan to re-test students at the end of their first term, with additional training offered to those who have significantly below average training ability.</p>	<p>Academic Lead</p> <p>Nathan Crilly (Lecturer)</p> <p>Head of Teaching</p>	<p>a) Research and develop module in 2020-21</p> <p>b) Implement module in October 2021</p> <p>c) Evaluate module in August 2022</p>	<p>Improvements in mental rotation test after training.</p> <p>Improvement in mental rotation test results persist to beginning of Lent Term.</p> <p>Reduce gender attainment gap to <5% by 2024 (i.e. within the noise).</p>

⁵ Geiser, C., Lehmann, W., & Eid, M. (2008). A note on sex differences in mental rotation in different age groups. *Intelligence*, 36(6), 556-563.

⁶ Sorby, S. A. (2009). Educational research in developing 3-D spatial skills for engineering students. *International Journal of Science Education*, 31(3), 459-480.

⁷ Sorby, S., Casey, B., Veurink, N., & Dulaney, A. (2013). The role of spatial training in improving spatial and calculus performance in engineering students. *Learning and Individual Differences*, 26, 20-29.

⁸ Uttal, D. H., Miller, D. I., & Newcombe, N. S. (2013). Exploring and enhancing spatial thinking: Links to achievement in science, technology, engineering, and mathematics? *Current Directions in Psychological Science*, 22(5), 367-373.

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
1.8	Examine attainment gap related to ethnicity	Currently we do not have data for Engineering where the results are broken down by ethnicity.	We will put into place mechanisms to gather the necessary data before the next submission	Head of Teaching Academic Lead	Data collected and analysed in July 2021	Actions to reduce any identified attainment gap identified and put into place.
Section 2: Support researchers in the transition to an academic career						
2.1	Increase SRD uptake for researchers	Currently 70% of researchers have had an SRD meeting in the past 2 years. Staff survey data said that around 2/3rds of research staff felt they had sufficient opportunities for regular discussion of development needs and performance. In promoting annual staff review for researchers, female researchers will be encouraged to consider academia and training promoted to all researchers.	a) Pls contacted to arrange SRD meetings for their researchers b) Online training encouraged for appraisers and appraisees c) Evaluate uptake and take action if uptake is not sufficient	Research Office	a&b) Begin in Oct 2020 c) Evaluate in Oct 2022 (given two-year cycle)	Increase completion rates for male and female researchers to 90% by October 2022 Next staff survey shows improvement in quality of SRD experience.
2.2	Increase uptake of unconscious bias training for academics	Unconscious bias training completion rates are low (20%), these will be increased by making training compulsory for staff and asking new academics to complete	a) Send communication to all academic staff mandating UB training b) Ensure all new academics' induction involves emphasis on	HoD, HR Office, DivChs	Training required from March 2020 Push to complete training repeated annually	Unconscious bias training rates at 100% for academics

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
		training on their first day.	UB training c) DivChs to chase up staff members individually d) Recruitment training promoted to academics hiring researchers		Evaluated in October 2022	
2.3	Increase proportion of postdocs, particularly women, who use the Careers Service	<p>We have limited data that suggests that the proportion of women researchers who go into academia is lower than for male researchers.</p> <p>Currently only 10% of postdocs (of which 35%F) interact with the Careers Service.</p> <p>The Careers Service can advise postdocs on career paths, potentially encouraging female postdocs to consider academia.</p>	<p>Promote Careers Service (CS):</p> <p>a) Promote CS on EDPC website</p> <p>b) Postdoc reps to encourage new starters to interact with CS</p> <p>c) Arrange site visits from careers advisors for one-to-one meetings</p> <p>d) Promote CS via mentoring scheme</p>	Research Office, PIs, EDPC	Achieve target by October 2022	Increase proportion of postdocs who interact with the Careers Service from 10% to 30%
2.4	Increase uptake of peer-to-peer mentoring scheme for researchers	Mentoring is important for career development. It has been identified as a key area by focus groups.	<p>Promote and grow peer-to-peer mentoring scheme by:</p> <p>a) Postdoc reps promote scheme in each division,</p>	Research Office, EDPC	Push to promote scheme in November 2020, repeated annually	30% of postdocs have a peer mentor, or 100% of postdocs who requested a mentor

