



## Department Application Bronze and Silver Award

### ATHENA SWAN BRONZE DEPARTMENT AWARDS

Recognise that in addition to institution-wide policies, the department is working to promote gender equality and to identify and address challenges particular to the department and discipline.

### ATHENA SWAN SILVER DEPARTMENT AWARDS

In addition to the future planning required for Bronze department recognition, Silver department awards recognise that the department has taken action in response to previously identified challenges and can demonstrate the impact of the actions implemented.

Note: Not all institutions use the term 'department'. There are many equivalent academic groupings with different names, sizes and compositions. The definition of a 'department' can be found in the Athena SWAN awards handbook.

### COMPLETING THE FORM

**DO NOT ATTEMPT TO COMPLETE THIS APPLICATION FORM WITHOUT READING THE ATHENA SWAN AWARDS HANDBOOK.**

This form should be used for applications for Bronze and Silver department awards.

You should complete each section of the application applicable to the award level you are applying for.

Additional areas for Silver applications are highlighted throughout the form: 5.2, 5.4, 5.5(iv)

If you need to insert a landscape page in your application, please copy and paste the template page at the end of the document, as per the instructions on that page. Please do not insert any section breaks as to do so will disrupt the page numbers.



## WORD COUNT

The overall word limit for applications are shown in the following table.

There are no specific word limits for the individual sections and you may distribute words over each of the sections as appropriate. At the end of every section, please state how many words you have used in that section.

We have provided the following recommendations as a guide.

Department application	Bronze	Silver
<b>Word limit</b>	<b>10,500</b>	<b>12,000</b>
<i>Recommended word count</i>		
1. Letter of endorsement	500	500
2. Description of the department	500	500
3. Self-assessment process	1,000	1,000
4. Picture of the department	2,000	2,000
5. Supporting and advancing women's careers	6,000	6,500
6. Case studies	n/a	1,000
7. Further information	500	500

List of Abbreviations / Acronyms	
AESSEAL	Local industry 'women in STEM' grant funder
AIAA	American Institute of Aeronautics & Astronautics
AP	Action Plan
BMC	Belfast Metropolitan College
DE	Director of Education
DR	Director of Research
DTC	Doctoral Training Centre
EOU	Equal Opportunities Office
FE	Further Education
FTE	Full Time Equivalent
GCSE	General Certificate in Secondary Education
HE	Higher Education
HESA JACS	Higher Education Statistics Agency Joint Academic Coding Systems
HoS	Head of School
HR	Human Resources
HRD	Human Resources Directorate
ILM	Institute of Leadership & Management
IMechE	Institution of Mechanical Engineers
IrFUW	The Irish Federation of University Women
L	Lecturer
NASA	National Aeronautics & Space Administration
NSS	National Student Survey
PDRA	Postdoctoral Research Assistant
PGR	Postgraduate Research
PGRA	Postgraduate Research Assistant
PGT	Postgraduate Taught
PGCHET	Postgraduate Certificate in Higher Education Teaching
PhD	Doctor of Philosophy
PPRC	Polymer Processing Research Centre
Prof	Professor
P&S	Professional and Support Staff
QGI	Queen's Gender Initiative
QUB	Queen's University Belfast
RAeS	Royal Aeronautical Society
RCC	Research Culture Committee
REF	Research Excellence Framework
RTE	Irish National Television Broadcaster
SMAE	School of Mechanical & Aerospace Engineering
SAT	Self-Assessment Team
SB	School Board
SENTINUS	Association for promotion of STEM to schools
SENSE	Support for Equality Network in Science and Engineering
SL	Senior Lecturer
SMAE	School of Mechanical & Aerospace Engineering
SMB	School Management Board
SME	Small Medium Enterprise
SSG	SWAN Steering Group
STDU	Staff Training & Development Unit

STEM	Science Technology Engineering & Mathematics
TF	Teaching Fellow
THES	Times Higher Education Supplement
UCAS	University Central Admissions System
UG	Undergraduate
WAM	Workload Allocation Model
W5	W5 “whowhatwherewhenwhy” Northern Ireland’s science and discovery centre

<b>Name of institution</b>	Queen's University Belfast	
<b>Department</b>	School of Mechanical & Aerospace Engineering	
<b>Focus of department</b>	<b>STEMM</b>	
<b>Date of application</b>	11 December 2019 (resubmittal under 'pre-May 2015 to post-May 2015')	
<b>Award Level</b>	<b>Year's grace for Silver</b>	
<b>Institution Athena SWAN award</b>	<b>Date:</b> <b>Sept 2019</b>	<b>Level:</b> <b>Silver</b>
<b>Contact for application</b> <small>Must be based in the department</small>	Danielle Soban/Joe Butterfield	
<b>Email</b>	d.soban@qub.ac.uk or j.butterfield@qub.ac.uk	
<b>Telephone</b>	+44 2890 9097 4181	
<b>Departmental website</b>	<a href="https://www.qub.ac.uk/schools/SchoolofMechanicalandAerospaceEngineering/">https://www.qub.ac.uk/schools/SchoolofMechanicalandAerospaceEngineering/</a>	

## 1. LETTER OF ENDORSEMENT FROM THE HEAD OF DEPARTMENT

Recommended word count: Bronze: 500 words | Silver: 500 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.

Note: Please insert the endorsement letter **immediately after** this cover page.



School of Mechanical and Aerospace Engineering  
Queen's University Belfast  
Ashby Building, Stranmillis Road  
Belfast, BT9 5AH  
Tel: +44 (0) 28 9097 5640  
Email: [b.falzon@qub.ac.uk](mailto:b.falzon@qub.ac.uk) / [www.qub.ac.uk](http://www.qub.ac.uk)

Ruth Gilligan  
Athena SWAN Manager  
First Floor, Westminster Tower  
3 Albert Embankment  
London  
SE1 7SP

Dear Ruth,

I am grateful that the School has been given the opportunity to further articulate the progress we have made in our pursuit of addressing issues raised in our previous submission. I trust that this substantially modified document provides the necessary evidence of the impact of our actions and demonstrates our commitment to continue improving our processes and culture to ensure and promote gender equality.

As Head of School, I have made it a personal mission to ensure that I do my utmost to lead by example in creating and living the values of the Athena SWAN charter. Attracting more female staff and students, to this exciting profession, is absolutely essential if we are to ensure that we have the best and brightest people working on some of the most pressing technological challenges facing society today.

Our female undergraduate numbers now sit above the national average and we have near parity within one of our degree programmes (Product Design Engineering). While this cohort is smaller than the other two (Mechanical and Aerospace Engineering), it shares a high level of commonality with the Mechanical Engineering programme and is informing our strategy in promoting engineering to potential female students.

Earlier this year we appointed two female staff members, Dr Oana Istrate and Dr Louise Pick and this has brought our academic female staff ratio to 20%. I have also personally guided and encouraged another female staff member, Dr Aoife Foley, who had been at Lecturer grade, to apply for promotion. Moreover, I encouraged her to apply for a Readership, skipping the Senior Lecturer Grade, in recognition of her achievements. I am pleased to report that Dr Foley was successful.

In April 2017, the Vice-Chancellor appointed me as Chair of the Staff Survey Academic Standards and Career Progression Sub-Group, as he was aware of my genuine interest in these issues. I assembled a gender and seniority balanced Group which over the following months conducted extensive discussions with individuals and focus groups, with a set of recommendations subsequently presented to the University Executive Board. This work underpinned the sweeping changes that have recently been brought in, concerning the replacement of the appraisal process with a streamlined Personal Development Review, a fairer and more holistic approach to progression and the removal of academic standards. These changes have been well received by our staff.



To me, the SWAN submission document is a living document and as an active member of the Athena SWAN Leadership team, we continue to pursue our action plan targets and develop creative ideas for embedding the Athena SWAN philosophy in all that we do. I want the School to eventually be deserving of the highest Athena SWAN award and will endeavour to ensure that we continue on this journey.

Over the next cycle, I will work with the SWAN team, whom until now have taken ownership and leadership of all SWAN-centred activities and initiatives, to promote shared ownership by all within the School. We see this as central to our strategy of embedding SWAN principles in our culture and actions.

The information presented in this application is an honest, accurate and true representation of the School's commitment and implementation of the Athena Swan charter.

Sincerely,

A handwritten signature in black ink, appearing to read 'B. Falzon', is written over a faint, light blue circular stamp. The stamp contains some illegible text, possibly a school or institutional seal.

Prof Brian G. Falzon FRAeS

Head of School

Mechanical and Aerospace Engineering

(531 words, limit 500)

## 2. DESCRIPTION OF THE DEPARTMENT

Recommended word count: Bronze: 500 words | Silver: 500 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.



**Fig. 1** Mechanical Engineering Graduation circa mid-1970's (11 staff & 24 students, all male)

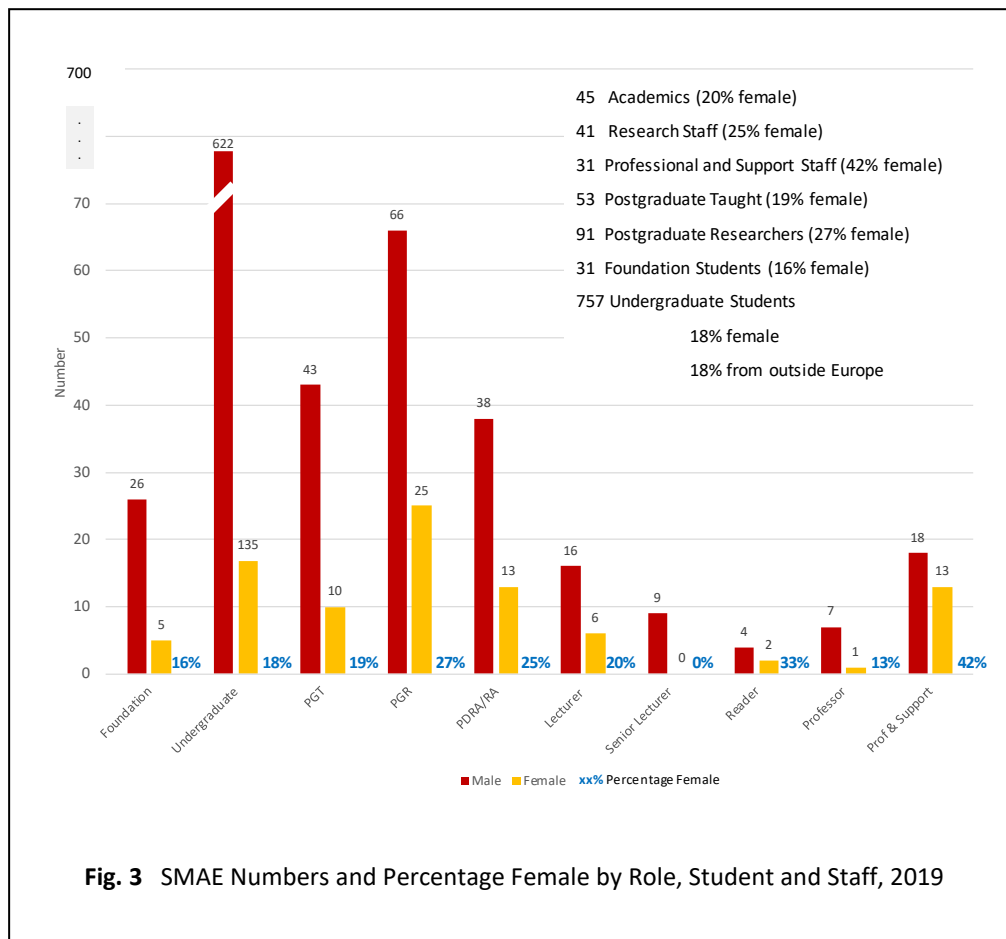


**Fig. 2** School of Mechanical & Aerospace Engineering Summer Graduation 2019, showing increased diversity, particularly by gender

The School of Mechanical and Aerospace Engineering (SMAE) is part of Queen's University Belfast. Founded in 1912, our School has undergone dramatic transformations (**Fig. 1** and **2**). Until the appointment of our first female academic in 1993, our faculty was 100% male, with our first female graduate in 1973. Today we continue to progress our three primary challenges:

- Increase female representation in both our students and our academic/research staff
- Enable women to excel in their career progression, particularly addressing our low number of women at senior levels
- Create a diverse, welcoming, fair, and inclusive School culture in what has been a traditionally male environment

In 2019 we are proud that our female staff ratio is now 20%, on parity with the national average in engineering. Our undergraduate female population has grown from 14% in 2014/15 to 18% in 2019 (4% above the national average for mechanical/aerospace engineering) and our overall student population is 20% female. Our undergraduate intake for 2019/20 is 24% female, and in 2019/20 we neared gender parity for one of our three engineering pathways, Product Design Engineering (45% female/ 55% male).



Key SMAE features:

### Teaching

- New emphasis on Teaching pathway positions, separate but equivalent to the Academic roles. **Impact:** allowed recent hire of two female Lecturers of Education.

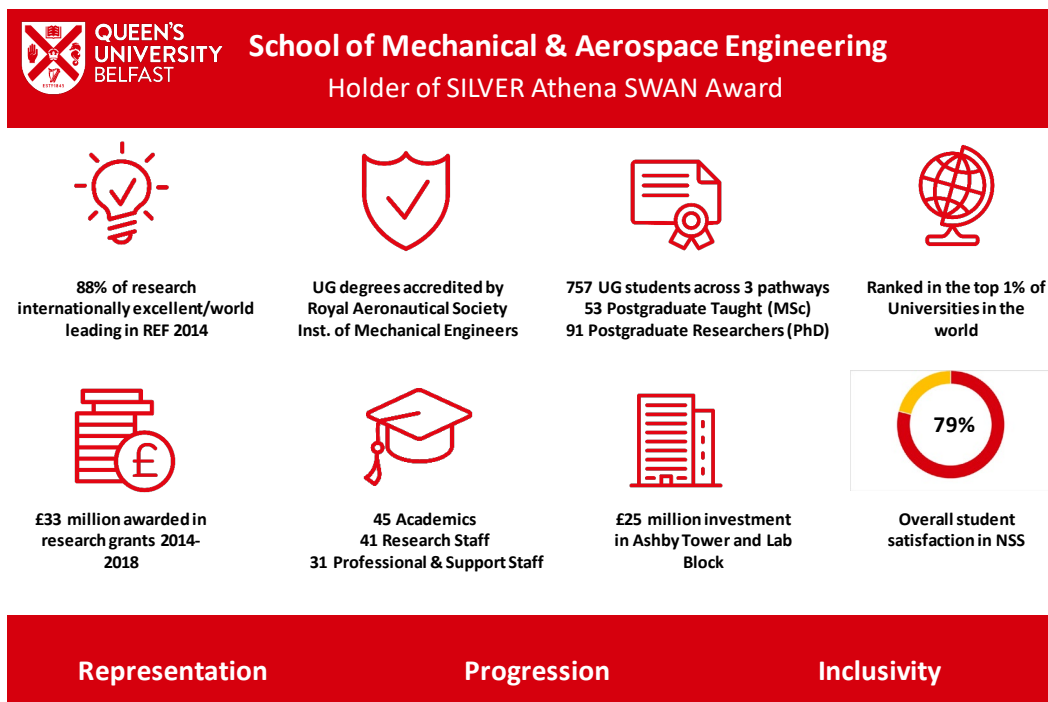
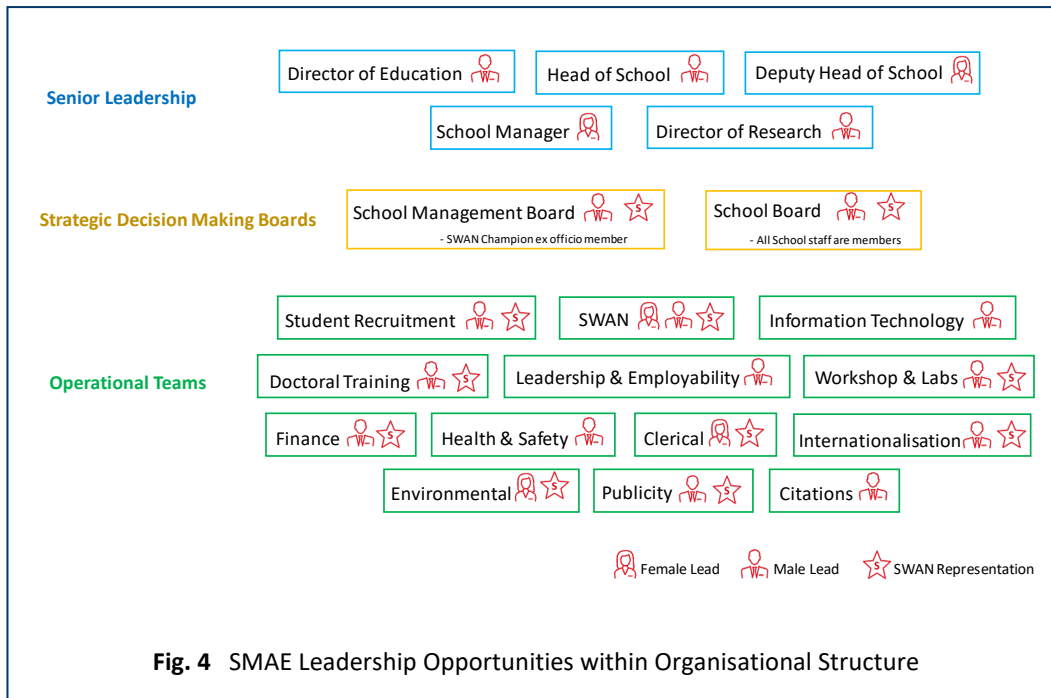
- Three accredited degree programmes offered in Mechanical, Aerospace, and Product Design Engineering for both BEng (three-year programme) and MEng (four-year programme), with an optional Placement year in both.
- Launch in 2017 of a new MSc programme, Mechanical Engineering with Management, with 29% female enrolment in its first year.
- Recognising the need for different entry pathways, we provide a Foundation Degree in Mechanical Engineering in collaboration with a local Further Education College.
- Improving student employability:
  - Introduction in 2012 of highly successful, female-led Leadership, Employability and Placements Programme. **Impact:** 45% female participants.
  - Creation of bespoke Placement Officer (PO) position. Currently 18% of our Stage 2/3 cohort is on placement, 17% female. **Impact:** consistently higher uptake of female students undertaking placement than male. Our PO, a working mother, benefits from generous workplace flexibility in order to balance her significant travel obligations with her home life.

### Organisational Structure

- Creation of School Operational Teams (**Fig. 4**) in 2014 allowed additional leadership opportunities, especially for women. **Impact:** 21% of the Teams have female leadership. Ten of the 14 have SWAN representation.
- On our primary strategic and governing team, the School Management Board, four of the nine members are female and both SWAN co-Champions, one male and one female, sit on the Board (one ex officio, one elected).

### Infrastructure

- Staff and students are colocated in a single building with attached lab and classroom facilities. We commit to our staff having individual offices.
- We have invested over £25m in our offices, laboratories and classrooms, creating a modern working and learning environment. Gender neutral toilets were added on every floor, and a dedicated social space for our graduate students was created.



(Word count 485, limit 500)



### 3. THE SELF-ASSESSMENT PROCESS

Recommended word count: Bronze: 1000 words | Silver: 1000 words

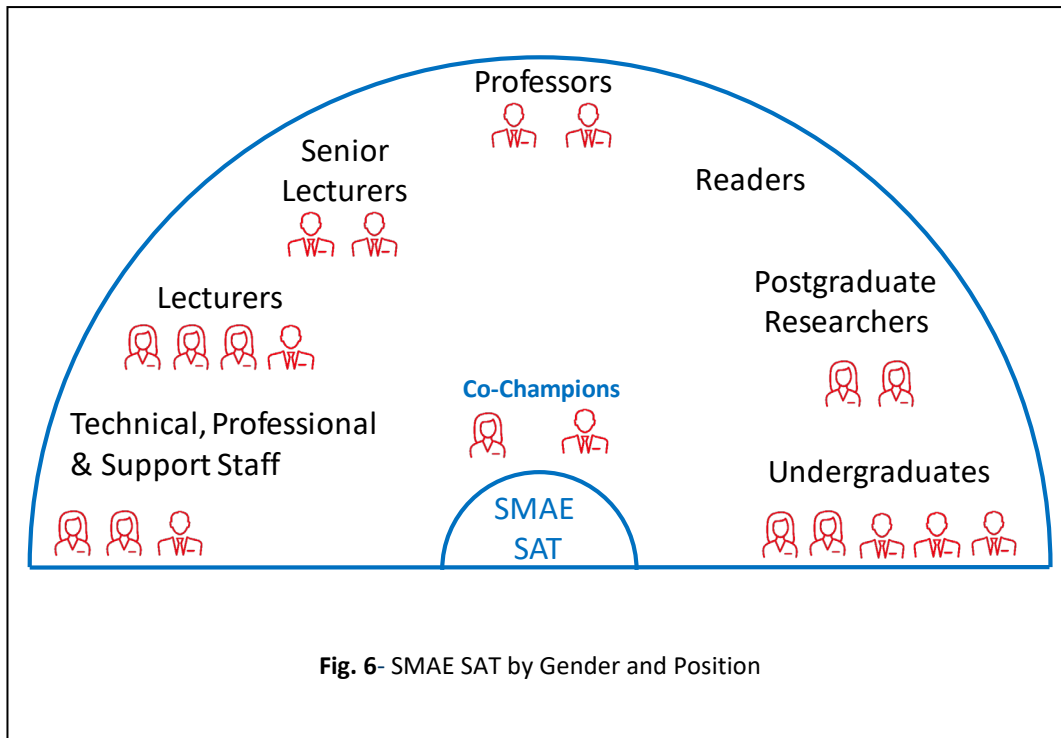
Describe the self-assessment process. This should include:

- (i) a description of the self-assessment team



Our SWAN Team represents a balance of gender, experience, and grade (**Fig. 5, Fig. 6, Table 1**). Comprised of 7 women and 6 men, the SWAN Team draws upon personal experiences across a spectrum of School members and roles. The inclusion of a support staff member (Melanie) in a non-clerical role was the direct result of a previous Action. Membership in the team is accounted for in our Work Allocation Model, 250 hours for Champions in an application year (equivalent to a major leadership role), 150 hours in a non-application year, with team members equivalent to other members of an Operational Team. The **impact** of a previous Action to more fully involve our undergraduate community has resulted in the creation this year of a new undergraduate SWAN team (two women, three men). Under the guidance of one of our SAT members (Katie), the UG Team will operate both independently and in conjunction with our SAT to identify and address gender and diversity issues relevant to our student community.



**Fig. 5** SMAE SWAN Team Members 2019

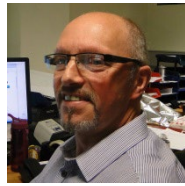
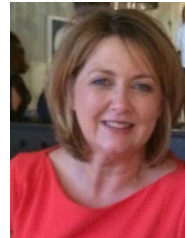


**Table 1:** School of Mechanical & Aerospace Engineering SWAN Team

Member of staff	Role(s) in the School	Position	Experience of Work/Life Balance	Image
Dr Dani Soban	<ul style="list-style-type: none"> <li>- SMAE SWAN Champion</li> <li>- Chair of SWAN Team</li> <li>- School Management Board</li> <li>- Internationalisation Team</li> <li>- STEM Ambassador</li> </ul>	Lecturer	<p>Married to a practicing engineer</p> <p>Mother to two school aged children</p>	
Dr Joe Butterfield	<ul style="list-style-type: none"> <li>- SMAE SWAN Co-Champion</li> <li>- Chair of Publicity Team</li> <li>- School Management Board</li> </ul>	Senior Lecturer	<p>Married to a practicing engineer</p> <p>Father to three school aged children</p>	

Prof Brian Falzon	-Head of School	Professor	Partner works full time	
Prof Adrian Murphy	- Doctoral Training Team -School Management Board	Professor	Partner works full time  Father to two school aged children	
Ms Lauren McGarry	- PhD Student	Researcher	Student living at home with other external volunteering commitments	
Dr Charles McCartan	- Programme Director Product Design Engineering  - Leadership, Employability & Placement Team	Senior Lecturer - Education	Married with two teenage children	

**Table 1:** (Ctd.) School of Mechanical & Aerospace Engineering SWAN Team

Mr Wesley McKeown	-CNC Engineering Workshop  - Provides support for SMAE Undergrad, PHD & Research engineering related projects	Workshop Manager	Married to a Hospice Community Nurse  Father to children, all over 17 years old	
Ms Denise Price	- QGI Executive Committee  - Former School SWAN Champion  - Former Institutional SWAN Project Manager	PPRC Business Manager	Married to a senior academic  Mother to one daughter at University  Works flexibly to provide support to her father	



Dr Beatrice Smyth	<ul style="list-style-type: none"> <li>- STEM Ambassador</li> <li>- Queen's Gender Initiative (QGI) Mentor</li> <li>- Former School SWAN Champion</li> </ul>	Lecturer	Partnered  Has worked flexibility to cover caring responsibilities, bereavement, and medical issues.	
Dr Dan Sun	<ul style="list-style-type: none"> <li>- Student Recruitment Team</li> </ul>	Lecturer	Married with two young children	
Ms Katie Harte	<ul style="list-style-type: none"> <li>- Research Culture Committee</li> </ul>	PhD Student	Partnered with two young children	
Dr Rob Watson	<ul style="list-style-type: none"> <li>- Student Recruitment</li> </ul>	Lecturer		
Melanie McGann	<ul style="list-style-type: none"> <li>- Clerical Team</li> <li>- Environmental Team</li> <li>- Student Recruitment Team</li> </ul>	Professional Staff		
Osama Jamal Yee Han Lim Niamh Tohill Rebecca Jones Yan Wei Kwek	<ul style="list-style-type: none"> <li>- SWAN Undergraduate Team</li> </ul>	Undergraduate Students		

(Subtotal word count 168)

## (ii) an account of the self-assessment process

The School's SWAN Team has been in operation since 2010, overseeing the successful application for a Bronze Award (2010) and Silver Awards (2011, renewal 2014). The Team meets bi-quarterly to monitor and progress delivery of the Action Plan. Bi-weekly meetings took place between the two Co-Champions and the previous Champion as we approached the renewal date. All meetings are recorded and outcomes are distributed electronically. Our Action Plan, as well as details of

any supporting activities, are dynamically updated via our dedicated SWAN Sharepoint site, to which all staff have access.

Our SWAN team is very pro-active about the effective communication of SWAN ideals, information, and activities both to and from the School and the University. Within the School, high awareness is achieved by having SWAN as a standing item at the all staff School Board meetings as well as via updates in our School's electronic Team Brief, and activity-specific emails to academic staff, researchers, postgrads, and support staff. **Impact:** increased awareness has resulted in SWAN becoming a standing agenda item at our Educational, Academic, and Research Away Days, and SWAN information is now included at our student orientation and our Open Days information events. With both of our Champions sitting on our School Management Board, SWAN considerations and actions are mobilised in all strategic decision-making. At the Faculty level, one member of our team serves on the SENSE network (Support for Equality Network in Science and Engineering), which meets two or three times per year, and provides an opportunity to share effective approaches in a STEMM related context. At the University level, our two co-Champions attend the University's SWAN Champions Group, which meets every six weeks, in order to share best practices and raise issues which can then be brought to the Institutional SAT, which informs University policy and procedures.

The SAT conducts periodic reviews and focus groups to evaluate and quantify progress of the School's SWAN initiatives and Actions (**Table 2**). Results from these exercises are analysed by our Data Analysis Team (3 SAT members) and are used to identify critical issues and inform the Action Plan, as well as to develop guiding initiatives. These methods allowed us to identify and highlight issues with our data capturing and archiving methods. Historically, survey results had been stored and were accessible, but in non-editable formats. Raw data had been discarded. This led to the loss of survey response rate and demographic data from 2015-16 and the opportunity for re-analysis of previous data. For more recent surveys, response rates were markedly low, and in our 2019 Culture Survey, nine of the 57 respondents declined to provide gender and other potentially identifying monitoring information. In response to results of our People First survey, we instigated anonymous feedback boxes (**Fig. 7**) to provide additional clarity. The large number of anonymous responses received could indicate a further discomfort with providing potentially identifying information.

**ACTION: 4.1** Develop a long term data capture and storage strategy for SWAN data

**ACTION: 4.3** Determine and address reasons for low survey response rates

**ACTION: 4.2** Develop data gathering strategies that address anonymity issues yet provide relevant demographic data







External outreach included meetings and visits with SWAN representatives from six different universities in the UK and Republic. A summary of consultations is shown in **Table 3**.










A draft of the application was circulated to staff and PhD students prior to submission and their feedback was taken into account. Substantial feedback was also received from both Faculty and the Institutional SAT team. Through the SWAN Champions Group we have been assigned a Critical Friend, who further reviewed and provided feedback on our submission.

**Table 2- SMAE SWAN Data Capture 2015-2019**

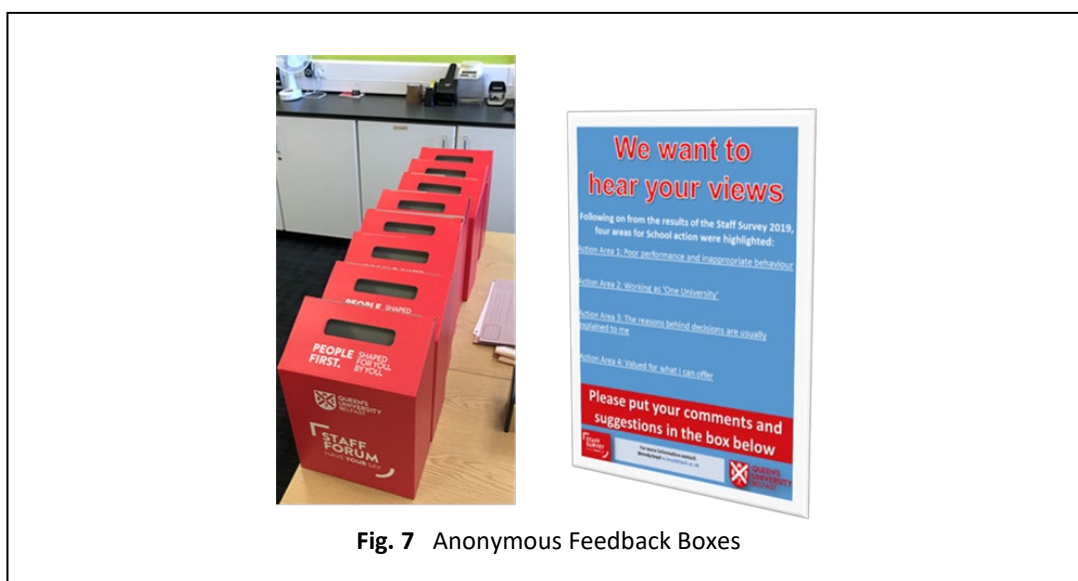
Year	Event	Demographic	Response Rates
2015	<b>Focus Group-</b> Gender Equality and Work/Life Balance	Academic Staff Postgraduate Researcher	Response rate not available
2016	<b>Survey –</b> Gender Equality and Culture	All Staff	Response rate not available
2016	<b>Survey-</b> School Culture and Attitudes towards Engineering	Undergraduate Students	54 respondents Response rate not available
2019	<b>Survey –</b> Gender Equality and Culture	All Staff	57 respondents (27%)
2019	<b>Survey –</b> People First Survey	All University Staff School information parsed and shared with us	64% overall School response rate not provided
2019	<b>Survey –</b> School Culture and Attitudes towards Engineering	Undergraduate Students	80 respondents (13%)

**Table 3: SMAE SWAN Consultation & Outreach**

Outreach External to School	SWAN Representative	Mode
<b>NUI Galway</b> Advice given on their SWAN Bronze strategy and application Critical feedback provided on their application	Beatrice (SAT Member)	
<b>University of Aberdeen</b> Meeting with Head of Engineering to share our good practice regarding SWAN strategies	Brian (Head of School)	
<b>King's College London</b> Discussion of SWAN strategy and good practice	Dani (SWAN Co-Champion)	
<b>University of Limerick</b> Sharing of SWAN good practice Advice on their application strategy	Dani, Joe (SWAN Co-Champions)	
<b>Cranfield University</b> Sharing of SWAN good practice	Joe Butterfield (SWAN Co-Champion)	
<b>All Island Sharing of Good Practice</b> Workshop	Dani (SWAN Co-Champion)	

<b>Trinity College Dublin, University of Dublin</b> Gave invited talk on SWAN and SMAE good practice Met with Head of School to share our good practice	Joe (SWAN Co-Champion)	
<b>Engineering Faculty</b> Feedback on application draft	Dani, Joe (SWAN Co-Champions)	
<b>QUB Institutional SWAN Team (ISAT)</b> Feedback on draft	Dani, Joe (SWAN Co-Champions)	
<b>QUB SWAN Champions Away Day</b> (annually) Sharing of good SWAN practice	Dani (SWAN Co-Champion)	
<b>SMAE Internal Consultation</b>	<b>SWAN Representative</b>	<b>Mode</b>
Staff/ Student Survey	SAT	
Focus Group-postgraduates and academics, 2015	SAT	
Undergraduate Survey (2016, 2019)	UG SAT	
Gender Equality and Culture questionnaire-staff and PhD students (2016, 2019)	SAT	
SMAE Staff Feedback on draft	SAT	

 Feedback |  Meeting |  Survey |  Presentation



**Fig. 7** Anonymous Feedback Boxes

(Subtotal word count 562 )

### (iii) plans for the future of the self-assessment team

Ensuring the continuity and momentum of the SAT, as well as ensuring SAT is culturally embedded, is a priority for the School. The Head of School is a permanent member of the SWAN Team, and the SWAN Champion is a permanent position on the School Management Board. All of our operational teams are refreshed on a two-year cycle, and personal preference is given priority when organising teams, with team makeup also being reviewed annually in conjunction with the School Workload Allocation Model, particularly to ensure a fair workload with respect to gender.

To ensure continuity and minimize loss of experience, 50% of the SWAN team is retained during any given cycle. In addition, one SWAN co-Champion remains, with a new second co-Champion rotating on the team. This retains continuity of leadership, both internally and externally. Our SWAN research has shown that having strong male representation on the team is critical to both enabling our Actions and fostering cultural change. Our goal has therefore been to maintain gender parity on the team. We know that, throughout the UK universities, women take on an unfair majority of the SWAN Action implementations, and this is reflected in our own School experience. Following this application, the Team will continue its operational role and will meet on a bi-quarterly basis to progress the Action Plan and deliver initiatives.

**ACTION:** 3.1 Work with senior leadership to promote external ownership of SWAN Actions to combat invisible workload with respect to SAT

(Subtotal word count 223)

(Word count 922, limit 1000)

## 4. A PICTURE OF THE DEPARTMENT

Recommended word count: Bronze: 2000 words | Silver: 2000 words

### 4.1. Student data

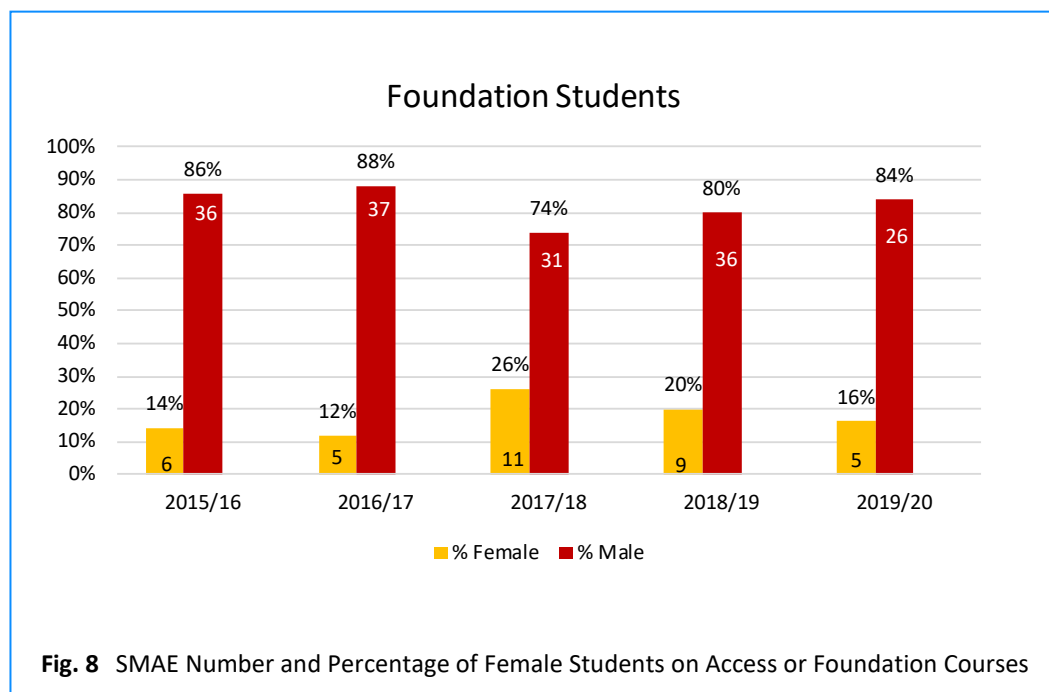
If courses in the categories below do not exist, please enter n/a.

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

Foundation degrees are offered in collaboration with Belfast Metropolitan College (BMC) as part of our widening participation agenda. Students can progress to entry at Stage 2 (second year) of any of our BEng programmes.

SWAN research has highlighted the lack of awareness among female A-Level students of this opportunity, particularly those from non-traditional backgrounds. We have therefore focused on outreach and recruitment events as a platform to interact with female students. Working with BMC, recruitment uses promotional materials featuring female role models emphasising this alternative route to Higher Education. **Impact: Fig. 8** shows that this strategy has been successful, with the 12% to 26% of women on the foundation course, but with a noticeable drop in the previous year. Quantifiable research is needed on the effect of social background and intersectionality on Foundation enrolment.

**ACTION:** 1.1 Understand and address the impact of social background and intersectionality on Foundation course enrolment through analysis of female enrolment statistics across the School programme



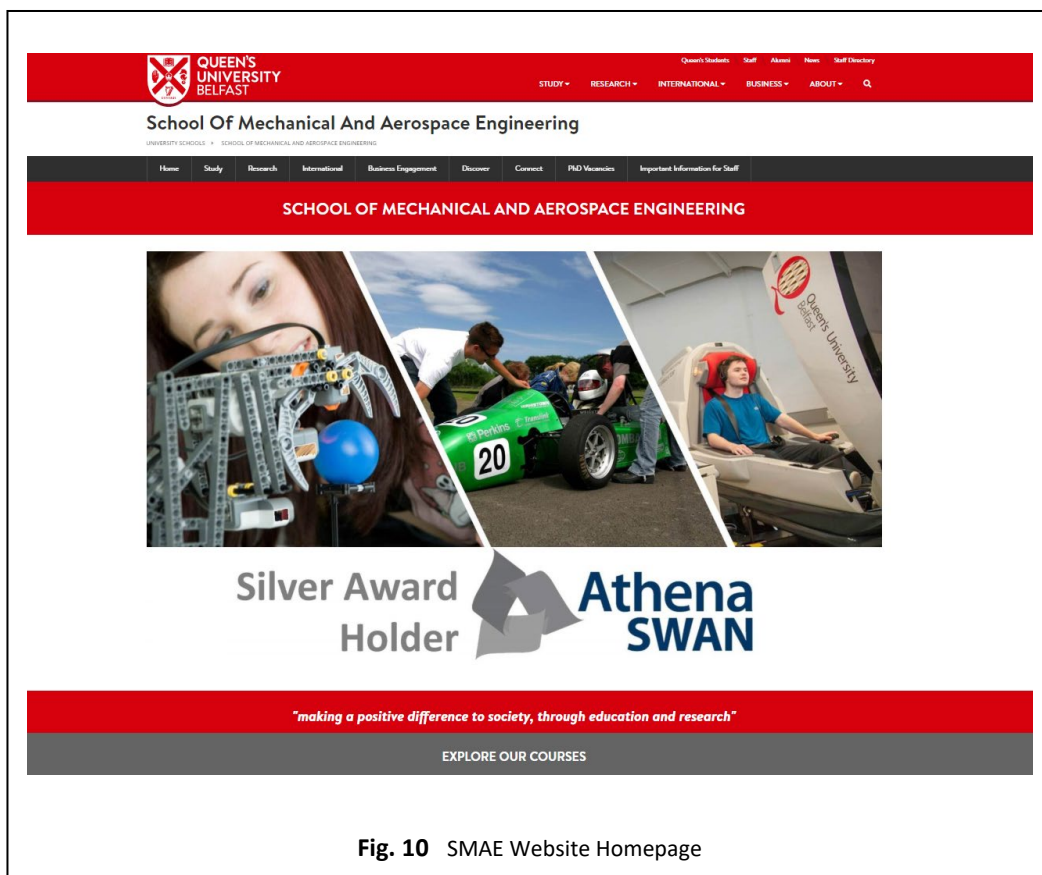
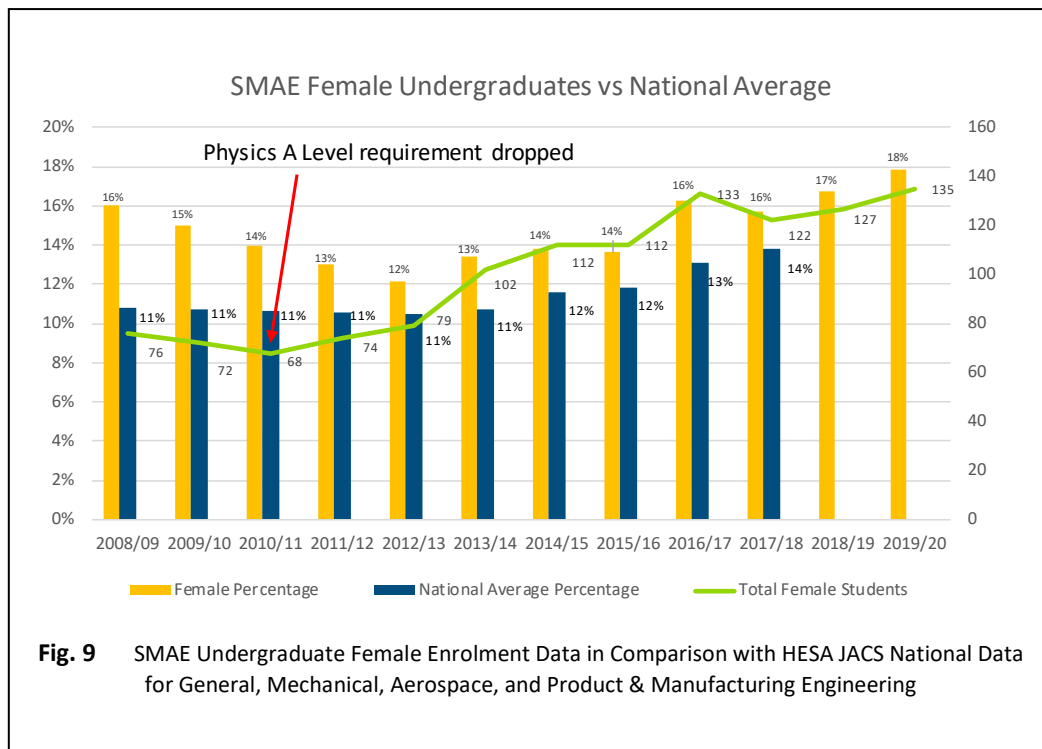
[Sub-total 134 words]

(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.

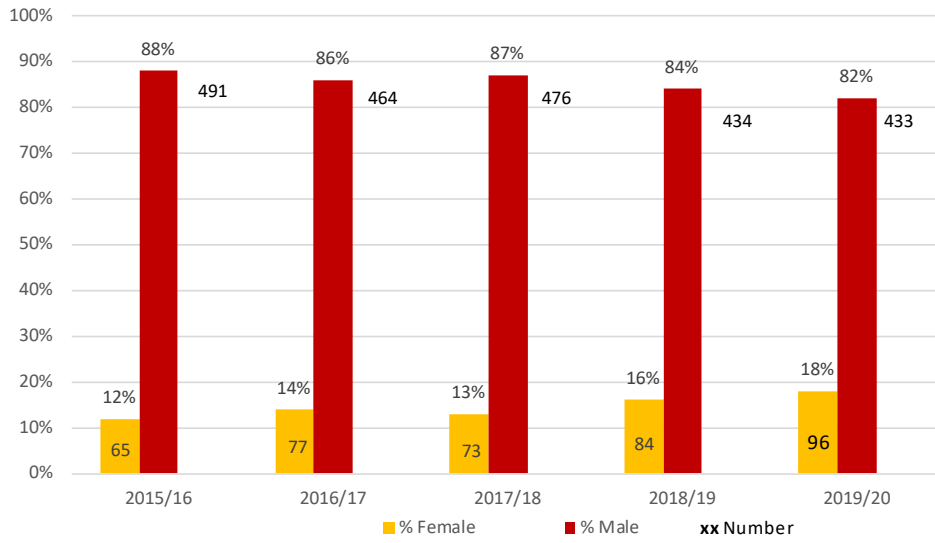
In 2010/11 (first affecting enrolment in 2011/12) the School broadened entry requirements by removing the Physics A-level pre-condition and allowing any science to accompany Mathematics. This had an immediate and profound **impact** on our number of female students, which has risen continuously since then, and at higher than national averages (**Fig. 9**). This action was in direct response to SWAN analysis, which recognised that many young women choose Chemistry or Biology rather than Physics A-Level. Internal analysis showed only 14% of STEM females in Northern Ireland studied Physics A-Level, compared to 29% studying Biology. Additionally, female students and academics are strongly featured in our recruitment and conversion activities, and our recruitment materials, including our website (**Fig. 10**), emphasize our SWAN ideals and accomplishments. **Impact:** the overall female:male ratio for undergraduates has substantially increased (**Fig. 11**), with our Product Design Engineering pathway reaching near gender parity. Notably, our student numbers overall have grown to 19% female from 2015/16 to 2019/20, and our 2019/20 intake alone was 24% female. However, we note an unexpected faltering in the consistent female percentage in the Aerospace pathway in 2018/19 (**Fig. 12**).