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
			b) Scheme promoted to PIs, who can pass on the information their postdocs c) Divisional reps promote scheme in their division	Div Reps		
2.5	Roll out postdoc award scheme across the department	There are few opportunities for recognition for postdocs, an award will recognise their valuable contribution. This action builds on the pilot launched in October 2019. The pilot had 28 nominations and 6 winners (4 women & 2 men)	a) Run and publicise postdoc award scheme across the department, encouraging inclusivity of nominations b) Evaluate scheme using feedback from postdocs, both through a questionnaire sent to nominees and through the staff survey	Research Office, Academic Lead, DivReps	Beginning in October 2020 Scheme run annually, feedback collected on each round.	Annual Postdoc Awards, positive feedback Good gender balance in nominations
2.6	Twice-termly Women in Engineering Coffee Mornings	Coffee mornings for PhD students, researchers, and academics allow the informal mentoring/networking and are an important ongoing source of information about the experience of women in the department. This action builds on a pilot scheme of termly coffee	Women in Engineering Coffee Mornings run twice a term	Academic Lead, EPDC Chair, DivReps	Twice-termly starting in Easter Term 2020	Women in Engineering Coffee Mornings run twice a term Positive feedback from questionnaire

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
		mornings run in 2019. Feedback was generally positive, with requests for these to be made twice-termly.				
2.7	Identify whether and why female researchers from the department are less likely to go into academia	We need more information to confirm whether female researchers are less likely to go into academia (current data is sparse). We will obtain this data in three ways:	Increase uptake of researcher leavers questionnaire (currently 16%F, 12%M) by promotion by EDPG and an opt-in termly raffle.	EDPG, Research Office	Leavers questionnaire uptake increased by October 2021,	Responses to leavers questionnaire correspond to more than 50% of leavers, up from 16%F, 12%M leavers.
		a) Increase the uptake of the leavers questionnaire.	Focus group to identify thoughts on academic career.	Academic Lead, EDPG	Run focus groups between July-October 2020	Focus groups run and any actions identified.
		b) Run further focus groups. c) Run exit interviews for all researcher leavers.	Exit interviews for all researchers. Information collated and sent to SAT.	Research Office	Evaluate exit interview uptake in October 2021	Uptake of exit interviews at 80%, all those who did not do an interview have filled out questionnaire
Section 3: Support academic staff in induction and promotion						
3.1	Develop induction programme and pack	Feedback on induction is poor (45% felt their induction was well managed), therefore we will put together a new induction pack, informed by feedback from recent starters.	Induction pack complete and sent to all new academics. Feedback collected by adding questionnaire to probation forms.	HR Office	Initial roll-out October 2020, review with feedback in October 2021	Good feedback on new induction scheme through questionnaires In next staff survey, satisfaction with induction at 80% (up from 45%)

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
3.2	Increase uptake of SRD for academics	<p>Completion rates in 2020 are 32% (29% F, 32%M). The staff survey results suggests that female academics find staff review helpful (86%F, 63%M)</p> <p>This is a slight improvement from 2016, where uptake was 28% overall.</p>	<p>Launch new SRD push with senior academic staff leading by example, use opportunity to promote training opportunities</p> <p>Improve internal data collection, ask staff to do SRD if they have not in the previous year</p>	HR Office, HoD	<p>Launch in October 2020</p> <p>Completion rate improved by October 2022</p> <p>Improved satisfaction in 2022 staff survey</p>	<p>Increase completion rates of staff review to >80%, measured by record keeping</p> <p>Maintain staff satisfaction with SRD meeting at >80%</p>
3.3	Raise awareness of SAP amongst female academic staff	<p>Awareness of SAP is low for female academic staff (awareness: 69%F, 90%M).</p> <p>We need to keep our staff informed of significant upcoming changes to SAP, which will be replaced by ACP.</p>	<p>Increase awareness of SAP (and the new ACP):</p> <p>Include information on SAP/ACP in probation forms.</p> <p>Include information on ACP in SRD forms.</p>	HR Office	<p>Launched in October 2021, to match launch of ACP</p> <p>Evaluated in 2022 staff survey</p>	Awareness of SAP among female staff matches male staff (90%) in the 2022 staff survey
3.4	Increase uptake of SAP CV scheme by academic staff	<p>Awareness of and trust in SAP is low for female academic staff (awareness: 69%F, 90%M; sufficiency: 38%F 55%M).</p> <p>The SAP CV scheme will help academic staff to better understand how SAP works.</p>	<p>Increase uptake of SAP CV scheme by asking Heads of Divisions to suggest members of their division. Advertise that using SAP SV scheme at least 2 years before applying for promotion will improve usability of feedback.</p>	HR Office, Heads of Division, HoD	<p>Launch in January 2021</p> <p>Evaluate in January 2022</p>	Increase uptake of SAP CV scheme to 20% of those eligible for promotion, up from 0% currently