**ACTION:** 1.2 Increase enrolment on the Aerospace Pathway to be consistent with Mechanical and Product Design Engineering

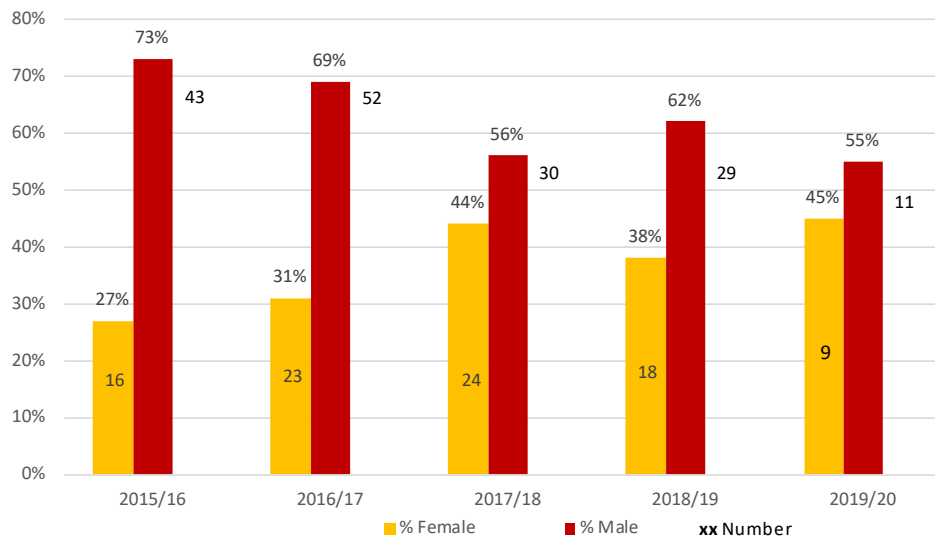




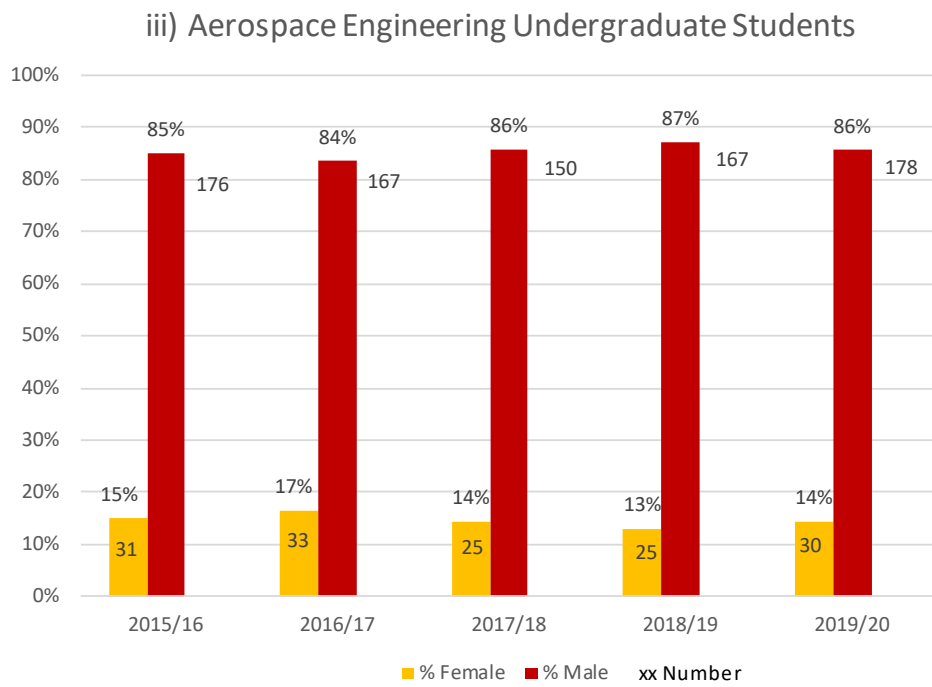
### i) Mechanical Engineering Undergraduate Students



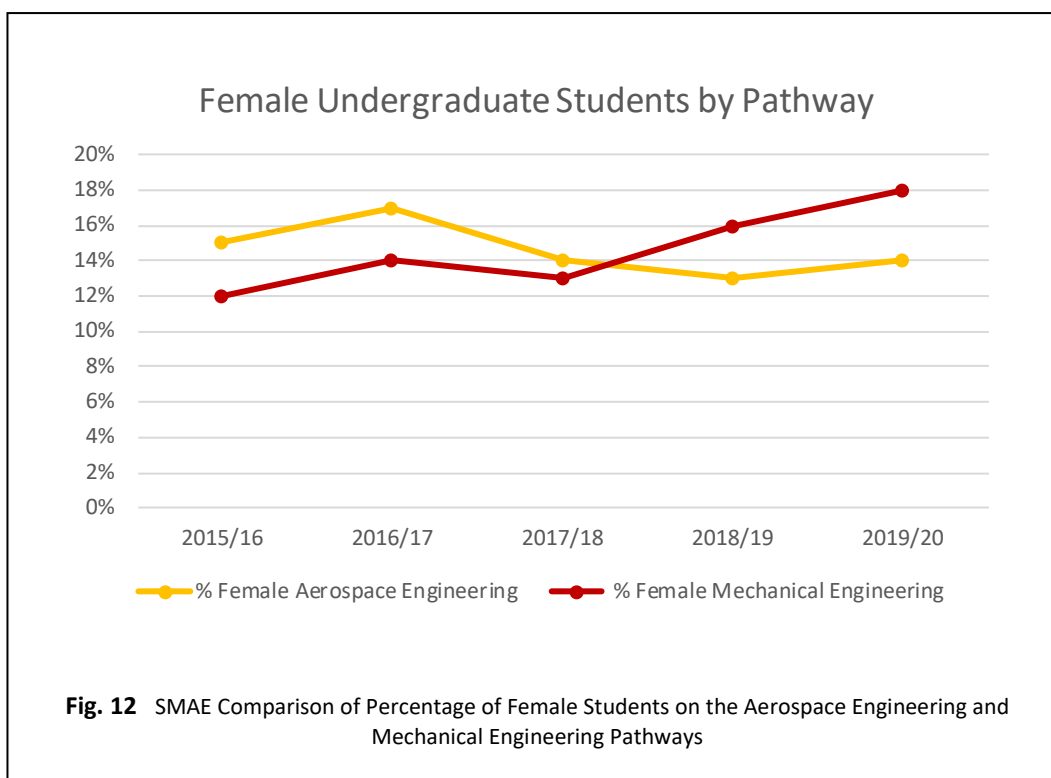
### ii) Product Design Engineering Undergraduate Students



%



**Fig. 11** SMAE Numbers of Male and Female Students on Undergraduate Courses:  
i) Mechanical Engineering, ii) Product Design Engineering, iii) Aerospace Engineering



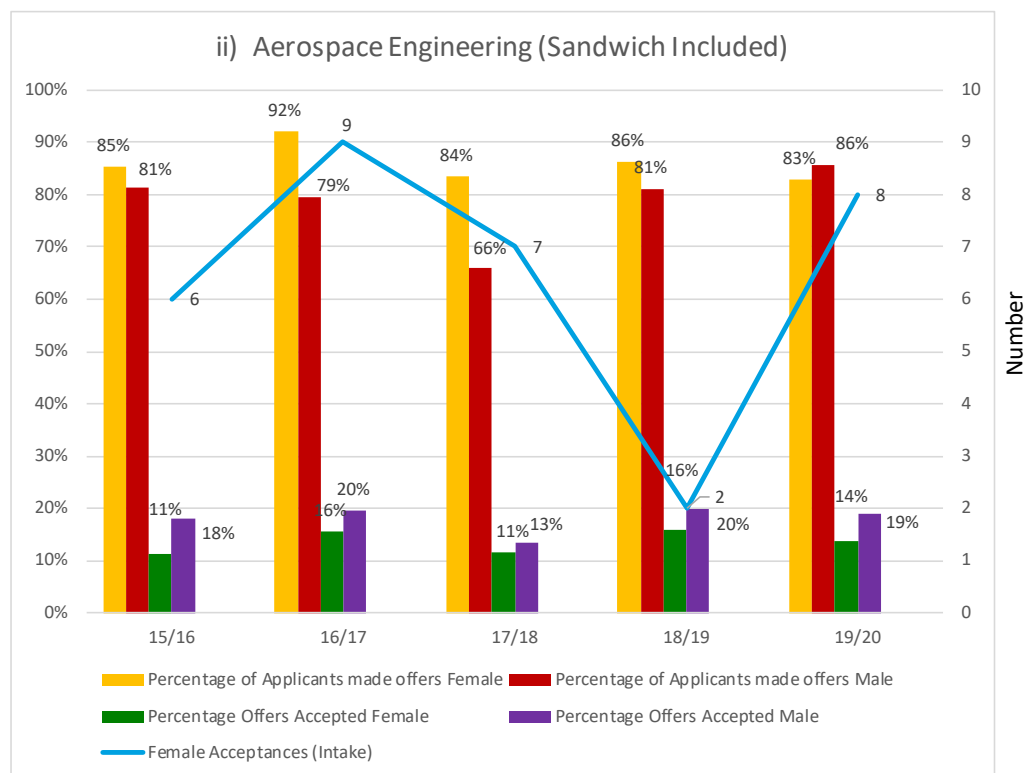
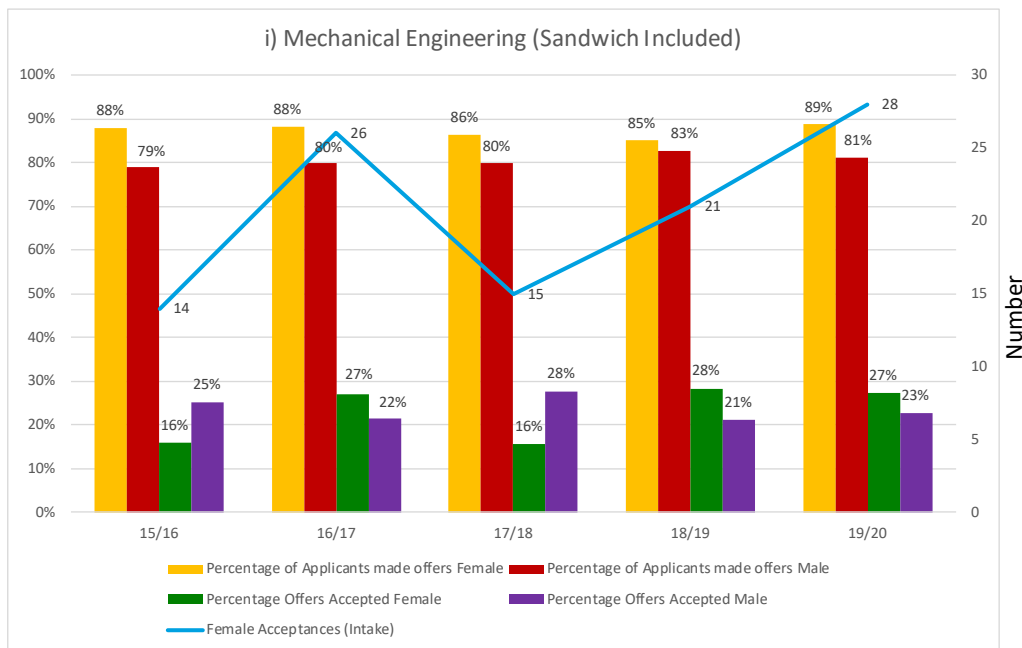
Enrolment of part-time students is only permitted for students repeating an academic year. Female academic performance is better relative to their male peers, thus fewer repeat (**Table 4**).

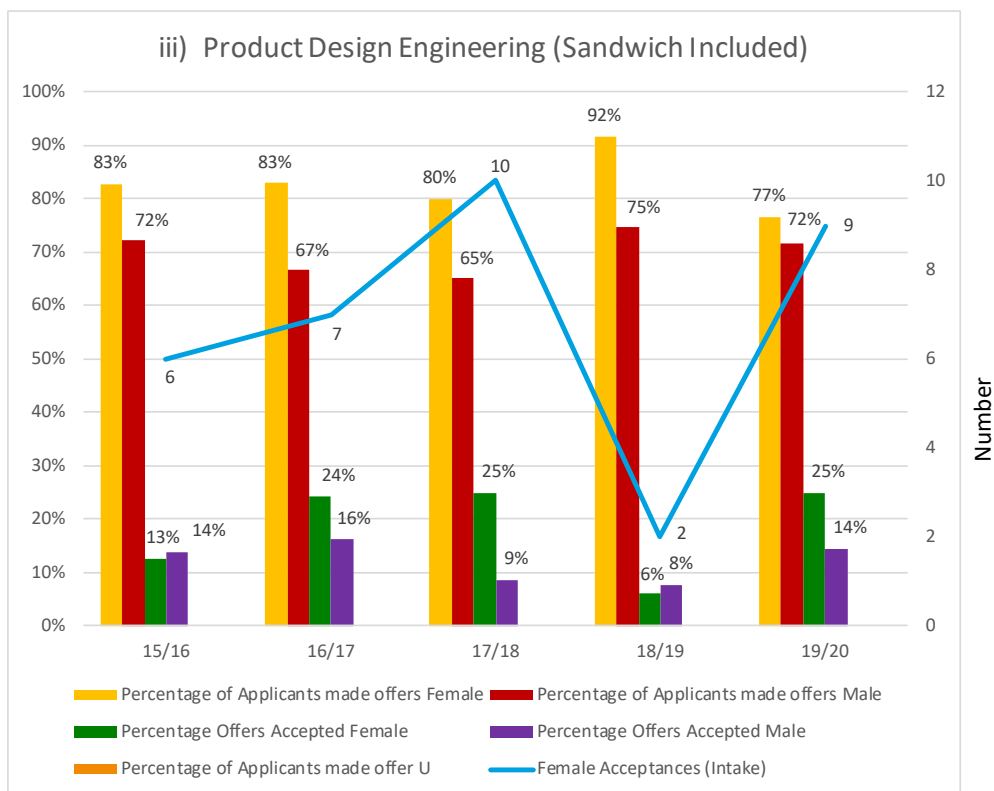
**Table 4:** SMAE Number and Percentage of Male and Female Students on Part-Time Undergraduate Courses

	2015/16		2016/17		2017/18		2018/19		2019/20	
<b>Female PT</b>	0	0%	4	0.5%	4	0.5%	4	0.5%	4	0.5%
<b>Male PT</b>	0	0%	29	3.4%	30	3.7%	20	2.6%	32	4.2%

The School generally makes more offers to women than men (**Fig. 13**), reflecting the higher quality of female applicants. Initial analysis shows lower acceptance of offers by women could be related their broader range of subject choices in UCAS.

**ACTION:** 1.3 Increase acceptance rate of female applicants to be in line with offer rate



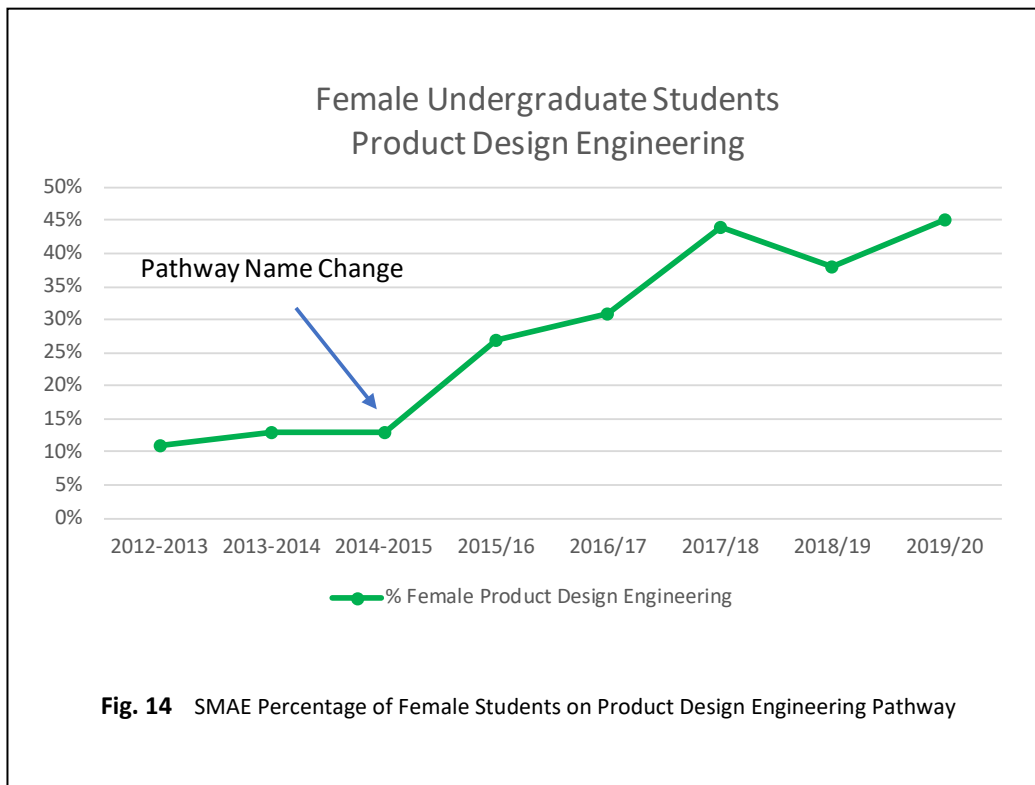


**Fig. 13** Ratio of Course Applications to Offers and Acceptances by Gender for Undergraduate Degrees; i) Mechanical Engineering, ii) Aerospace Engineering iii) Product Design Engineering

Average acceptances by both women and men for Mechanical Engineering have remained fairly constant (**Table 5**). Aerospace has a lower average acceptance rate by women, despite a higher offer rate. Product Design Engineering has a lower average acceptance rate by men, however low numbers make generalisations difficult. In 2004 our Product Design Engineering pathway name was changed to 'Product Design and Development', believing that a positive impact on female recruitment could be realised by removing 'engineering'. The PDD degree did attract a slightly higher percentage of female students for nine years, somewhat supporting this assumption. For 2014/15 the name was again changed to 'Product Design Engineering' to allow all three programmes to be labelled as engineering, enabling a common first year within the School. **Impact:** a non-intuitive increase in female applicants and acceptances (**Fig. 14**).

**ACTION:** 1.3 Increase acceptance rate of female applicants onto the Aerospace Pathway to be in line with Mechanical and Product Design Engineering

**ACTION:** 1.4 Quantify effectiveness of pathway and programme names on female recruitment and offer acceptance

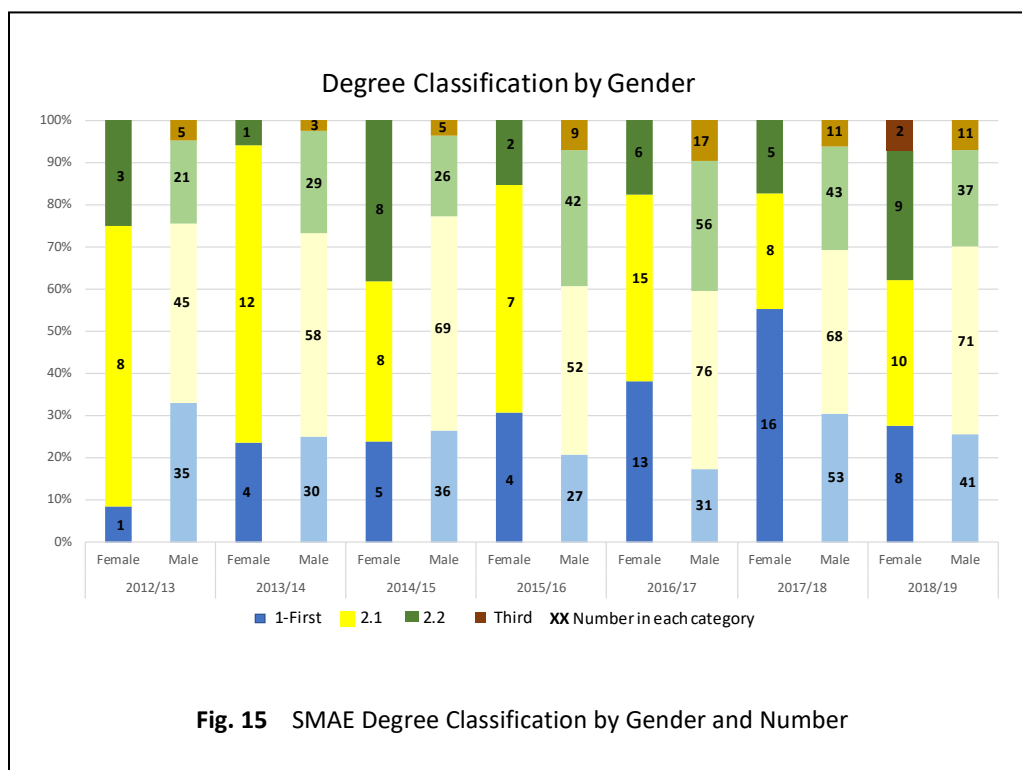


**Table 5:** Average Undergraduate Offers and Acceptances by Pathway, 2015-2020

	2015-2020			
	Average Offers Made		Average Acceptances	
	Female	Male	Female	Male
<b>Mechanical Engineering</b>	87%	80%	23%	24%
<b>Aerospace Engineering</b>	86%	79%	14%	18%
<b>Product Design Engineering</b>	83%	70%	19%	12%

Women perform significantly better than men in the higher degree classifications (**Fig. 15**), particularly in obtaining Firsts, affirming the high quality and sustained performance of our female students. Analysis of graduating grade point average as a function of entrance requirements showed students (male and female) who entered under the broadened science requirements display no detriment for not having had physics in A-level. **Table 6** shows the gender breakdown of School prizewinners (**Fig. 16**).