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
3.5	Establish teaching workload across year	<p>Focus groups identify that there are particular times of year where workload is very high.</p> <p>To improve work-life balance for academics we will aim to reduce and redistribute teaching workload.</p>	<p>a) Establish teaching timetable, with estimated task length to evenly distribute teaching.</p> <p>b) Report sent to teaching committee and faculty board annually (before the annual teaching allocation).</p> <p>c) Evaluate impact in next staff survey.</p>	Teaching Office	November 2020, repeated annually	<p>Teaching deadlines adjusted where necessary.</p> <p><30% of academics find it difficult to have a work-life balance in 2022 staff survey, reduced from 54%F, 41%M.</p>
3.6	Increase uptake of the University's returning carers scheme	<p>There were 9 applications (all F) between 2013-2016, increased to 12 applications (10F, 2M) between 2016 and 2019.</p> <p>We do not have exact numbers of people eligible for this scheme, we estimate these to be at least ~14F, ~20M, making uptake approximately 70%F and 10%M.</p>	<p>a) Promote using directed emails,</p> <p>b) Encouragement from SAT and the Departmental Administrators,</p> <p>c) Publishing case studies on departmental intranet.</p>	HR Office, Research Office, EDPC	<p>Begin promotion of scheme in June 2021</p> <p>Evaluate success of promotion in October 2022</p>	<p>Increased uptake of Returning Carers Scheme to >80%F</p> <p>Awareness of scheme in 2022 staff survey is >80%</p>

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
3.7	All academic leavers complete an exit interview	To improve the experience of staff in the department we need information on why people leave. No academic leavers completed exit interviews between 2016 and 2019.	HR has restarted exit interviews for all academic and PSS staff. Exit interview data will collated and sent to HoD and the SAT	HR Office, HoD	Launched in February 2020 Termly reports to HoD on whether interviews have occurred for first year, then revisit	Exit interview recorded for 100% of academic leavers
3.8	Focus groups to identify training and communication gaps	Between 2016 and 2019, 67% of female academics and 36% of male academics took part in PPD training	a) Run focus groups on training b) Feedback from focus groups incorporated into practice; c) Encourage uptake of training at SRD (3.3)	HR Office, Academic Lead	Focus groups run in July 2020 Changes to training in October 2020 Evaluate in February 2022	Increased satisfaction in the availability of leadership training Introduce question in next staff survey: "My training needs are being met", with >80% positive responses.
Section 4: Increase support for staff and student wellbeing, including managing stress and reducing workload						
4.1	Increase uptake of staff review for PSS	Increase uptake of staff review for PSS. Use opportunity to identify training gaps. Uptake of staff review have improved from 46%F and 37%M in 2015-2016 to 64%F and 69%M in 2018-2019.	Advertise SRD to PSS Staff asked to complete staff review if they did not complete staff review in the previous year. Spread best practice (e.g. IT department).	HR Office	Evaluate in January 2022	>90% of PSS staff completed their staff review in the last two years

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
4.2	Increase uptake of staff review training for managers of PSS	76% academic-related and 63% assistant staff found their last SRD useful. To improve satisfaction rates we will train more managers in SRD.	Run further SRD training session for PSS managers Target advertising for SRD training at managers, make use of online SRD training.	HR Office	Evaluate training uptake in October 2021 Evaluate impact in 2022 staff survey	50% of PSS staff have staff review training, up from 20% In next staff survey, >80% found their last SRD useful
4.3	Improve availability and uptake of mental health related training	In the staff survey, only 23% of academic women were satisfied with the support given to manage stress. More mental health related training will improve support for managing stress.	Additional mental health related training rolled out across department.	HR Office	Training rolled out in June 2020 Uptake evaluated in September 2020 Impact measured in February 2022	Improved satisfaction levels with support for managing stress in next staff survey (>60%, up from 23%)
4.4	Focus groups to get PSS views on induction	We have limited information on the experience of PSS for induction. 70% of female assistant staff responded positively about their induction, we do not have data for academic-related staff.	Run focus groups for PSS. Separate focus groups for technicians, assistant staff, librarians, course directors, etc. Increase uptake of induction events, by understanding why induction is low	SAT PSS members, Academic Lead	Focus groups in November 2020-February 2021 Uptake of induction evaluated in July 2021 Impact measured in next staff survey	Uptake of induction events >70% (up from 50%), uptake of online induction >60% (up from 30%). Improved satisfaction with induction in next staff survey (>80%, up from 70% for assistant staff, unknown for academic-related) for both assistant and academic-related staff.