**ACTION:** 1.5 Decrease the number of men obtaining Thirds to be on parity with the performance of women.



**Table 6: SAME School Prizewinners by Gender**

Year	Female	Male	Total	% Female	% Male
2014/15	2	24	26	8%	92%
2015/16	12	26	38	46%	68%
2016/17	11	34	45	32%	76%
2017/18	8	41	49	20%	84%
2018/19	8	41	49	20%	84%



**Fig. 16** Examples of SMAE Female Prize Winners

From left: Clare Burnett and Anne McIlveen (Ken McWhinney Prize 2017), Zhi Tan (Royal Aeronautical Society Prize 2017), Hayley Alcorn (IMechE Best Student 2017), Rebecca Nettleship (JH Smith Prize in Product Design and Development 2019), Engineering Leadership Programme Graduates (2019)

All students are assigned a tutor, and female students have the option of requesting a female tutor. To date, we have had no requests for this, and have had anecdotal feedback from two female students that they found this option distasteful.

**ACTION:** 1.6 Conduct focus group of undergraduate students to determine attitudes towards gender specific programmes such as ability to request a female tutor

Undergraduate surveys (2016, 2019) explored their reasons for choosing engineering (**Table 7**). Both female and male students are influenced primarily by their interest in STEM subjects and by their families. Women appear to be more aware of the impact of their choice of career than men, and are more open to encouragement by teachers.

**ACTION:** 1.7 Provide information to STEM teachers and guidance counsellors to enhance communication of their impact on career choice by young women, and to emphasize career impact of STEM fields. (reword this)



**Table 7** Undergraduate Survey Results by Gender: Reasons for Choosing Engineering

	2016				2019			
Number of Respondents	17		37		29		51	
Reasons for Choosing Engineering (can choose more than one)	Female		Male		Female		Male	
	Number	% of gender	Number	% of gender	Number	% of gender	Number	% of gender
Previous Work Experience	2	12%	4	11%	0	0%	0	0%
Family Member is an Engineer Encouraged by Family Member	1	6%	7	19%	4	14%	4	8%
Good at STEM subjects Interest in design/engineering Interest in how things work	13	76%	33	89%	19	66%	28	55%
Encouraged by Teacher	3	18%	4	10%	3	10%	0	0%
Open Nights and Prospectus	1	6%	5	14%	2	7%	0	0%
Pay and Career Options	10	59%	15	41%	3	10%	3	6%
Told a 'girl can't do that' Lack of women in profession	2	12%	0	0%	1	3%	0	0%

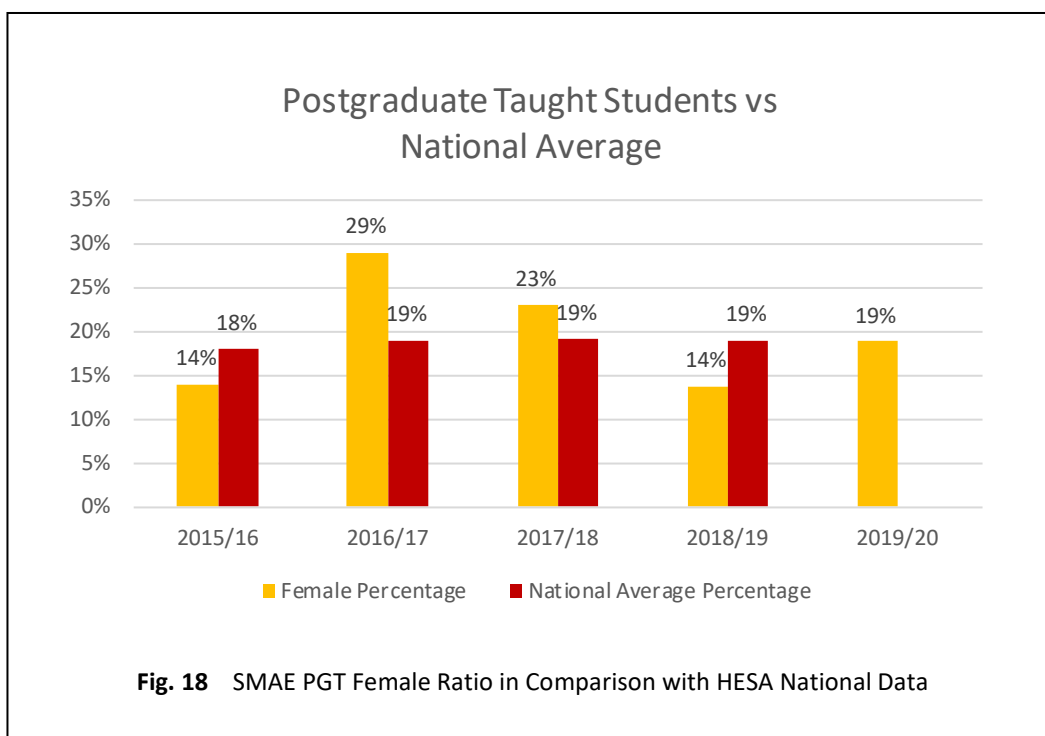
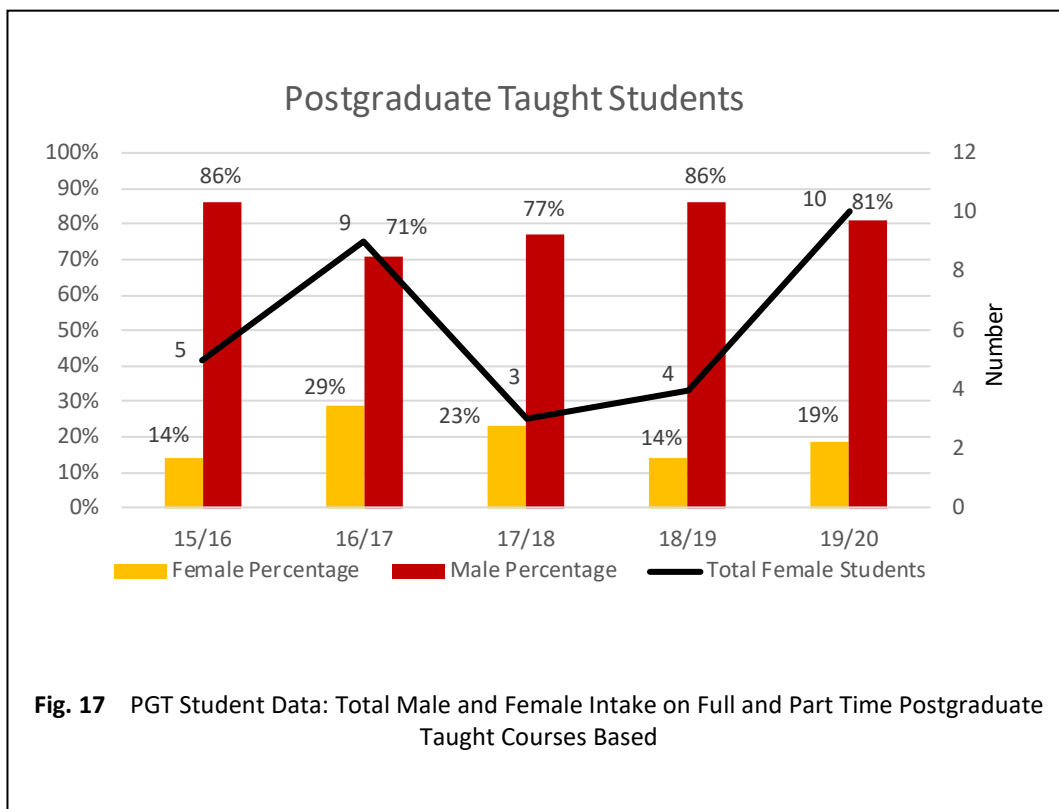
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**(iii) Numbers of men and women on postgraduate taught degrees**

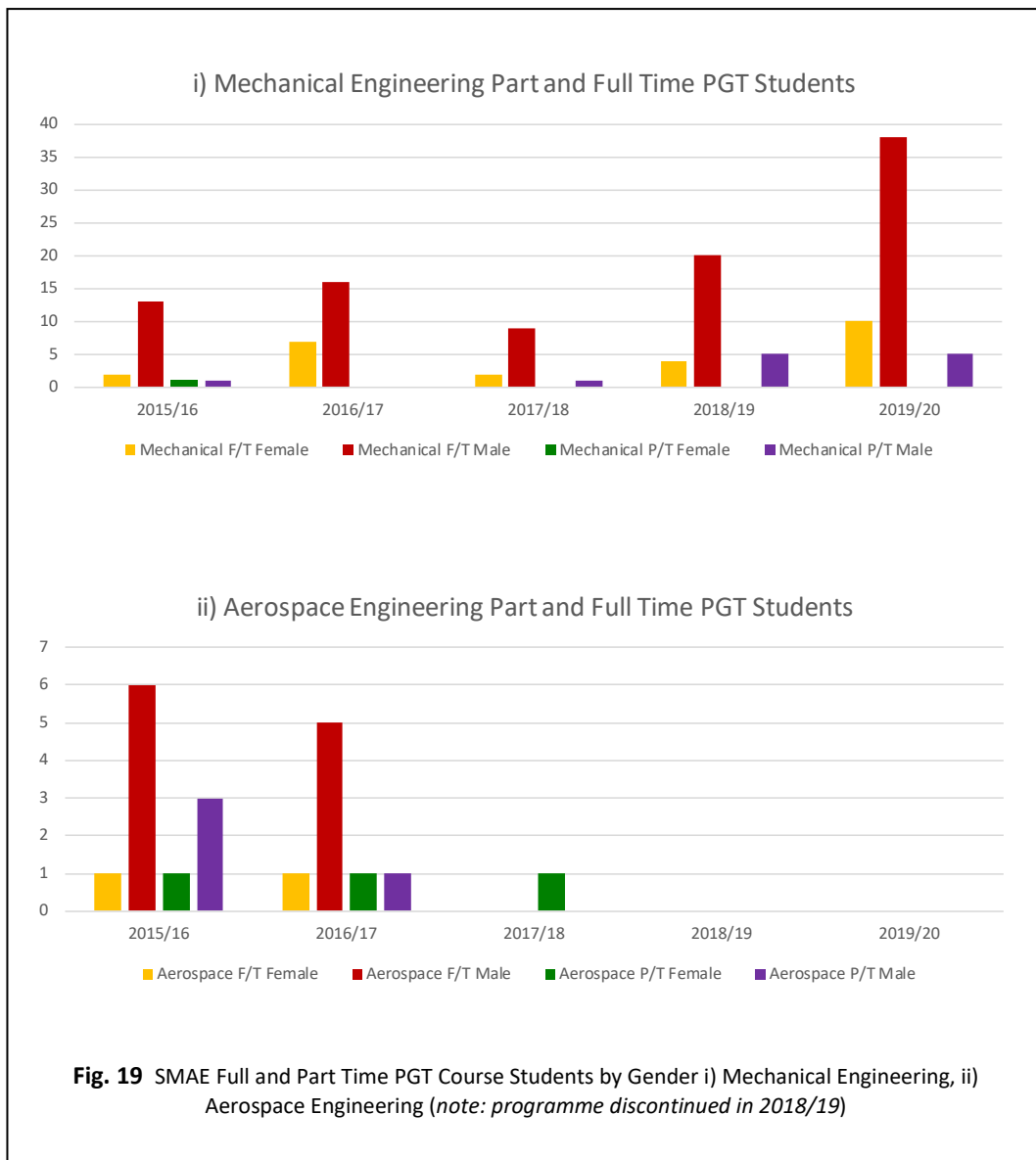
Full- and part-time. Provide data on course application, offers and acceptance rates and degree completion rates by gender.

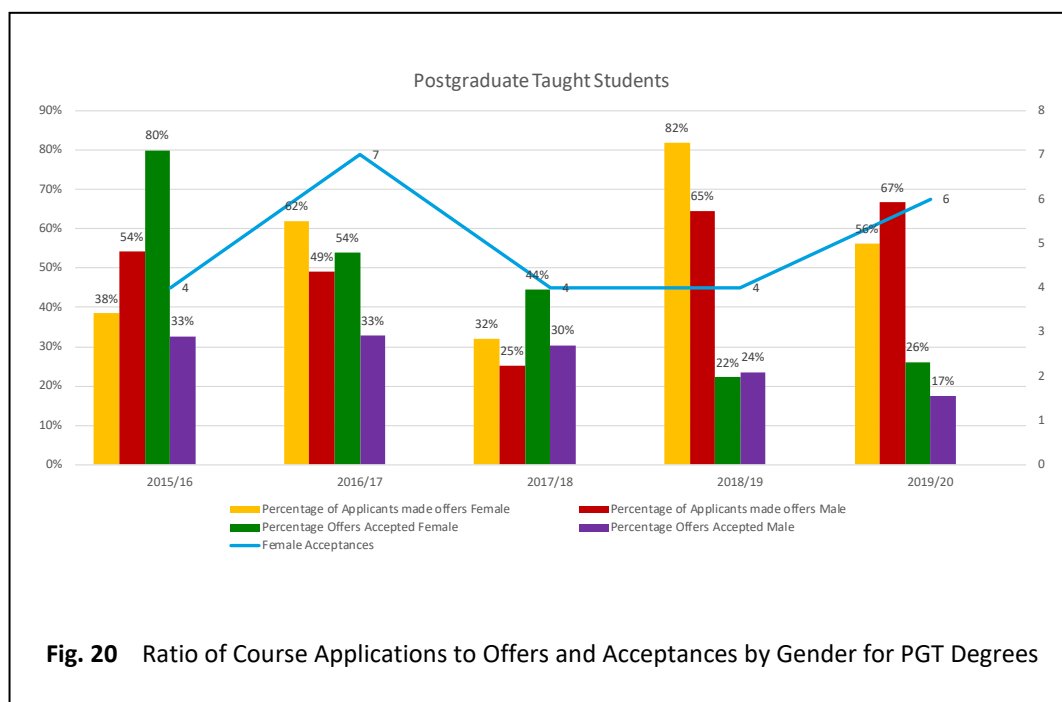
To increase PGT throughput, new programmes in Advanced Mechanical and Advanced Aerospace Engineering were introduced (2013/14). Analysis shows that Management is attractive to our female students and industry colleagues. Thus, a new Mechanical Engineering with Management MSc was created and the Aerospace MSc discontinued (2017/18). The new course includes modules on Sustainable Energy, which has traditionally appealed to women. Intake qualifications were broadened to permit candidates with undergraduate Mathematics and Physics degrees, allowing us to access the high percentage of female undergraduates obtaining Mathematics degrees (60%, HESA 2017/18), whilst providing more women with opportunities to upskill their employability and provide them with high demand transferrable skills. **Impact:** increasing number of female PGTs (**Fig 17**) and mostly consistent improvement of percentage of PGT women compared to national averages (**Fig. 18**). Energetic promotion of the new programme amongst undergraduate students is needed to further disseminate the opportunity amongst female students.

**ACTION:** 1.8 Increase female enrolment on PGT course from local undergraduate female students



The low numbers of part time PGT students is not significant (**Fig. 19**). Offer rates and acceptance rates are generally higher for women than for men onto the PGT programme (**Fig. 20**).





**Table 8** shows completion rates by gender. No women have failed to complete in the period.

**Table 8:** PGT Completion by Gender.

*Note: One male student failed to complete in the period.*

	2014/15	2015/16	2016/17	2017/18	2018/19
Female	4	1	10	2	2
Male	17	16	24	14	4

[Sub-total 196 words]

(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.

In response to low female PGR numbers pre-2014/15, in 2015/16 we implemented targeted strategies:

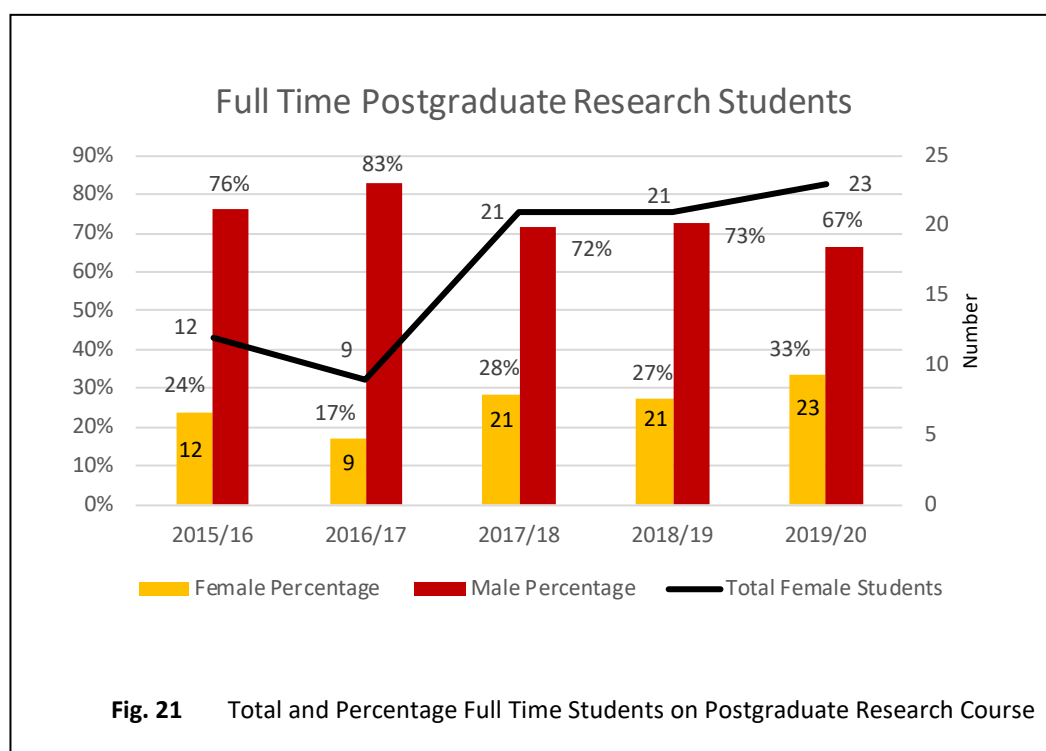
- Worked with project supervisors to identify potential postdoctoral candidates
- Specific personal mentoring of potential candidates to encourage consideration of a research career

- Creation of annual postgraduate information night

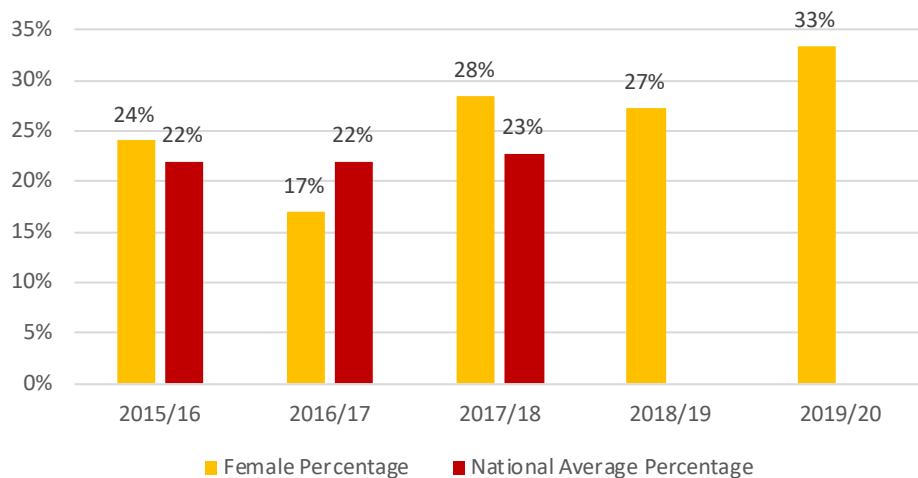
**Impact:** increased female uptakes from 2016/17 (Fig 21) compared to the national average (Fig. 22). Because these strategies focused primarily on SMAE students, further Actions include creating strategies to capture non-SMAE and international candidates. Fig. 23 confirms that the **impact** of increasing the applicant pool is a viable strategy as demonstrated by our acceptance percentages being high, once a position is offered, with the notable exception of 2019/20, which saw a dramatic decline in applications overall, notably by men (Fig 24).

**ACTION:** 1.9 Increase numbers of PGR applicants from none-SMAE and international candidates

**ACTION:** 1.10 Increase number of PGR applications from men

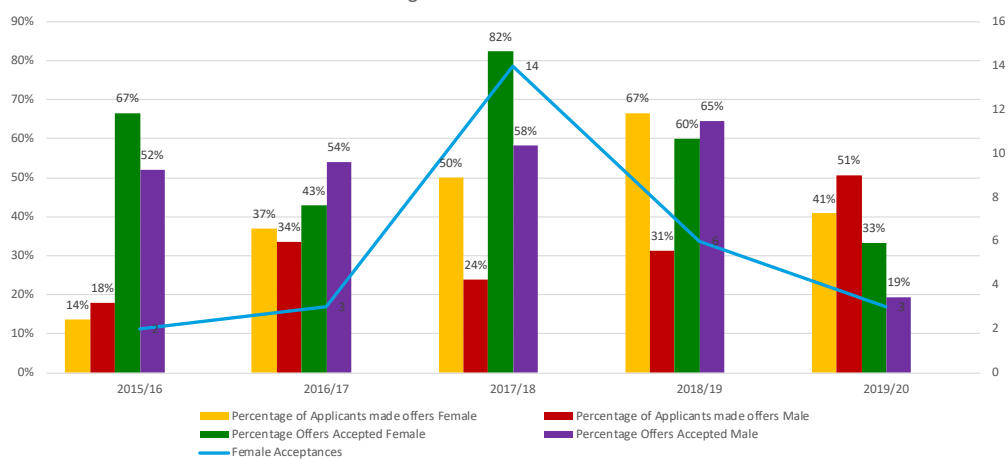


### SMAE Female Postgraduates vs National Average

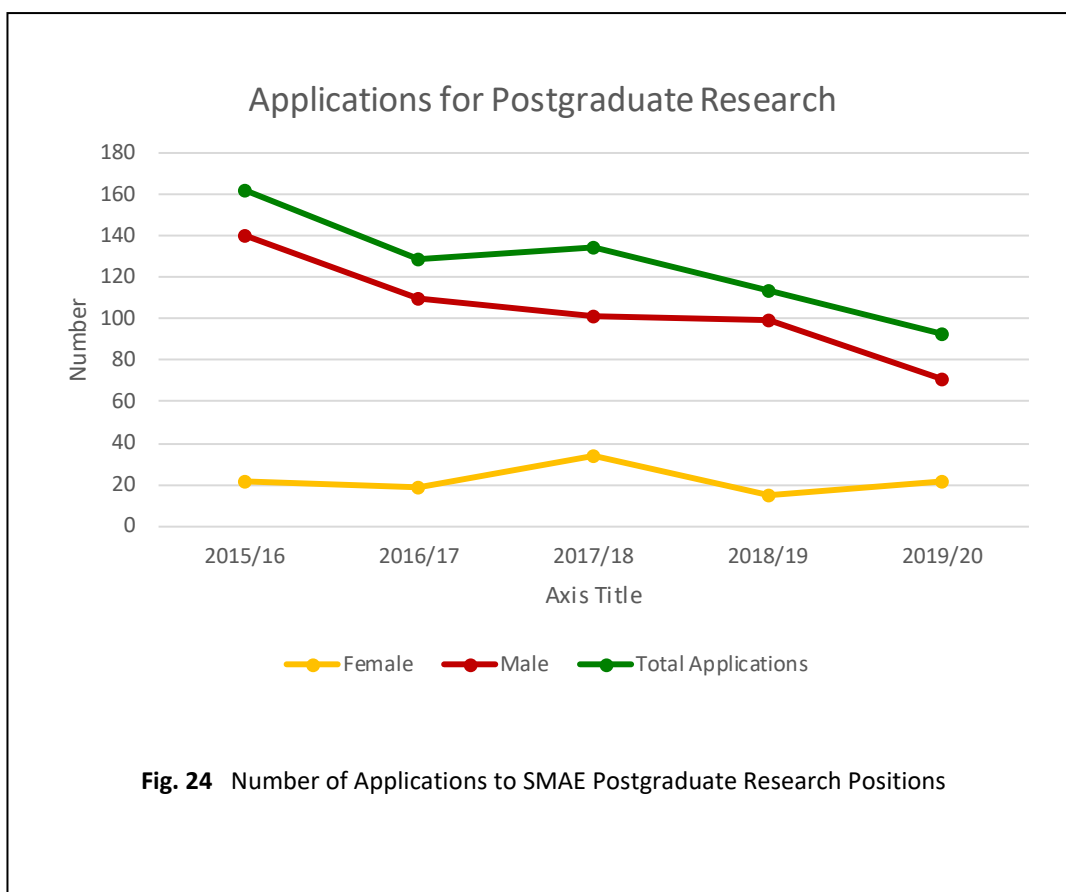


**Fig. 22** SMAE Percentage of Female Postgraduate Researchers in Comparison with HESA National Data

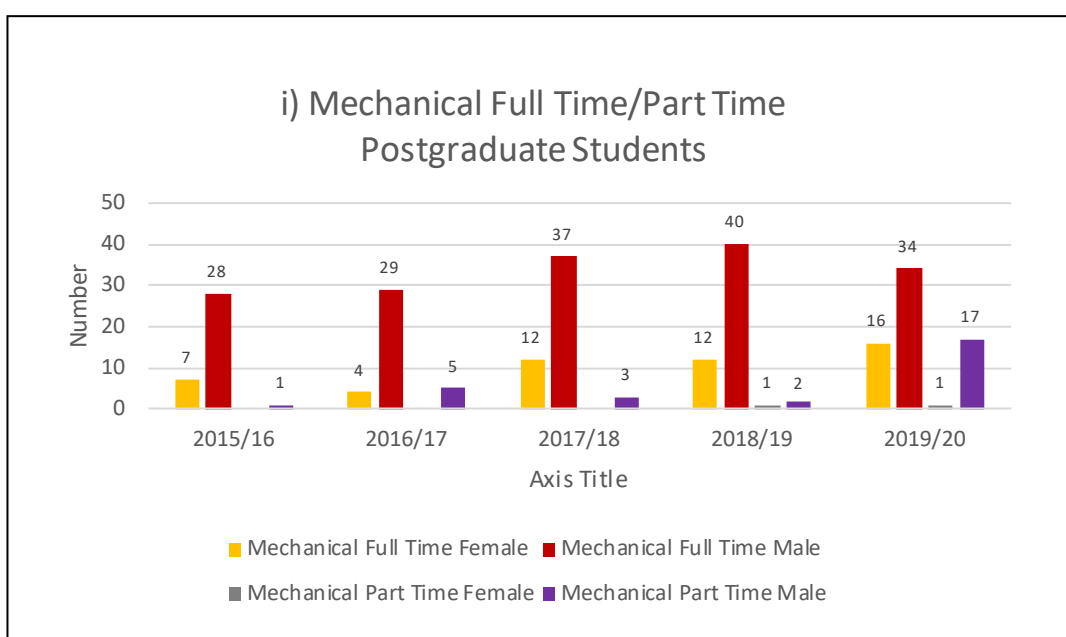
### Postgraduate Research Students



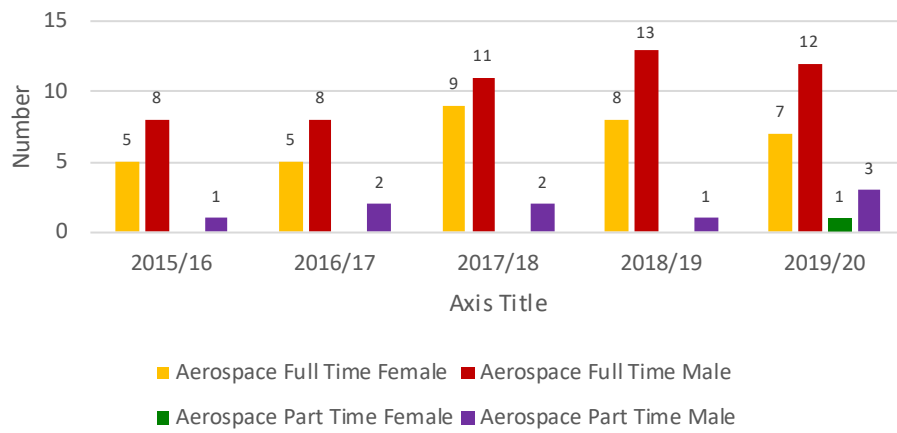
**Fig. 23** Ratio of Course Applications to Offers and Acceptances by Gender for PGR Degrees



The low number of part time female postgraduate researchers is not significant (**Fig. 25**). Ten PGTs failed to complete (1 female, 9 male) (**Fig. 26**).

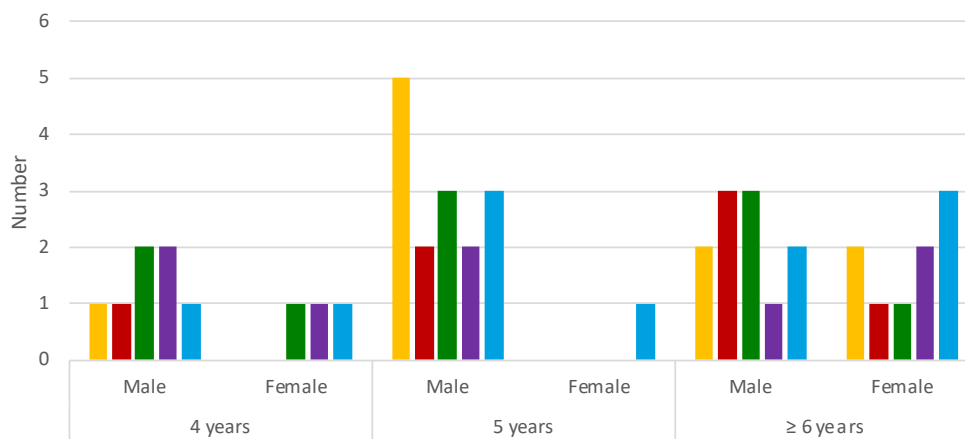


## ii) Aerospace Full Time/Part Time Postgraduate Students

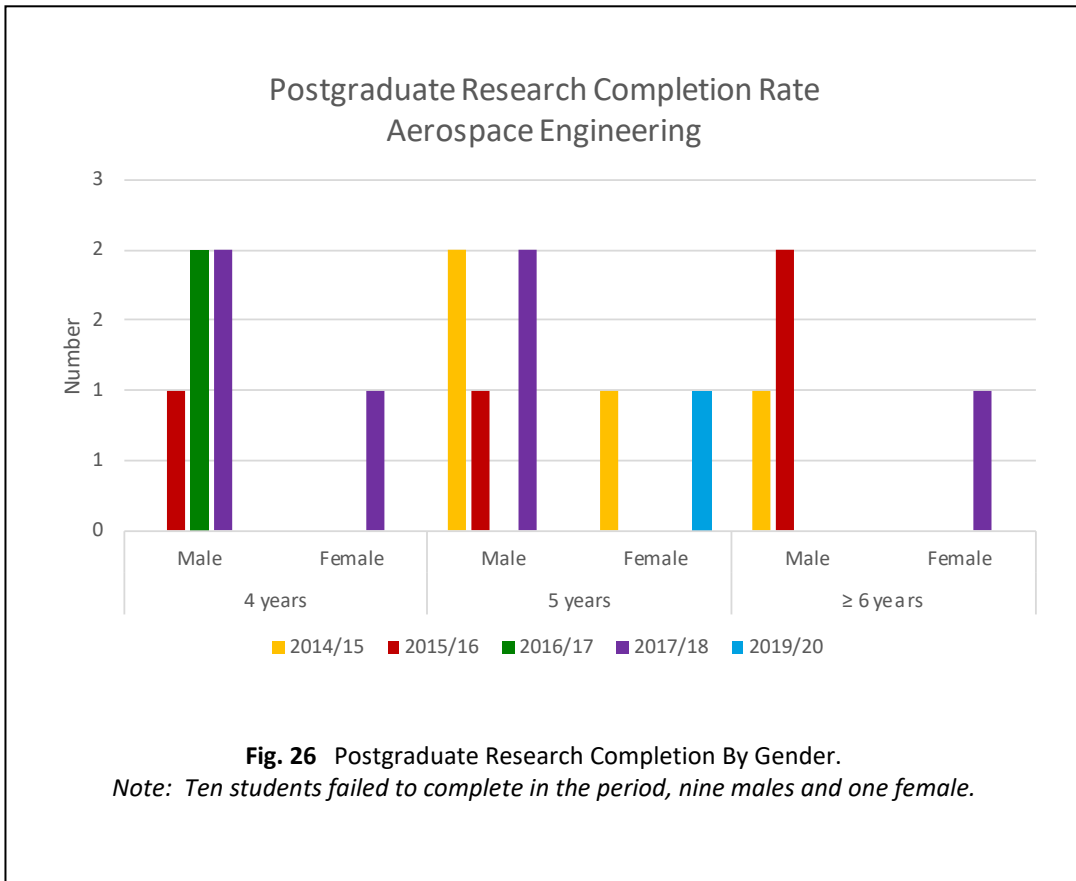
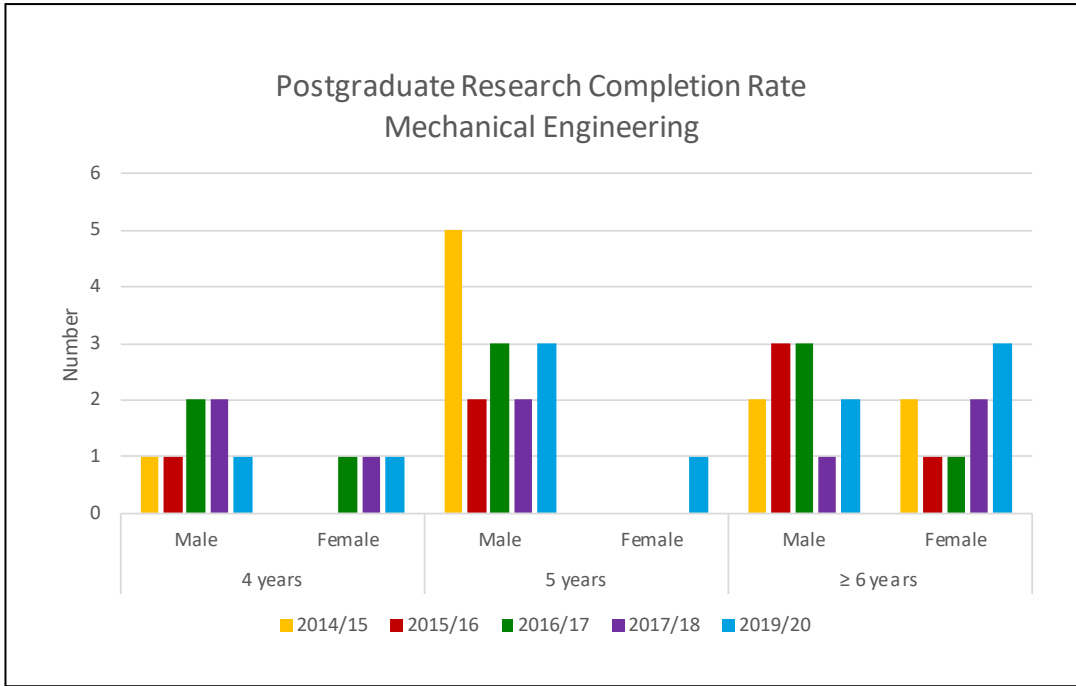


**Fig. 25** Breakdown of Males and Females on Full and Part Time PGR Courses  
i) Mechanical Engineering, ii) Aerospace Engineering

## Postgraduate Research Completion Rate Mechanical Engineering







## (v) Progression pipeline between undergraduate and postgraduate student levels

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

The two main barriers to post graduate study at SMAE are the ready availability of relatively high paid jobs and lack of knowledge about the academic career path. Addressing the salary issue, we introduced a top-up plan where basic stipends are supplemented with School/industrial awards to make them more competitive with entry-level industry jobs.

**Impact:**

*“The additional top-up made the PhD opportunity very attractive. When I factored in tax, national insurance, etc. that I would have paid taking on a standard graduate job in NI, the PhD studentship plus top-up was the same salary, if not a bit more over the course of a year. It would have been financially impossible to accept my PGR offer without the top-up from industry.”*

*-Andrew, Postgraduate Research Student*

To better inform students, our top (averaging 70%+) undergraduate students are invited to our annual postgraduate recruitment dinner (**Table 9**), at which research is promoted as a viable career path. **Impact:** 1 of the 5 female attendees was converted in 2016/17, 3 of the 5 female attendees were converted in 2017/18 (name data not captured for 2018/19 and 2019/20). Further, staff have been encouraged to approach exceptional students about progressing to postgraduate work. For example, Stage 3 undergraduate students who attended the British Model Flying Association (BMFA) competition in 2015/16 were encouraged to take up PGR roles. **Impact:** three of the five students (2 of which were female) began PGR in 2017/18 (after MEng completion). **Impact:** the PGR intake for 2017/18 was 50% female (14 females entered of 28 new students) proving the effectiveness of this approach.

**Impact:**

*“The PGR recruitment dinner provided me with the opportunity to discuss the details of undertaking a PhD in Queen’s, with both academic staff and PGR students. We were provided with a wealth of information which gave insight otherwise left for those actually undertaking PGR. This event really assured me that I should consider PGR at QUB, which I have since successfully pursued.”*

*-Lauren, PGR Student*

Most of our studentships come from local government, with a UK-only restriction on eligibility for full stipends.

**ACTION:** 4.4 Increase data capture, particularly names, for PGR recruitment events

**ACTION:** 1.11 Analyse the impact funding body restrictions have on applications

**Table 9:** Annual PhD Recruitment Dinner: Attendees by Gender.

	2015/16		2016/17		2017/18		2018/19	
Gender	Attendee No.	%	Attendee No.	%	Attendee No.	%	Attendee No.	%
Female	0	0%	5	31%	5	16%	11	20%
Male	19	100%	16	84%	32	86%	55	80%
Total	19		21		37		66	

[Sub-total 208

words]

#### 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.

#### SILVER APPLICATIONS ONLY

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

To increase representation of women across the School, we:

- Placed a welcoming equality and diversity statement on all recruiting materials
- Used academic networks to highlight opportunities to female candidates
- Increased visibility of work-life balance policies and other SWAN related information on our School website.

**Impact:** the number of female researchers and academics increased by an impressive 69% from 2014-2019 (from 13 women to 22, **Table 10**). The overall percentage of women increased slightly from 21% in 2014 to 22% in 2019 (female researchers 23% to 25%, female academics 20% to 21%), on par with the UK national average of 20% female academics in engineering.

#### Impact:

*'Having studied at the School before accepting a postdoc here I know the hard work and commitment it has in supporting gender equality through Athena SWAN. I have seen it through their social media outlets; Facebook and the School website. The website provides a comprehensive insight to the team and their work in the School. It was hugely important to me knowing that I was entering a working environment that has demonstrated and continues to demonstrate their dedication to gender equality, diversity and positive work-life balance policies.'*

*-Imelda, Research Fellow*

#### Impact:

*"In my previous role before moving to Queens I worked on an 0.8 FTE basis to allow me to meet my caring responsibilities for my two young daughters. I was very keen to further my career in academia, but I was concerned about losing some of this flexibility if I moved to another organisation. However, after reading the School website and seeing some of the information about the excellent work/life balance policies that the School offers, I was encouraged to apply. I discussed this when being offered the role, and the School were very accommodating. I now work*

*one half day at home during the week, which allows me to meet both my home and work commitments.”*

*-Louise, Lecturer-Education*

In 2014/15, noting the striking imbalance of women at the lower part of the pipeline, we conducted aggressive recruitment and progression strategies. **Impact:** hiring of a female professor, two female Lecturers of Education, and the progression of two women from Lecturer to Reader (**Fig. 27**). Although our profile is now more balanced, the distribution of female academic staff remains weighted at the Lecturer level (**Fig. 27**).

**ACTION:** 2.1 Develop strategies that result in a more balanced profile of female researchers and academics across all grades.

Our teaching-only staff remains small (2 women, 4 men), making trend identification difficult. To address historic imbalances, we have proactively recruited 2 female teaching-only staff since 2018 (see Case Study). **Impact:** their high teaching loads offers increased visibility to students, helping to normalise women as engineers and STEM academics. **Impact:** One of these recruits represents the only in-house transition of post-doc to academic position in the reporting period. We currently do not have capability to track career progress of researchers who leave.

**ACTION:** 2.2 Increase number of in-house transitions of female researchers to academic positions

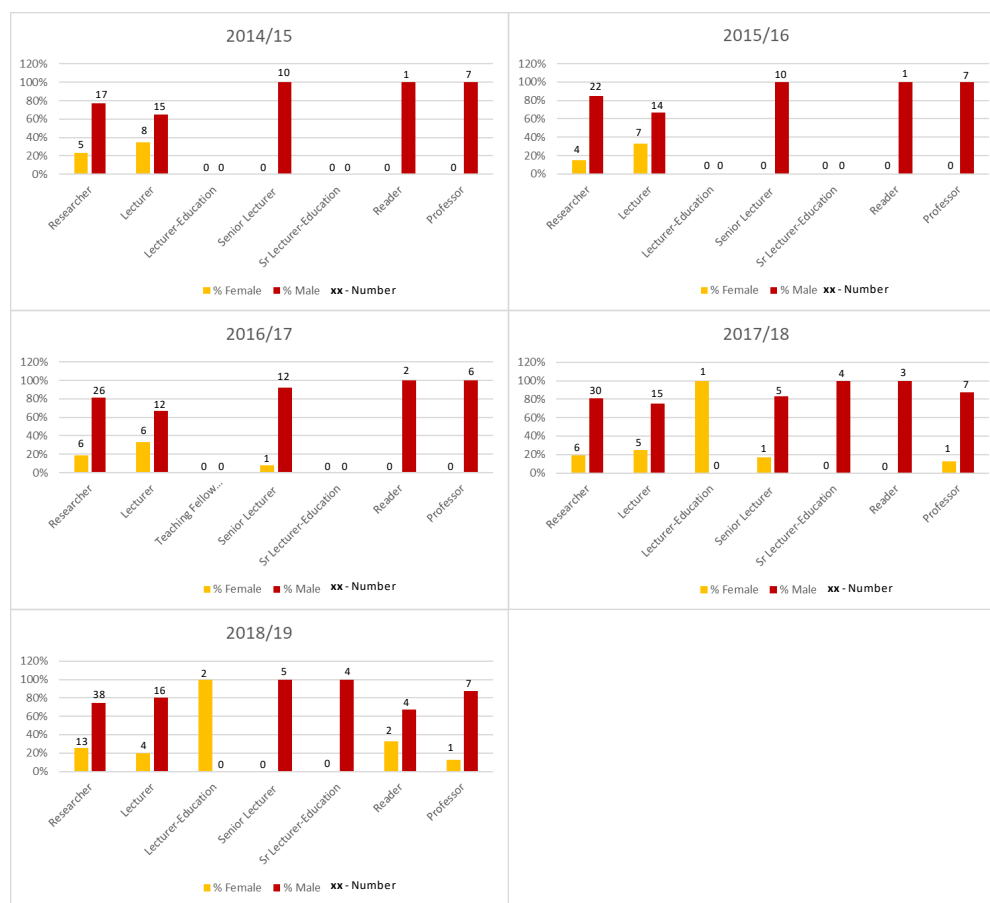
**ACTION:** 4.6 Develop data strategy for analysing career progression of researchers who leave the School

51% of our academic staff are from the UK, and 49% are international (16% EU, 33% non-EU), consistent with national averages for academics in engineering (58% UK, 19% EU, 23% non-EU). Amongst our female academic staff, however, we have 22% UK, 44% EU, and 33% non-EU. This striking disparity raises questions about why we are more successful in attracting international women than local women, intersectionality and ethnicity.

**ACTION:** 1.12 Analyse and understand the impact of our recruitment strategies with respect to gender, intersectionality, and ethnicity

**Table 10** SMAE Academic and Research Staff Data by Gender, Grade, and Year

	Year	Female	Male	Number of Women	Number of Men
<b>Researcher</b>	2014/15	23%	77%	5	17
	2015/16	15%	85%	4	22
	2016/17	19%	81%	6	26
	2017/18	17%	83%	6	30
	2018/19	25%	75%	13	38
<b>Lecturer</b>	2014/15	35%	65%	8	15
	2015/16	33%	67%	7	14
	2016/17	33%	67%	6	12
	2017/18	25%	75%	5	15
	2018/19	20%	80%	4	16
<b>Teaching Fellow (Lecturer-Education)</b>	2014/15	0%	0%	0	0
	2015/16	0%	0%	0	0
	2016/17	0%	0%	0	0
	2017/18	100%	0%	1	0
	2018/19	100%	0%	2	0
<b>Senior Lecturer</b>	2014/15	0%	100%	0	10
	2015/16	0%	100%	0	10
	2016/17	8%	92%	1	12
	2017/18	17%	83%	1	5
	2018/19	0%	100%	0	5
<b>Senior Teaching Fellow (Senior Lecturer-Education)</b>	2014/15	0%	0%	0	0
	2015/16	0%	0%	0	0
	2016/17	0%	0%	0	0
	2017/18	0%	100%	0	4
	2018/19	0%	100%	0	4
<b>Reader</b>	2014/15	0%	100%	0	1
	2015/16	0%	100%	0	1
	2016/17	0%	100%	0	2
	2017/18	0%	100%	0	3
	2018/19	33%	67%	2	4
<b>Professor</b>	2014/15	0%	100%	0	7
	2015/16	0%	100%	0	7
	2016/17	0%	100%	0	6
	2017/18	13%	88%	1	7
	2018/19	13%	88%	1	7



**Fig. 27** SMAE Career Pipeline by Year and Gender

[Sub-total 322 words]

(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.