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
4.5	HR updates to Heads of Division	Regular updates from HR to Heads of Division are need to continue the high levels of uptake of E&D training, improve unconscious bias training rates, and improve uptake of staff review	Reintroduce HR updates to Heads of Division on completion rates of E&D training, uptake of UB training and rates of SRD. Head of Division reports on these rates annually to relevant teaching groups.	HR Office, Heads of Divisions	HR updates start in September 2020 (just before Michaelmas term), repeat termly. Report to teaching groups in March 2021, repeat annually.	All academics complete E&D training 100% of academics completed unconscious bias training >80% of academics complete SRD in the last two years
4.6	Support teaching-only staff and improve career progression	Teaching-only staff are generally on FTC, therefore have fewer opportunities for career progression. There is currently a university-wide review into masters courses (who employ all teaching-only staff). The results have yet to be announced. The new Academic Career Pathway will introduce a teaching-only career structure, the impact of this needs to be evaluated.	a) Run focus groups to identify priorities for teaching only staff, identify actions for priority areas. b) Introduce senior mentors and advocates for teaching-only staff c) Evaluate impact of university review into masters courses and ACP teaching-only pathway.	HR Office, HoD	Run focus group once university review into masters courses is complete. Additional focus group in October 2021 to evaluate impact Impact evaluated in 2022 staff survey	Improved feedback on career progression from subsequent focus groups. Reduced reliance on teaching-only staff (roles reclassified as PSS where appropriate). Improved feedback in staff survey from academic-related staff for career progression >80% (up from 50%).

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
4.7	Publicise and improve confidence in Dignity at Work procedures: reduce incidents of bullying and harassment	<p>Only 41% of female researchers (65%M) and 46% of female academics (60%M) felt confident the University would take appropriate action if they had an issue with being treated fairly in the workplace.</p> <p>In the 2016 staff survey, 17% of women had experienced bullying or harassment in the workplace, in 2019 this has fallen to 11% (8%M).</p>	<p>Establish new mechanisms for responding to complaints about bullying and harassment.</p> <p>Improve trust by informing staff of changes.</p> <p>Promote 'Where do you draw the line?' training.</p>	HoD, HR Office	<p>New mechanisms in place by April 2021</p> <p>Run annual WDYDTL training, starting March 2021</p> <p>Evaluate impact in 2022 staff survey</p>	Reduce incidents of bullying, <5% of men and women report incidents of bullying in staff survey (down from 11%F and 8%M)
4.8	Improve facilities for nursing mothers	We wish to support new mothers. A review of provision for nursing mothers identified gaps in provision, particularly the availability of a private room and fridge for expressing milk.	<p>a) A dedicated private space will be set aside for expressing milk, and refrigerators for storage will be purchased for all sites.</p> <p>b) Review provision by sending questionnaire to those who have recently taken maternity leave, take on board new suggestions annually</p>	<p>Building services,</p> <p>HR Office</p>	<p>Launch survey in October 2020</p> <p>Evaluate survey results in May 2021</p>	<p>A private space and dedicated refrigerator in each site for expressing milk by October 2021.</p> <p>100% of new mothers are happy with provisions, as measured by questionnaire sent to new mothers.</p>

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
4.9	Review teaching points for hidden labour	54%F and 41%M academics find it difficult to have a work-life balance. Focus groups identify that there are particular jobs that have hidden teaching points, e.g. when points are assigned retrospectively.	Teaching points will be reviewed, with report sent to teaching committee and faculty board. If there are significant areas for concern, teaching point assignments will be adjusted as necessary.	Teaching Office	Teaching points evaluated in December 2020, Adjustments made by March 2021	Teaching point allocation adjusted where necessary <30% of academics find it difficult to have a work-life balance in 2022 staff survey
5. Additional Actions						
5.1	Support trans staff and students	Support trans staff and students by running annual trans awareness training and including gender-neutral bathrooms in all buildings	a) Run annual trans-awareness sessions b) Ensure gender-neutral bathrooms are in all buildings	Academic Lead, HR Office, Building Services	Online trans-awareness session run in summer 2020 Evaluate progress in October 2021	Annual trans-awareness sessions run, starting in summer 2020 Gender-neutral bathrooms in all buildings by October 2021
5.2	Increase awareness and provision of information around PSS recognition and career development schemes	Perceptions of the sufficiency of opportunities for career progression are low for PSS (50%F, 19%M academic-related, 56%F, 39%M assistant).	Promote: a) professional registration for technicians, b) membership of professional bodies, c) contribution increment scheme, d) PPD secondment programme. e) scope out PSS recognition scheme,	HR Office, Div Champions	Promote a-e in August 2020, then annually. Evaluate impact in the 2022 staff survey.	Establish baseline for uptake of a, b, and d. Increased uptake for each of a-d. Improved feedback (>70%) from PSS staff on career advancement in staff survey