We only have two fixed-term academics, both female Lecturers of Education.

**ACTION:** 2.3 Work with the University to convert all fixed-term education positions to full-time, in line with all academic research posts.

Most of our research staff are on research funded fixed-term contracts (**Fig. 28**). We have 2 female and 3 male research staff associated with our industry-facing Polymer Processing Research Centre and are therefore permanent members of the Centre. The upward trajectory of our researcher numbers (**Fig. 28**) directly corresponds to improving levels of external research funding. Many high achieving female PhD graduates successfully obtained excellent permanent jobs in industry, having benefitted from the School's increased emphasis on employability and leadership development, effectively reducing qualified candidates available for recruitment to fixed-term research contracts. Our dynamic recruitment Actions have helped offset this. **Impact:** percentage of female researchers has improved from 14% in 2014/15 to 22% in 2018/19.

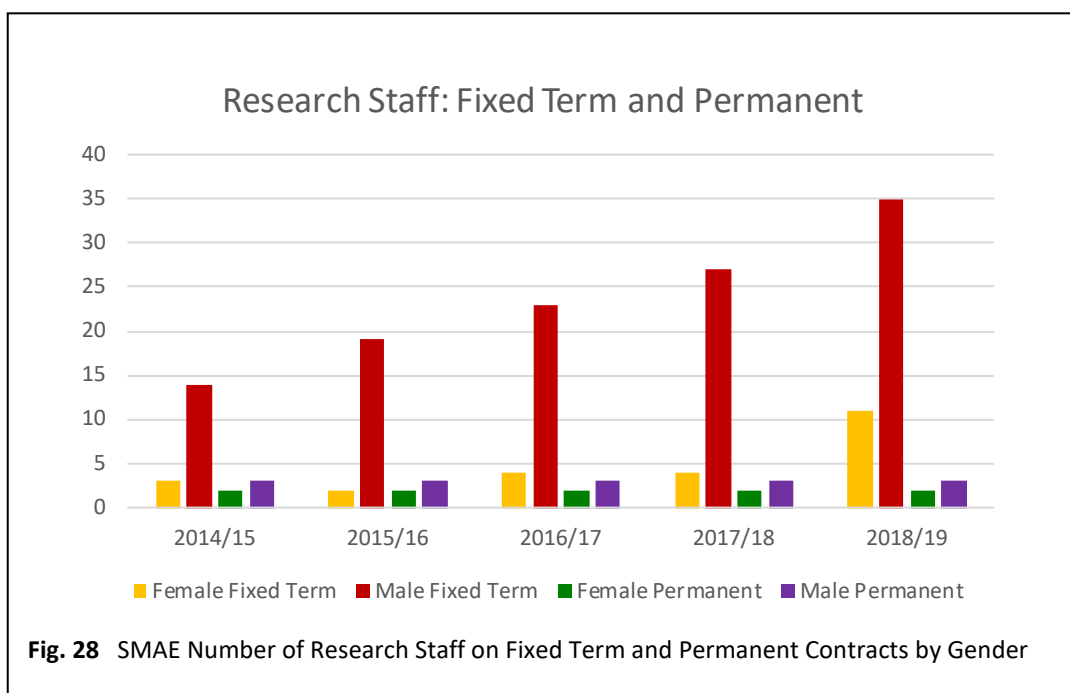
To make research careers more inviting by promoting job stability, staff on fixed term contracts are considered for upcoming posts before external advertisements are placed. All PDRA posts are reviewed six months from the end of a fixed term contract period and the School works closely with HR to ensure that researchers are encouraged to apply for internal opportunities. This provides female researchers with a greater level of stability than is traditionally afforded through contractual research.

#### Impact:

*"Being one of only a small number of permanent researchers within the University, the process to achieving this (ten years ago) was difficult. However, the School provided a sustained and determined effort to ensure my permanent status. This not only allowed me to feel, but also endorsed the view that a Research post could be a career in itself and not simply a step on the road to an academic post. Since that time, both the School and the University have continued their efforts to ensure that both my ongoing training needs and CPD are met."*

*-Paula, permanent Research Staff*

**ACTION:** 4.5 Develop strategy to capture statistics related to conversion from fixed-term to permanent, including redeployment





[Sub-total 201 words]

(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.

Four female and 9 male academics left in the reporting period (**Table 11, Fig. 29**). Institutional exit paperwork and a SWAN-initiated School follow-up survey indicated the main reasons for staff exits were timely opportunities for promotion and associated increases in pay. No gender related issues were cited. One female academic left to join her partner who resided in a different part of the UK. The School made significant retention attempts aimed at bringing the partner to QUB, but a skill mismatch made this unsuccessful. Three of 4 female leavers were international, as were 7 of 9 male leavers. Potentially, international staff may find it easier to leave than those who have strong and lengthy local ties. No relationship was found between leavers who had minor dependents and those who did not.

**ACTION:** 3.2 Understand effect of nationality on academic leavers

Most leavers did not convey their job dissatisfaction early enough to allow potential intercession.

**ACTION:** 2.6 Create guidance for mentors of new Personal Development Review process to identify and address job concerns of mentees in a timely manner

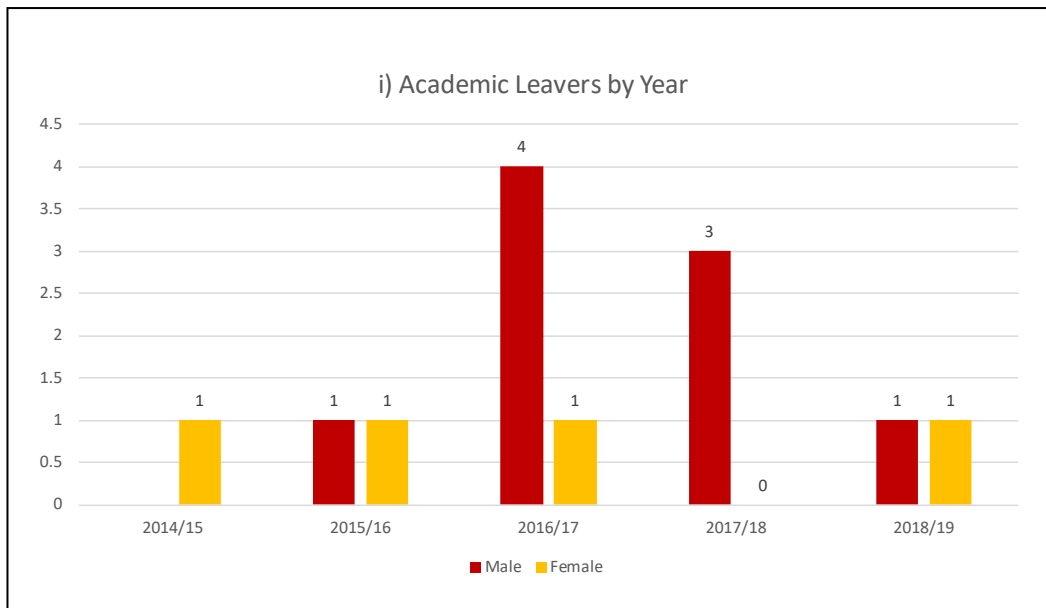
We have actively recruited throughout the reporting period. **Impact:** no net loss in academic staff numbers (41 in 2015/15 to 45 in 2018/19).

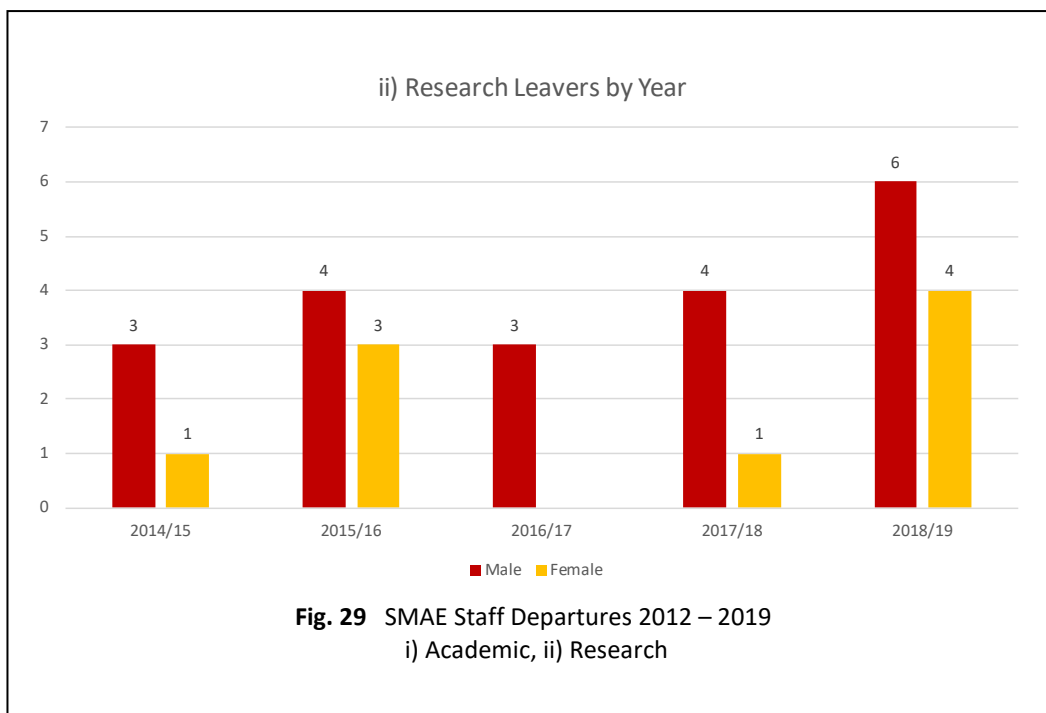
A relatively large turnover is expected from our fixed-term research staff (**Fig. 29**). Twenty-nine researchers left due to their contracts ending or resigned to join industry or University positions. There are no significant differences by gender.

**Table 11:** Academic Leavers by Grade, Gender, New Position and Location

Year	Grade	M/F	New Position	Place	Russell Group
2014/15	Senior Lecturer	F	Professor	UK	No
2015/16	Professor	M	Professor	EU	-
	Professor	F	Chaired Professor	UK	No

2016/17	Lecturer	M	Senior Lecturer	UK	No
	Lecturer	M	Senior Lecturer	UK	Yes
	Senior Lecturer	M	Retired	-	-
	Lecturer	M	Senior Lecturer	UK	No
	Probationer	F	Senior Lecturer	UK	No
2017/18	Lecturer	M	Senior Lecturer	UK	No
	Lecturer	M	Senior Lecturer (equiv)	Int'l	-
	Lecturer	M	Academic	EU	-
2018/19	Probationer (unsuccessful)	M	Unknown	-	-
	Lecturer	F	Senior Lecturer	UK	No





[Sub-total 204  
words]

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## 5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

Recommended word count: Bronze: 6000 words | Silver: 6500 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.

To widen the recruitment pool and to reach women of all career levels, the School now implements 'open call' campaigns, rather than specifying grades. **Impact:** Table 12 demonstrates the success of this strategy, as the majority of women hired resulted from open, rather than targeted, campaigns. The challenge remains to increase the application rates by women.

**ACTION:** 1.15 Increase application and acceptance rates by women for academic posts

All recruitment materials are reviewed by the School Manager and Faculty HR Business Partner to ensure inclusion of appropriate welcoming statements and SWAN-related links. All panels include at least one woman. To avoid overburdening of female staff from SMAE, this can include women from throughout the Faculty. All staff members are required to undertake courses on recruitment & selection as well as equality & diversity, with a 92% training compliance within the School. In 2015/16, having recognised the need for unconscious bias training, the SWAN Team, in conjunction with the SENSE Network (Faculty SWAN representatives), organised well-attended talks which were open to all staff and PhD students within the Faculty. In 2017 the University introduced mandatory training on unconscious bias.

Although fewer women applied for both academic and research posts, their offer success rates are generally higher (Table 13).

**Table 12:** SMAE Academic job applications, Number of Shortlisted Candidates, Offers and Appointments

Year	Campaign Type	Gender	Applications	Short Listed	Offered	Accepted	Acceptance Rate	Success Rate	Role
2012/13	Open Call	Female	4	1	1	1	100%	25%	Lecturer
		Male	35	12	5	4	80%	11%	4 Lecturers
2013/14	Open Call	Female	6	2	2	2	100%	33%	2 Lecturers
		Male	80	23	2	0	0%	0%	
2014/15	None	Female							
		Male							
2015/16	Open Call	Female	16	3	2	1	50%	6%	Lecturer
		Male	101	28	7	5	67%	5%	3 Lecturers
2015/16	Targeted	Female	2	0	0	0	-	-	
		Male	7	2	2	1	50%	14%	Lecturer
2016/17	Open Call	Female	10	1	0	0	-	-	
		Male	111	19	6	1	17%	1%	Lecturer
2016/17	Targeted	Female	1	1	1	1	100%	100%	
		Male	6	1	0	0	-	16%	Professor
2017/18	Open Call	Female	N/A	N/A	N/A	N/A	N/A	N/A	Lecturer-Education
		Male	N/A	N/A	N/A	N/A	N/A	N/A	Lecturer
2018/19	Open Call	Female	N/A	N/A	N/A	N/A	N/A	N/A	Lecturer-Education
		Male	N/A	N/A	N/A	N/A	N/A	N/A	3 Lecturers

**Table 13:** SMAE Research job applications, Number of Shortlisted Candidates, Offers and Appointments

Year	Campaign Type	Gender	Applications	Shortlisted	Offered	Accepted	Acceptance Rate	Success Rate
2012/13	Targeted	Female	18	2	1	1	100%	0%
		Male	66	22	5	5	100%	8%
2013/14	Targeted	Female	15	7	4	4	100%	27%
		Male	70	24	4	4	100%	6%
2014-2015	Targeted	Female	18	5	0	0	-	-
		Male	134	30	7	6	86%	5%
2015-2016	Targeted	Female	41	9	4	2	50%	5%
		Male	136	17	3	2	67%	2%
2016-2017	Targeted	Female	60	7	3	2	67%	3%
		Male	329	61	11	9	82%	3%
2017-2018	Targeted	Female	23	6	3	3	100%	13%
		Male	113	30	9	8	89%	7%
2018-2019	Targeted	Female	71	27	9	7	78%	3%
		Male	359	68	14	12	86%	3%

(Word Count 196)

## (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.

Staff can avail of non-mandatory University-level general (Induction for All New Staff) or role-specific (Induction for Contract Research Staff) half-day inductions, which cover good employment practices, policies, development opportunities, and work-life policies. Low completion rates prompted us to create a one-to-one School induction for all research and academic staff, delivered by the School Manager, within the first three days in post. New starts are also given a welcome pack and letter. **Impact:** the program has a 100% uptake, extremely positive feedback, and the

induction is now an exemplar of good practice at the Faculty level. In 2017 we added an education-specific induction. All induction materials are available on our website and in our Staff Handbook.

**Impact:**

*'I appreciate Wendy for going the extra mile for making me very comfortable and welcoming on day one for explaining to me in great detail about the school!'*

*-Dominic, new Academic*

All new staff are formally welcomed at the School Board meeting, and are invited to present a seminar, attended by both staff and PhD students. They are additionally allocated a £10k start-up fund to support them in developing their own research programmes. All new staff have mentors, independent of their probationary committee.

**Impact:**

*"As a new academic, the provision of a start-up budget was hugely beneficial in getting my research off the ground. Amongst other things, it has provided the means to support early networking activity, attendance at a government funding body workshop and conference costs for my first PhD student. It has helped to ensure that the exciting beginnings of my research career were a little less daunting."*

*-Declan, Academic Staff*

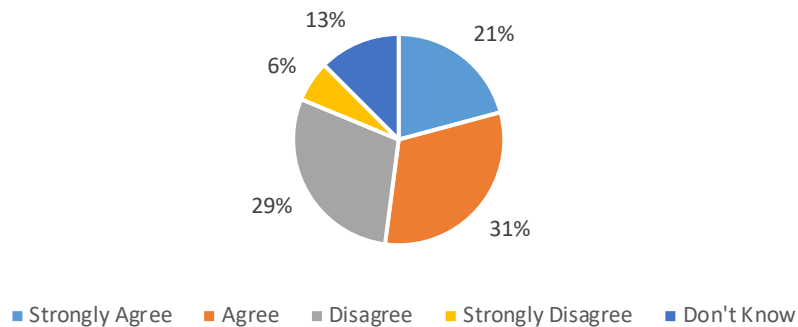
Previous analysis indicated that our international staff have different integration needs, particularly around finding social information (housing, childcare, bank accounts.) **Impact:** our SWAN team worked with the University to develop a more relevant international staff webpage, as well as established an international staff Facebook page (169 members, 24% of international staff), which is co-moderated by one of our SWAN members.

**ACTION:** 3.2 Create a 'buddy' system pairing new international staff with existing international staff for transition support.

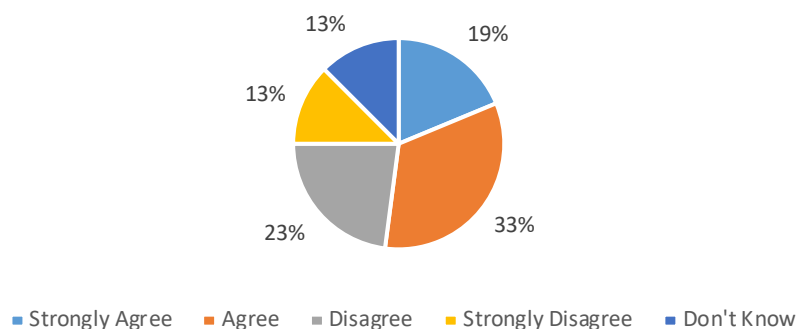
Survey results indicate that some staff are unclear on critical policies within the School (**Fig. 30**).

**ACTION:** 3.5 Provide more emphasis on School policies and where to find information in Induction

My School has made it clear to me what its policies are in relation to gender equality at work (e.g. on discrimination, sexual harassment, unequal pay).



My School has made it clear to me what its policies are in relation to family-friendly issues (e.g. parental leave, carer's leave, flexible working, childcare facilities).



**Fig. 30** SMAE Survey Results on Knowledge of School Policies, 2019

(Word Count 243)

### (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.

Timely progression and career advancement has been a significant challenge at both the University and the School level for all staff, male and female (**Table 14**). In response, the University has worked aggressively to revise its progression scheme, to be fully introduced in early 2020.



**ACTION:** 2.1 Develop strategies to communicate the process and support eligible staff, particularly women, under the new University Progression Scheme

At the School level, analysis has shown that the biggest barriers to female promotion have been lack of encouragement, lack of leadership opportunities, and time and effort needed to prepare for the promotion process. **Impact:** HoS now personally encourages and further directs all line managers to specifically encourage women towards promotion.

**Impact:**

*'My manager was extremely positive and supportive in encouraging me to apply, and I wouldn't have applied if he hadn't brought it up.'*

*-Dani, Lecturer*

**Impact:** This strategy of encouragement directly resulted in two female candidates successfully applying for Reader last year.

**Impact:**

*'I actually wouldn't have applied for SL or Reader without the support and encouragement of Brian. I was overwhelmed at the thought of putting all my paperwork together. I was nervous and lacked the confidence. '*

*-Aoife, Reader*

**Impact:** the new Operational Teams structure (**Fig. 4**) allows more leadership opportunities. Further, all leadership decisions are considered with female applicants in mind. For example, when creating the new post of Deputy Chair of School, the application requirements were reduced from Professor to Senior Lecturer, as this would allow more women to apply. The position was ultimately awarded to a woman.

While women overall have comparable promotion success rates, there is a gender disparity in Lecturer to Senior Lecturer success by gender (**Table 15, Table 16**.) Under the new University Progression scheme, L-SL promotions will occur at the School level. A newly created School Committee will exist to assess and support probations, personal development review, and promotions from L-SL. **Impact:** a SWAN representative will sit ex officio on this committee.

**ACTION:** 2.1 Identify past barriers in female success rate from Lecturer to Senior Lecturer and determine if they will still be relevant in new Progression Scheme, and subsequently address solutions.

Our newly hired female teaching-only staff (2 women) are on fixed-term contracts as a result of the conditional funding used to hire them. This creates a challenge for the School to create promotion opportunities for them.

**ACTION:** 2.3 Work with the University to convert all fixed-term education positions to full-time, in line with all academic research posts.

Specific promotions workshops for female staff are run annually by at the University level by QGI, which are open to female staff at all career stages. Additionally, QGI run a mentoring scheme pairing junior female academics and researchers with senior staff, and offer a drop-in career and work-life balance advice service for women.

**Table 14** Results of University People & Culture Surveys for both School and University, 2016, 2019

University People & Culture Staff Survey	School	School	University
Question	SMAE 2019	SMAE 2016	QUB 2019
In comparison with people in similar jobs in other organisations, I feel my pay is reasonable	43%	55%	51%
I am satisfied with the total benefits package (e.g. pension, annual leave, salary, etc)	53%	66%	61%
I believe I have the opportunity for career progression at Queen's	41%	41%	40%
School Culture Survey			
I understand the promotion process and criteria in my School	23%	50%	N/A

**Table 15** SMAE Applications, Promotions, and Success Rate by Gender, 2015-2019

Year	Applications			Promotions			Success Rate	
	Female	Male	Total	Female	Male	Total	Female	Male
2014/15	0	2	2	0	2	2	N/A	100%
2015/16	0	2	2	0	2	2	N/A	100%
2016/17	2	3	5	1	2	3	50%	67%
2017/18	0	1	1	0	0	0	N/A	0%
2018/19	2	3	5	2	1	3	100%	33%

**Table 16** SMAE Applications, Promotions, and Success Rate by Grade, 2015-2019

Grade	Applications			Promotions			Success Rate	
	Female	Male	Total	Female	Male	Total	Female	Male
Lecturer to Senior Lecturer	2	6	8	1	4	5	50%	67%
Lecturer to Reader	1	0	1	1	0	1	100%	
Senior Lecturer to Reader	1	4	5	1	4	5	100%	100%
Senior Lecturer to Reader (Educ)	0	1	1	0	0	0		0%
Reader to Professor	0	2	2	0	1	1		50%

## (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.

For both REF 2008 and REF 2014, all female staff were eligible and returned (**Table 17**). The return rates show no gender imbalance and exceed national averages.

**Table 17** SMAE REF Returns by Gender and National Average

	Female			Male		
	Eligible	Returned	Percent	Eligible	Returned	Percent
REF 2008	2	2	100%	31	25	81%
REF 2014	7	7	100%	23	23	100%
National Averages	-	-	51%	-	-	67%



## SILVER APPLICATIONS ONLY

### 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.

In addition to optional University general or role-specific induction, new professional and support (P&S) staff also avail of our new one-to-one induction with the School Manager within the first three days of their employment. **Impact:** uptake is 100%, with positive feedback (*'very useful'*) Workshop staff undertake an additional specific induction, with likewise positive feedback.

#### **Impact:**

*'My new colleagues and my supervisor have made me very welcome... it has been one of my best experiences and beginnings in a job.'*

*- Jose, Workshop Technician*

New staff joining the School from outside the University undertake a 6-month probationary period with monthly meetings with their line manager before they are confirmed in post. **Impact:** feedback includes *'monthly catch-ups were really useful'*.

Methods are needed to further quantify effectiveness.

**ACTION:** 2.7 Conduct 'check-in' survey 3 months after start of P&S new hires to ensure their induction needs were met, including quantification of effectiveness of induction

[Sub-total 89 words]

#### (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.

Similar to other UK universities, there is no direct promotions route for P&S staff. Career progression occurs either through re-grading of a post or through appointment to a higher graded post elsewhere in the University. Posts are advertised externally and internally via a University-wide Recruitment Boarding Scheme. Competition for higher graded posts in the University is high, often requiring 3+ application attempts, but there is a good track record for career progression (**Table 18**). Consistent feedback from P&S staff is that they are dissatisfied with the Boarding Scheme and lack of clear promotion

prospects. **Impact:** lobbying through SWAN and through the Staff Forum has resulted in making the issue a high priority with the Registrar, who is currently leading a working group to review the issue. Our School is committed to engaging with the consultation process.

**ACTION:** 2.8 Conduct feedback survey after completion of March 2020 Grit & Grace programme to assess effectiveness of providing holistic development training to P&S staff

**Table 18** SMAE Career progression for SMAE P&S staff 2014-2018

Route	Successful applicants	Result
Externally Advertised	1 Male	Moved to higher grade technical post
Externally Advertised	1 Female	Moved from fixed-term academic-related post in the School to fixed-term Lecturer (Education)
Regrading of clerical post	1 Female	3 applications (2 M & 1 F) currently under review
Internally Advertised	2 Female	Moved to higher grade admin support and clerical
University's discretionary performance reward scheme for outstanding contributions	4 Female 2 Male	Moved to higher grade

Sub-total 136 words

### 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?

Staff are made aware of training opportunities through the School and communications from the University. A list of training courses is available through the iTrent HR and payroll system where all staff can review completed training and book places on future courses (Fig. 31). SMAE subsidises training, particularly for early career staff, effectively supplementing their allocated start-up funds. Equality, Diversity, (Think Difference, Act Differently) and Unconscious Bias training have been added to the compulsory courses for all staff in 2019. Additionally, our School has delivered a workshop on Unconscious Bias (60+ attendees) and a training course on Imposter Syndrome (42 attendees).

#### Impact:

*“Great event! I liked the way she got us to stand up in we agreed that we had experienced self-doubt under certain scenarios. When most of the room stood up, it made me feel more confident in myself. I feel like an imposter every day. I am dyslexic. I was bullied at work because of my dyslexia. It has taken away my confidence despite any of my achievements. Courses like this helps me to rebuild by confidence. Thank you!”*

*-Imposter Syndrome Attendee*

Course:	Staff Completion:
Annual Fire Safety	80%
Anti-fraud Awareness	83%
Email Essentials	77%
Freedom of Information	84%
GDPR	70%
Health & Safety Essentials	59%
Health & Safety for Computer Users	84%
Register of Interests	60%
Secure Remote working	69%
Think Differently, Act Differently	53%
Unconscious Bias	61%

Fig. 31: Mandatory Training Courses For Staff (left) on QOL Personal Account.

#### Completion Rates for SMAE Staff (right)

All new academic staff complete the Postgraduate Certificate in Higher Education Teaching (PGCHET), with in-house support from previous graduates. A Teaching in Higher Education training programme was introduced in 2016 to provide research staff, who aim to start an academic career, with formal training and teaching experience.

## Impact:

*'Great training programme, which was well organised, providing good exposure to the teaching side of things and the opportunity to receive constructive feedback'.*

*-SMAE Researcher*

Researchers are encouraged to apply for Associate Fellowship of the HEA. Other support for research staff includes sponsorship to attend a leadership programme for senior PDRAs. Feedback from our Postdoctoral Forum indicated a need for further support for professional and career development of research staff. **Impact:** a peer-led training initiative was launched in 2018. The scheme provides funding to support training in research methods and is delivered by Queen's staff and PhD students. **Impact:** funding is also provided as part of the ongoing Research Strategy objective to enhance the postdoctoral culture and community in the School.

Monitoring of staff attendance at training courses is undertaken centrally by the University. 36% of training attendees are female (**Table 19**) and 65% of staff agree/strongly agree that there is equal access to career development opportunities (**Fig.25**). Advertisement of opportunities to all staff remains a priority for both the School and the institution to encourage uptake of training opportunities.



**Fig. 32** School Survey results by gender for 'Staff have equal access to career development opportunities (e.g., time for research, training support, administrative responsibilities appropriate for advancement) irrespective of gender. (Note: N/A applies to staff and researchers who responded to the question but did not register their gender)



**Table 19:** Percentage of recorded training events attended by male & female academics & researchers

Staff category	Training Attendance 17-18		Total Staff Breakdown 17-18	
	Male	Female	Male	Female
Academic	64%	36%	80%	19.5%
Research	65%	35%	73%	33%

**ACTION:** 3.7 Increase staff completion rates to 100% for Equality, diversity, (Think Difference, Act Differently) and unconscious bias training & breakdown rates by gender.

[Sub-total 304

words]

## (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.

Until 2018, annual appraisals occurred at the beginning of the academic year, at which point the previous years' accomplishments were reviewed. A six-month review meeting took place between the annual appraisals. The process applied to all staff and was monitored by the HoS to ensure 100% uptake. New goals and objectives were agreed against measurable and defined outcomes, which mapped clearly into promotion criteria. Career development and work/life balance were integral components of this conversation. Although not formally appraised, probationary staff were assigned a mentor, and they meet every three months to discuss objectives. Feedback from the 2016 Staff survey indicated dissatisfaction with this process. Staff felt that the appraisal process was administratively heavy, time-consuming, and did not deliver sufficient positive impact on job performance or career development. In 2019 this process will be replaced with a new Personal Development Review (PDR). Unlike Appraisal, PDR focusses on continuous, ongoing conversations between Reviewer and Reviewee, enabling both to have a shared understanding of the Reviewee's contribution, their developmental needs and their career aspirations. PDR is about fostering a positive working relationship between Reviewer and Reviewee moving away from the 'form filling' focus of the appraisal process. The PDR process also

applies to all staff and will be monitored by the HoS to ensure 100% uptake. All reviewers will receive training to ensure optimal delivery of the new system.

[Sub-total 226 words]

### (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.

Career progression of our female academics is a School priority. We provide generous sponsorship to professional development events (**Table 20**). **Impact:** in 2018 the School secured an industry-sponsored (AESSEAL) grant of £50k to support female career development. **Impact:** to date, the grant has funded 5 female academics to international conferences.

**Table 20:** School Sponsorships of Women in Leadership, Empowerment & Economic Engagement Events

Sponsored Event
Next Generation Leadership Programme
Women's Economic Engagement and the Europe 2020 Agenda (as a guest of the Irish President's Office)
UK Aurora Leadership Programme
IrFUW Annual Conference on Education, Empowering Women and Girls

The School supports the new Queen's Staff Coaching Service. We presently have one Institute of Leadership and Management endorsed coach, and a second female academic is working towards this qualification. A particular area of concern is career progression for female research staff. **Impact:** The School played a central role in persuading QGI to broaden the University's Mentoring Scheme to include probationary academics who were previously ineligible to participate; with one mentee commenting that she *'found the support of the mentoring scheme really useful – my mentor was particularly helpful as a sounding board'*.

In recognition of the importance of leadership experience, all staff (including PDRAs) can express preference for Operational Teams membership as well as self-nominate for leadership roles.

QUB has implemented the "Concordat to Support the Career Development of Researchers Principles". Researchers have been encouraged by the School to avail of training and development to develop their careers through fellowship applications and managing key outputs (journal publications, income). This will continue through the new PDR process. A Postdoctoral Staff Group Mentoring Scheme was piloted in 2017. Groups of postdoctoral researchers met on a monthly basis between February and June to discuss career development matters and to benefit from peer support. Stated benefits included: improved self-evaluation abilities, better career development awareness, and learning about organisational and academic culture. **Impact:** results

from a wider survey showed that most (89%) took time to review and plan their career development during the mentoring process; 93% stated that mentoring encouraged them to engage in personal and career development. **Impact:** those stating they had a career development plan increased from 37% to 67% after the programme.

School survey responses indicate that although academics and researchers are generally satisfied with the opportunities for career development, women need more encouragement to take up career development opportunities (**Table 21**). The new PDR process will include provision for this through training for reviewers which will emphasise the need for encouraging individuals to seek and avail of development opportunities.

**Table 21:** 2019 SWAN Survey Questions Relevant to Career Opportunities

Survey Question	Percent Agree/Strongly Agree	Percent Females Agree/Strongly Agree:	Percent Males Agree/Strongly Agree
'I am actively encouraged to take up career development opportunities'	60%	50%	63%
'My School provides me with useful networking opportunities'	65%	70%	67%

**ACTION:** 2.5 Increase uptake of AESSEAL Breaking Barriers fund among postdoctoral researchers through targeted promotion of opportunity

**ACTION:** 2.1 Supplement QGI activities with School specific workshops and mentoring driven by the proposed Career Progression Admin Team

**ACTION:** 2.4 Encourage and support women to attend professional development events

**ACTION:** 2.4 Identify additional revenue streams to support women's professional development

[Sub-total 360

words]

(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).

All first year students are assigned a tutor as their key support contact throughout their degree. Structured engagement includes introductory meetings, guidance on laboratory work and general study approaches, formal career discussion meetings including CV advice and meetings around course engagement when the need arises. Students are encouraged to attend and participate in the running of student branches of professional bodies (RAS, AIAA and IMechE). Student-led branches within the School invite high profile, successful female speakers to their events, including academics. **Impact:** the student branches have been disproportionately chaired by female students. **Impact:** An undergraduate peer assisted learning (PAL) scheme has been established and run successfully since 2017 (**Fig. 33**). Student mentors help Stage 1 and 2 students with study related issues or any other aspect of University life.



**Fig. 33** PAL Undergraduate Peer Mentors

Undergraduate students are informed about research career pathways through research-lead teaching and individual and team project supervision. Having access to appropriate role models is a well-known element for attracting young women to STEM careers, particularly in academia. With 20% of our academic staff being female, our students experience regular contact with female

academic role models. Additionally, our female Placements Officer promotes gender-specific scholarship opportunities, and ensures that invited lecturers from industry are gender balanced.

We provide our PhD students with opportunities to conduct supervised teaching and offer support for publication of research, professional networking through conference attendance and applications for funding. Feedback from students on development opportunities is good although additional encouragement is required for female PhD students to take up career development opportunities. (Table 22).

**Table 22:** 2019 PhD Student Survey Returns: Career Progression

Survey Question	Percent Agree/Strongly Agree	Percent Females Agree/Strongly Agree:	Percent Males Agree/Strongly Agree
'I am actively encouraged to take up career development opportunities'	69%	50%	78%
'My School provides me with useful networking opportunities'	85%	100%	78%

**Impact:** Responding to a PhD Focus Group (April 2015), the School has since held two careers events to develop career advancement skills. These included guest speakers from academia and industry, networking with staff, CV guidance, and interview workshops. While tailored to PhD students, PGT students and postdocs also attended. **Impact:** The events received positive feedback from students: *'so interesting to hear how others got to be where they are – made me more content to know it will eventually fall into place'*. Additionally, a PhD Peer Mentoring Scheme, which pairs first year with second/third year PhD students, was introduced in 2017, to aid the transition from study to research.

Through our AESSEAL grant we created our 'Overcoming Barriers' fund. Rather than award the fund scholastically, which tends to reward only the top performers, we wanted to help as many women as possible overcome daily barriers experienced by women. The fund has supported child summer scheme fees to enable a PGR to continue her studies during the summer and allowed a researcher to take time off to support her partner who was hospitalized. Leadership activities are also supported. **Impact:** 16 female PGT and researchers have been funded to date.

**ACTION:** 2.5 Increase uptake of career development opportunities for female PhD students (supervised teaching, undergraduate project supervision, teacher training).

**ACTION:** 2.4 Provide support for enhancing career advancement skills around funding and publishing (e.g. writing for publication, professional networking)

[Sub-total 428

(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.

University grant application support includes dedicated Finance and Research & Enterprise personnel informing staff about funding opportunities, direct proposal input for Pathways to Impact, project costing support, and provision for reviews and feedback around the Case for Support. **Impact:** *'support from research and enterprise enabled the academic team to focus on the research novelty and articulation. This was extremely beneficial in practical terms but it also made proposal development quicker and less stressful –Academic Staff'*. The School provides a hot desk area for Queen's Research Support Office members for face-to-face support. Staff are encouraged to attend workshops and courses on funding opportunities and grant writing, particularly for early career researchers.

Internally, mentoring from experienced senior members of School staff is offered through probationary meetings, appraisals/PDRs. Research support topics are covered at our annual Research Away Day. Network events which may lead to funding applications are supported by the School (e.g. EPSRC sandpits, EPSRC early career forums) or by the Faculty (e.g. visiting potential H2020 grant collaborators, etc.).

Collaboration within research themes is a key element of the School's research strategy enabling early career researchers to network with more experienced academics. Both successful and unsuccessful grant applications are credited when considering promotion.

**ACTION:** 2.4 Establish support mechanisms for unsuccessful grant applications

[Sub-  
total 165 words]

## SILVER APPLICATIONS ONLY

### 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?

Staff have access to and may request attendance at centrally run training courses, details of which are available on the University website. Staff are also encouraged to identify externally run courses which, subject to the business needs of the School, may be supported through the School training budget. Staff can attend team briefings which provide “on the job training” in such matters as IT, QUB financial and student information systems. **Impact:** the School has supported 100% of requests to attend centrally run courses during the reporting period. **Impact:** Uptake of training course at SMAE is in excess of 70% based on data for all P&S staff (31 total, 42% women), for the last three years. To better inform and embed the staff in all aspects of the School, staff are offered places on School Operational Teams.

The University offers a “Coaching Skills for Line Managers Workshop” which introduces coaching as a management style. Additionally, a “Staff Coaching Service” supports staff at grade 6 to explore options and develop insights around work-based challenges. Female P&S staff at grades 7+ can avail of the recently introduced Queen’s Gender Initiative Mentoring Programme, piloted in 2018. Mentoring, coaching and shadowing is in place for all technical staff in the School’s workshop and it has proven to be the best way for staff in the workshop *‘to support each other and keep up with software/programming/machining and training methods’*.

(Subtotal 233 words)

#### (ii) 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.

Historically P&S staff undertook an annual performance-based appraisal similar to the academic and research appraisals. General dissatisfaction with this process by all staff, as identified in the University surveys (2016, 2019), led to SWAN-supported lobbying for a change of process. **Impact:** in late 2019, a new Personal Development Review (PDR) (section 5.3ii) was introduced, holistically focusing on personal development, rather than performance. Importantly, the PDR staff process is the same as that for academic staff, bar a priorities element.

**ACTION:** 2.4 Conduct survey to obtain staff feedback on migration to the PDR process and develop actions to address issues raised. 2019.

## (iii) 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.

Career progression for P&S staff is achieved through the regrading of posts or staff moving to higher graded posts elsewhere in the University. Consistent feedback around the lack of promotion prospects has led to lobbying through SWAN for change, resulting in a high priority review by the Registrar. To support staff in the current process, the School Manager proactively circulates emails about relevant opportunities and provides courses on CV writing and feedback to support candidates.

Up to 2018/2019 the University provided financial assistance for part-time courses of study for staff, if the resulting qualification met business needs. Of four School applicants, three were unsuccessful, primarily due to non-alignment of the requested courses with business needs (**Table 23**). Recognising a lack of holistic personal development training opportunities, the SWAN team offered prioritised full funding for P&S staff to attend the highly regarded Grit & Grace Leadership Programme for Women. **Impact:** 5 female P&S staff (38%) have so far committed to the March 2020 cohort of Grit & Grace. **Impact:** further lobbying has resulted in personal and professional development now being available for P&S staff as a topic under our LinkedIn Learning resource on the QUB website.

**Table 23:** P&S Applications & Outcomes for Degree Study.

Note: There were no applications for degree study in 16/17.

Year:	Request:	Gender:	Qualification:	Outcome:	Reason:
17/18	P&S	Female	Part Time degree (Open University)	Unsuccessful	Did not meet business needs
17/18	P&S	Female	Mini-MBA	Unsuccessful	Did not meet business needs
17/18	P&S	Female	RSA - Event Planning	Successful	
18/19	Technician	Male	Part Time degree (Open University)	Unsuccessful	Did not meet business needs



[Sub-total 195 words]

## 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.

Maternity leave cover is provided via the University. Resource needs are identified in advance and deployed by the School taking the WAM into consideration. Staff can then enjoy anxiety-free maternity/adoption leave and replacement staff are not over-burdened. This process covers all academic, research and P&S staff.

One academic, one researcher and two members of our P&S staff took maternity leave during the reporting period. Meetings were held between staff members who took maternity leave and those who provided maternity cover. Feedback on support provided before going on leave was excellent. Support from senior staff as well as informal support from colleagues were noted as particularly good.

Although maternity policies are available on the University website via links in the School's Home web page, about half of the respondents to a staff survey either disagreed or didn't know if the School 'Had made it clear to me what its policies are in relation to family-friendly issues'. The SWAN team has subsequently emailed information links to staff and circulated flyers at SWAN breakfast events. **Impact:** links to family-friendly policies are now included in the Team Brief, which is emailed to all staff several times per semester by the School Manager.

**ACTION:** 3.5 Increase staff awareness of all maternity/paternity policies

[Sub-total 198 words]

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

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

Cover can be provided through internal secondment which provides opportunities for staff development, e.g. a staff member providing maternity cover for a P&S staff member was subsequently appointed MSc Co-ordinator and has since progressed to a Lecturer (education) role.

Staff are entitled to work for a period of up to 10 days during maternity leave, known as 'keeping-in-touch days', without loss of maternity allowance or statutory maternity pay or without triggering a return to work. School policy is for the School Manager/Line Manager to maintain contact with the member of staff on leave. All PhD students within the School have two supervisors to ensure continuity in supervision should one supervisor become unavailable due to maternity, paternity or adoptive leave.

Feedback from staff regarding support provided during leave related to two main issues. One issue was uncertainty about policies and procedures. The proposed action arising from section 5.5(i) will address this. The second suggestion was for staff on leave to be invited to key social events within the School, e.g. Christmas lunch, in order to assist in maintaining contact with colleagues and keeping up to date with happenings in the School. Invitations are normally sent via phone or text as staff are not expected to check emails while on maternity or adoption leave.

**ACTION:** 3.4 Promote inclusivity for Staff on maternity/adoption leave by continuing to invite them to key social events within the School

[Sub-total 212 words]

(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.

Returning staff meet with their line manager one week prior to their scheduled return. The meeting provides an opportunity to provide updates on developments relative to their role and to discuss requirements around their return to work or managing their work load e.g. flexible working and the use of any leave accrued during their absence to provide a phased return to a normal working pattern. Additionally, staff are advised of the QUB Childcare Support Services and the Childcare Voucher Scheme.

The School has a formal 'Return to Work' policy for staff including: a phased return to work with reduced teaching and administrative duties to provide an opportunity to regain momentum in their research work. Additionally, the School will support formal flexible working following a period of maternity or adoption leave in recognition of the needs of staff with caring responsibilities, giving them opportunity to maximise their contribution to the School and to support their own career development.

**ACTION:** 3.4 Liaise with School manager to assess and identify any issues arising from the implementation of current return to work policies.

[Sub-total 157 words]

(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.

**SILVER APPLICATIONS ONLY**

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

The maternity return rate in the School is 100%, with all permanent staff who took maternity leave during the reporting period returning to work and remaining in post in the short term. One member of academic staff left the School six months after her return from maternity leave during the reporting period. Although she confirmed that our maternity provision had been excellent, the fact that her partner was employed at another UK academic institution was an issue for both her and her child. **Impact:** Working with HR at QUB, SMAE went beyond normal family friendly provision to investigate the possibility of securing a post for her partner at Queens. This was not possible so she left Belfast to be with her child and partner. One postdoctoral researcher returned to work following her maternity leave and worked until the end of her fixed-term contract.

[Sub-total 143 words]

(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.

The School Manager promotes and encourages the uptake of paternity and shared parental leave during induction of new staff. All eligible employees are entitled to Queen's enhanced paternity provision of three weeks' leave (statutory normal is two weeks) on full pay. The third week can be taken any time within four months of the birth. Staff who have taken paternity leave are very positive about the enhanced conditions relative to their experiences elsewhere.

Staff who took paternity leave during the reporting period included four academics, two researchers, and one member of P&S staff. Parental leave was taken by P&S staff members on two occasions in 2015, three in 2016 and one in 2017 (all female). A comment from a staff member returning from paternity leave was that, although the procedure was straightforward, it was difficult to find information. Details for family-friendly policies are available on the University website via the Diversity and Inclusion Unit. Links to these are provided in the School's Home web page and our SWAN page. At a School level, staff are also reminded of paternity leave and shared parental leave policies in the Team Brief.

An issue highlighted was that no formal teaching cover was provided during paternity leave. Academics had to return to work to deliver lectures and to respond to e-mails during their 3 week leave period. Our revised academic calendar means that modules are now year-long and have at least two members of staff per subject. **Impact:** this has enabled better coverage of teaching and student management when staff members are absent for any reason or are returning from paternity leave.

**ACTION:** 3.4 Promote and encourage the uptake of paternity and shared parental leave beyond induction through School communications & updates

[Sub-total 268 words]

(vi) Flexible working

Provide information on the flexible working arrangements available.