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
5.3	Run a staff survey to evaluate success of action plan	<p>A staff survey was run in January 2019, with a response rate of 48%.</p> <p>We will need a new staff survey in 2022 to examine progress and success of our action plan.</p>	<p>Run departmental survey in February 2022.</p> <p>Increase response rate using Div Champions, as was done for the 2016 survey, which had a response rate of 92%.</p> <p>Analyse results and report results and actions to divisional teaching groups</p>	<p>HoD, Academic Lead</p> <p>Div Champions</p>	<p>Run staff survey in February 2022</p> <p>Report results and identified actions to teaching groups in May 2021</p>	Run departmental survey in February 2022 with a response rate >90%
5.4	Enhance recruitment practices to encourage more women applicants	<p>We need to continue working on increasing the proportion of women applicants for lectureships.</p> <p>Applications for lectureships were 11%F in 2014-2016, increasing to 17% for 2017-2019.</p>	<p>Use the University's new recruitment guidelines.</p> <p>Run all adverts through 'Gender Decoder' (http://gender-decoder.katmatfield.com/) to check for gendered language.</p>	HR Office	<p>Changes to recruitment launched in October 2020</p> <p>Monitor changes in October 2021</p> <p>Success evaluated in 2022</p>	Increase proportion of women applicants from 17% to 20%
5.5	Promote the University's provision for all kinds of parental leave with the view to increase uptake and provision	<p>Paternity leave as determined by the university is low. Many do not take advantage of SPL.</p> <p>Uptake of parental leave appears low, however this is difficult to estimate as we do not have numbers of those eligible.</p>	<p>Campaign in university to increase provision for paternity leave.</p> <p>Promote shared parental leave in the department.</p>	HR Office, HoD, Academic Lead	October 2021	<p>Increased uptake of SPL (increase numbers from current baseline, assume that eligible is the same over a 3-year average)</p> <p>Increased provision for paternity leave.</p>

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
5.6	Promote Athena SWAN and Action Plan	We need to communicate actions and reasons for them to the department.	<p>a) The Engineering Diversity web page with an updated Silver Award action plan will feature more prominently on the departmental website</p> <p>b) Promote Engineering Diversity through regular events and workshops</p> <p>c) Send a representative to welcome event for new staff</p> <p>d) Display posters around the department with data and actions</p>	SAT Secretary	Within 2 months of results announced	Focus groups show good awareness of Athena SWAN actions (currently no baseline)
5.7	Increase application rates by women to PGR degrees	The % of women on PGR courses is lower than the HESA average	Spread good practice from the TurboCDT to other CDTs, PGR and PhD courses to increase application rates from women.	Head of Graduate Studies, SAT Masters Courses Rep	<p>Promote good practise from September 2020</p> <p>Evaluate impact in October 2021</p>	% of women on PGR courses higher than HESA average (>25%)
5.8	Run survey and focus groups to identify effects of the coronavirus	There is evidence that the coronavirus pandemic could affect male and female members of staff differently. ⁹	Run a survey in early 2021 (the timing will depend on the developing situation).	Academic Lead, HR Office	Survey in early 2021 (date tbd due to developing situation)	Survey and focus groups completed, results summarised and reported to SAT and faculty board.

⁹ <https://voxeu.org/article/who-doing-new-research-time-covid-19-not-female-economists>

Ref	Planned action	Rationale	How will action be achieved?	Person responsible	Timeframe	Success criteria
	pandemic	There are expected to be significant impacts on members of staff with children.	Follow up survey with focus groups on highlighted areas. Identify actions to mitigate negative effects on those with caring responsibilities and any gender disparities.		Focus groups within 2 months of survey Actions identified and enacted by June 2021	Actions identified and put into place.
5.9	Increase proportion of female seminar speakers.	To improve visibility of female role models it is important to have a diverse mix of seminar speakers. We now have a baseline for the proportion of female seminar speakers for each division.	Circulate data on % of female seminar series to subject groups. Seminar series organisers will be encouraged to consider diversity of speakers when compiling invitations to speakers.	Div Champions	Data circulated in July 2020 and before each term Evaluate impact in July 2021, then annually	Increased % of female seminar speakers for each division's seminar series.