Queen's University offers a range of flexible working conditions depending on individual circumstances and needs. These include maternity & paternity leave, shared parental leave, adoptive leave, career breaks, dependant leave including bereavement leave, flexible working (including part time). Policies for all of these are provided on the QUB People and Culture Webpage. A link has also been placed on the home page of the SMAE website entitled 'Important Information for Staff' which takes the reader to the policy, guidance and application information for family friendly working at SMAE. In addition to the above provisions, there is also a strong and accepting culture of informal flexible working at SMAE to accommodate caring responsibilities including child support around school events (teacher meetings, plays, sports days), caring for aging parents or managing home life in general.

The School has had no formal applications for flexible working arrangements although many avail of informal arrangements. Staff can approach their line managers to seek formal flexible working. Three P&S have shared time working patterns to accommodate caring responsibilities.

The School staff survey about half of respondents replied either 'disagree' or 'don't know' to the statement 'My School has made it clear to me what its policies are in relation to family-friendly issues (e.g. parental leave, carer's leave, flexible working, childcare facilities)'. This prompts an action to better inform staff of School policies on formal policies but it also indicates that staff can work with informal flexible working arrangements to cover their needs.

[Sub-total 246 words]

(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.

There have been no instances of a member of staff seeking to transition from part-time back to full-time work. Should a request arise, it would be treated sympathetically and accommodated where possible taking business needs into consideration.

[Sub-total 37 words]



## 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 School runs an annual, all-staff “Away Day” which has contributed to a more inclusive workplace whereby all staff have a voice and feel that the School is an integrated, team-based environment.

The School celebrates International Women’s Day (IWD) and National Women in Engineering Day annually with poster exhibitions highlighting the roles of our female staff members (**Fig. 34 & 35**). Staff have commented that they have learned a lot about people who they have worked with for years, based on the contents of their IWD poster.

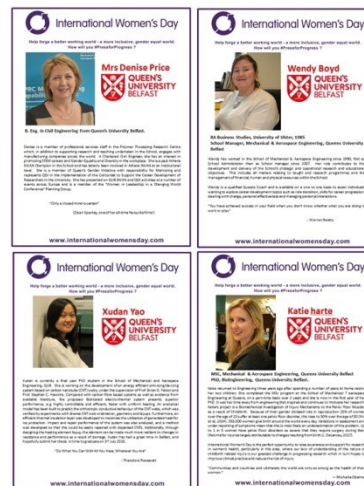
In 2016 the School formed the Research Culture Committee (RCC), to create and promote an inclusive community and culture for all. This improves our culture by enabling individuals to mix with people within the School through social, academic and industrial events (**Fig. 36**).



**Fig. 34**

International Women’s Day

(IWD) 2018



**Fig. 35** Sample Posters from IWD 2018.



**Fig. 36** Research Culture Committee Events.

Staff and student input is realised through surveys and focus groups. In 2019 a staff ‘Gender equality and culture’ survey generated generally positive results (**Table 24**). The School is a great place to work for both males and females. Although institutional policies are available to staff through the ‘Important information for Staff’ tab on our School’s home page, for question 6, responses are generally low regarding clarity on School policies. **Impact:** These are fully aligned with institutional arrangements and will be brought to staff attention through SWAN presentations at future School board meetings. For Questions 7, 8 and 9 staff are clear that abusive or unsupportive behaviour is unacceptable and that it will be dealt with but they are unclear as to the process for making a complaint or raising a concern. **Impact:** A formal protocol will be documented and presented to staff at our next School Board meeting.

**= Table 24** 2019 Sample School Staff Survey Responses

(Based on 57 returned Surveys: 10 Female, 27 Male, 11 Prefer not to say)

	Total Agree/Strongly Agree:	Females Agree/Strongly Agree:	Males Agree/Strongly Agree:
1. I feel that my School is a great place to work for women.	73%	90%	78%
2. I feel that my School is a great place to work for men.	79%	80%	89%
3. I feel that my School is a great place to work for staff with diverse sexualities.	52%	50%	59%
4. In my School, staff/students are treated on their merits, irrespective of their sexuality.	79%	90%	82%
5. I understand my School’s reasons for taking action on gender equality.	71%	90%	70%



6.	My School has made it clear to me what its policies are in relation to gender equality at work.	50%	30%	63%
7.	My School makes it clear that unsupportive language and behaviour are not acceptable	71%	80%	81%
8.	I understand the process for making a complaint or raising a concern about inappropriate and/or unsupportive behaviour in my School.	48%	50%	52%
9.	I am confident that my line manager/postgraduate tutor/supervisor would deal effectively with any complaints about harassment, bullying or offensive behaviour.	77%	80%	89%
10.	My line manager/supervisor is supportive of requests for flexible working	65%	80%	78%

A University-wide staff survey in 2019 focused on 'Well-Being and Respect'. Relative to the University overall (**Fig. 37**), our School was amongst those with the highest positive staff responses to the questions related to Queens being an equal opportunities employer (77%) and staff having the freedom to work in ways that suited them (83%). As a School there are things that we could do better with only 60% of staff able to balance work and home life. Only 40% believe Queens cares about their health and wellbeing and only 31% believe that they have enough support for their mental health. In October 2019 SMAE distributed comment boxes throughout the School enabling staff to articulate anonymously, what exactly prompted their responses to the institutional questionnaire. **Impact:** At time of drafting, responses were under review by School management but the outcomes will enable us to formulate actions against recurring issues around health, wellbeing and mental health in particular.

	UNIVERSITY OVERALL	School of Mechanical and Aerospace	Aeronautical Engineering	Mechanical & Manufacturing Eng...
<b>RESPONDENTS</b>	<b>2693</b>	<b>93</b>	<b>15</b>	<b>76</b>
<b>EMPLOYEE ENGAGEMENT INDEX</b>	<b>66%</b>	<b>59%</b>	<b>48%</b>	<b>60%</b>
<b>Wellbeing and Respect</b>	<b>68%</b>	<b>63%</b>	<b>56%</b>	<b>64%</b>
<b>Q35.</b> Colleagues treat me with respect (this relates to colleagues that I work with on a day to day)	<b>86%</b>	<b>80%</b>	<b>71%</b>	<b>81%</b>
<b>Q36.</b> I believe Queen's respects individual differences (e.g. cultures, working styles, backgrounds, ideas)	<b>80%</b>	<b>76%</b>	<b>50%</b>	<b>80%</b>
<b>Q37.</b> I believe that Queen's is an equal opportunity employer	<b>81%</b>	<b>77%</b>	<b>71%</b>	<b>77%</b>
<b>Q38.</b> Where I work we have the resources we need to complete our work effectively	<b>58%</b>	<b>41%</b>	<b>43%</b>	<b>41%</b>
<b>Q39.</b> I am satisfied with my physical working conditions	<b>71%</b>	<b>70%</b>	<b>57%</b>	<b>72%</b>
<b>Q40.</b> I have the freedom to work in a way that suits me, as long as I get my job done	<b>75%</b>	<b>83%</b>	<b>79%</b>	<b>84%</b>
<b>Q41.</b> I believe that Queen's is committed to advancing gender equality	<b>76%</b>	<b>76%</b>	<b>64%</b>	<b>78%</b>
<b>Q42.</b> I am able to strike the right balance between my work and home life	<b>57%</b>	<b>60%</b>	<b>64%</b>	<b>59%</b>
<b>Q43.</b> I believe Queen's cares about my health and wellbeing	<b>52%</b>	<b>40%</b>	<b>36%</b>	<b>41%</b>
<b>Q44.</b> Queen's does enough to support my mental health	<b>44%</b>	<b>31%</b>	<b>29%</b>	<b>31%</b>

**Fig. 37:** Faculty of Engineering & Physical Sciences. Staff Survey - Team Comparison: Wellbeing & Respect

In 2015 a focus group related to School Culture was held with Postdoctoral researchers and staff. Many expressed lack of knowledge of official policies but gender equality in their manager/supervisors attitude was reflected very well and that they were treated fairly. Significantly, many had heard of QGI but did not know their purpose or objectives.

A Student Experience Equality and Diversity Survey was distributed to Stage 1 and 2 students in 2016 (**Table 25, Table 26, Table 27**). Our School has a welcoming culture irrespective of gender, sexuality, race or ethnicity with positive responses over 80%. However, in stages 1 and 2 inappropriate language is an issue with responses to questions below 80% on this issue. Over 90% of our Stage 2 students are comfortable approaching staff for advice irrespective of gender (**Table 27**). Responses make it clear that improved communication regarding School policy and procedures could be improved.

**Table 25** 2016 Stage 1 Student Survey (Based on 105 returned Surveys).

Note: male Female Breakdown Not Available.

Stage 1 Student Survey 2016	Mostly / Definitely Agree	Mostly / Definitely Disagree
1. I have found my School to be a welcoming place in terms of gender	91%	-
2. I have found my School to be a welcoming place in terms of sexuality	92%	-
3. I have found my School to be a welcoming place in terms of race	93%	-
4. I have found my School to be a welcoming place in terms of ethnicity	88%	-
5. I have been bothered by academic staff using language that is sexist	-	80%
6. I have been bothered by academic staff using language that is racist	-	81%
7. I have been bothered by academic staff using language that is homophobic	-	80%
8. I have been bothered by other students using language that is sexist	-	76%
9. I have been bothered by other students using language that is racist	-	74%
10. I have been bothered by other students using language that is homophobic	-	75%
11. I feel comfortable approaching a female member of academic staff for advice	91%	-
12. I feel comfortable approaching a male member of academic staff for advice	92%	-

**Table 26** 2016 Stage 2 Student Survey (Based on 103 returned Surveys).

Stage 2 Student Survey 2016	Mostly / Definitely Agree	Mostly / Definitely Disagree
1. I have found my School to be a welcoming place in terms of gender	89%	-
2. I have found my School to be a welcoming place in terms of sexuality	84%	-
3. I have found my School to be a welcoming place in terms of race	85%	-
4. I have found my School to be a welcoming place in terms of ethnicity	83%	-

5. I have been bothered by academic staff using language that is sexist	-	80%
6. I have been bothered by academic staff using language that is racist	-	80%
7. I have been bothered by academic staff using language that is homophobic	-	78%
8. I have been bothered by other students using language that is sexist	-	76%
9. I have been bothered by other students using language that is racist	-	86%
10. I have been bothered by other students using language that is homophobic	-	77%
11. I feel comfortable approaching a female member of academic staff for advice	92%	-
12. I feel comfortable approaching a male member of academic staff for advice	91%	-

**Table 27** 2016 Stage 2 Student Survey (Based on 103 returned Surveys).

Stage 2 Student Survey 2016	Mostly / Definitely Agree	Mostly / Definitely Disagree
1. The School makes it clear that unsupportive language and behaviour are not acceptable	63%	-
2. The School's policies on gender equality while studying are clear	37%	-
3. I am encouraged to come forward with concerns or complaints regarding sexual harassment or inappropriate behaviour & that these complaints are dealt with promptly and efficiently	41%	-
4. I understand the procedure for making a complaint or raising concerns of inappropriate or unsupportive behaviour	38%	-

[Sub-total 584 words]

(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.

QUB HRD reorganised in 2017 and is now known as People & Culture (P&C). In partnership with P&C, the School (via School manager & Management Board) maintains appropriate staff and student information, and monitors effective implementation of HR policies. The University's Diversity and Inclusion Unit monitor information relating to applicants for employment and staff as well as information relating to student applicants. All information is treated in accordance with the University's data protection policy. The effectiveness of this policy is kept under review and amended to reflect developments in equality legislation and best practice. The University consults with recognised trade unions, the Students' Union and the Equality Commission for Northern Ireland with respect to this policy.

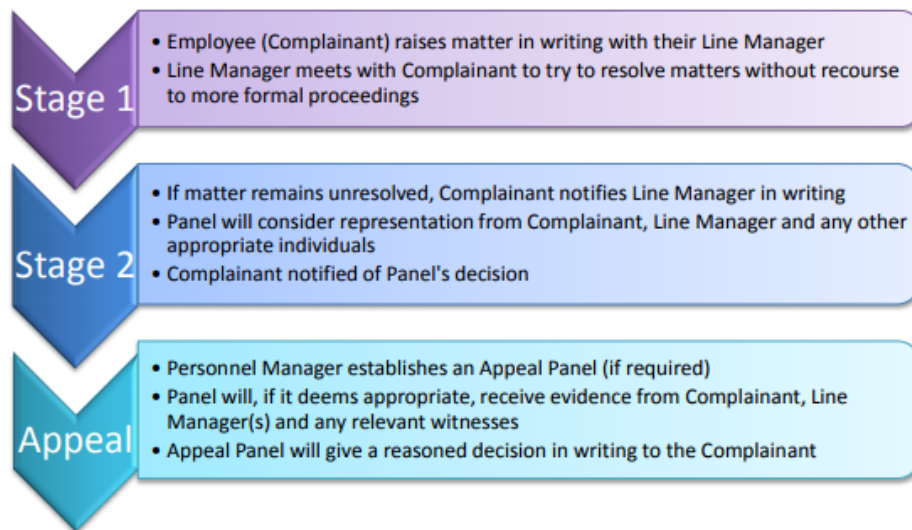
All of our School / institutional HR policies are freely available on the P&C website and provided in our Staff Handbook, including details on salary, appraisal, holidays, sickness, job opportunities, core values, wellbeing, diversity and inclusion and eligibility to work. QUB also offers web content on policies for issues including bullying and harassment, equality, trans-equality, grievances, and work-life balance. Guidance for grievances of discrimination, harassment, victimisation, or bullying (**Fig. 31**) is provided on the P&C website.

Survey results (**Table 24**) indicate knowledge dissemination and grievance support needs addressing.



## Grievance Procedure

**Objective:** To provide an opportunity for an employee to formally raise an individual grievance when the normal channel of discussion with their line manager is unable to resolve the issue.



**Fig. 38** QUB Grievance Procedure adhered to by SMAE

**Table 28** 2019 Survey Results Relative to Grievances  
(Based on 57 returned Surveys: 10 Female, 27 Male, 11 Prefer not to say)

Survey Question	Percent Agree/Strongly Agree	Percent Females Agree/Strongly Agree:	Percent Males Agree/Strongly Agree
'My School encourages staff and students to come forward with any concerns or complaints regarding sexual harassment or inappropriate behaviour and these complaints are dealt with promptly and efficiently.'	35%	40%	37%

**ACTION:** Increase awareness of all HR and School policies Equality, Dignity at Work, Bullying and Harassment, Grievance Procedures, Flexible Working, Maternity/Paternity

[Sub-total 204 words]

(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.

Female representation on / leadership of School committees (teams) has been in line with the overall percentage of females who are appointable to these roles (Table 3). Although participation in our administrative teams is based on individual preferences, women are under represented on our Workshop & Laboratories and Health & Safety committees. The School is endeavouring to increase female numbers among its technicians by encouraging female applications when advertising new posts.

Committee membership is administered by the HOS in line with our WAM. Staff are invited to submit preferences and can volunteer for a leadership role. Allocated roles align with staff interests and skill sets as well as appropriate gender representation and opportunity. An annual review of membership allows flexibility to take account of changing career goals and mitigation against overburdening. Of the current fourteen administrative teams, three are currently led by women.

There is proportionately high representation of female staff on the School Management Board (**Table 29 & Fig. 39**). The SMB is the key decision-making forum within the School, including strategic and policy decision-making. The SWAN Champion (female) is automatically appointed to the SMB and in 2017 our SWAN Co-Champion (male) was democratically elected to join the board. Other board members include head of School, Director of Education, Director of Research, School Manager as well as all of the School professoriate. The successful appointment of a female Deputy Head of School in 2019 brought the number of females on the management board to a total of 5 (36%).

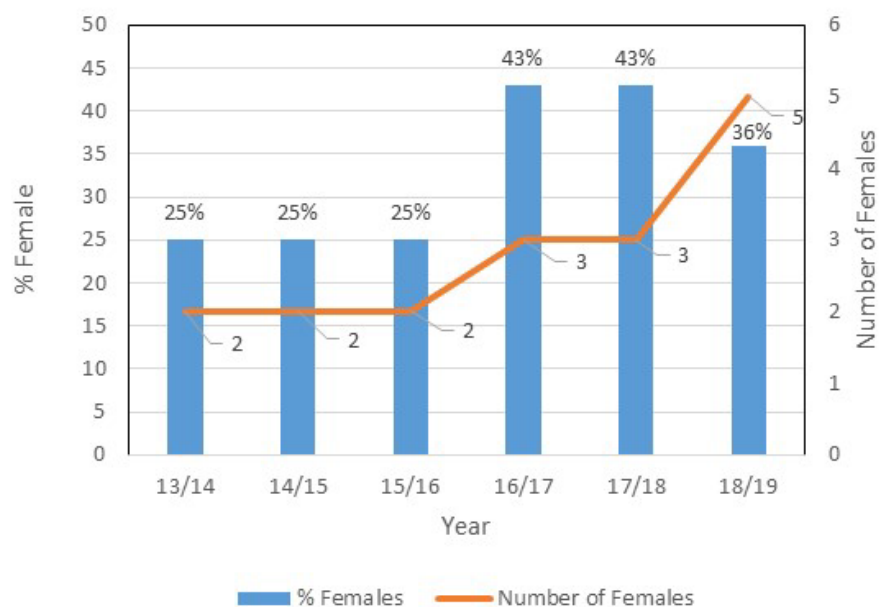
Senior non-academic staff (e.g. School Manager, female) play an active role across our committees and female academics from other Schools have been invited to sit on staff recruitment panels to avoid committee overload for our female staff.

We ensure that probationary staff have a lighter administrative load to support their efforts in establishing teaching and independent research portfolios.



**Table 29** Female and Male Representation on Committees 2012-2017

Year	14/15		15/16		16/17		17/18		18/19	
Committee	Led By	% F	Led By	% F	Led By	% F	Led By	% F	Led By	%F
School Management Board	M	25%	M	29%	M	43%	M	43%	M	36%
Education Committee	M	18%	M	30%	M	23%	M	31%	M	29%-
School Board	M	19.5%	M	18%	M	18%	M	19.8%	M	20%
Staff Recruitment Panels	M	33%	M	33%	M	33%	M	33%-	M	33%
SWAN	F	67%	F	55%	F	44%	F	44%	F	50%
Citations & Dissemination	M	25%	M	20%	M	25%	M	25%	M	0%
Clerical	F	77%	F	91%	F	92%	F	92%	F	93%
Doctoral Training	M	25%	M	25%	M	30%	M	30%	M	18%
Environmental	M	33%	M	40%	F	36%	F	36%	F	57%
Finance	M	67%	M	80%	M	67%	M	67%	M	66%
Health & Safety	M	11%	M	14%	M	14%	M	14%	M	16%
International	F	23%	M	33%	M	36%	M	36%	M	40%
IT	M	14%	M	0%	M	0%	M	0%	M	0%
Leadership, Employability & Placement	M	30%	M	43%	M	36%	M	36%	M	39%
Publicity	F	50%	M	43%	M	18%	M	18%	M	25%
Student Recruitment	F	50%	F	71%	M	50%	M	50%	M	36%
Workshop & Laboratories	M	22%	M	29%	M	14%	M	14%	M	13%



**Fig. 39** Female Representation - School Management Board

**ACTION:** 1.13 Increase female representation on Workshop & Laboratories and Health & Safety committees.

**ACTION:** 1.14 Increase female numbers among technicians by encouraging female applications when advertising new posts.

[Sub-total 308 words]

(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?

Female staff are encouraged to take leadership roles across QUB and on external bodies. Internally, opportunities are conveyed through University communications, Faculty, and HoS. Examples include:

- International Conference organisation (Programme Chairs / Lead Organisers)
- National/international panels (RAeS, Engineers Ireland accreditation panel)
- Member- Professional Registration Committee, CEng assessor on behalf of the Royal Aeronautical Society

Recognition of participation is an element of the promotions process.

**ACTION:** 2.4 Increase encouragement of women to participate in influential external committees through PDR process

[Sub-total 64 words]

(v) Workload model

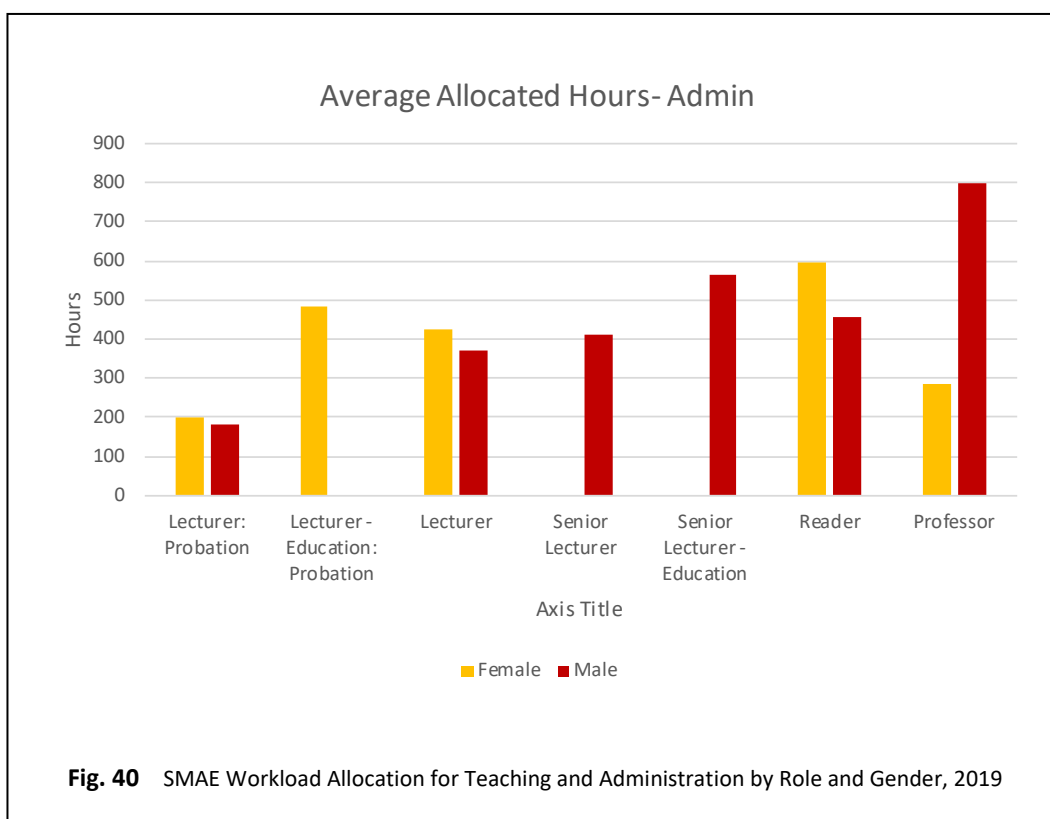
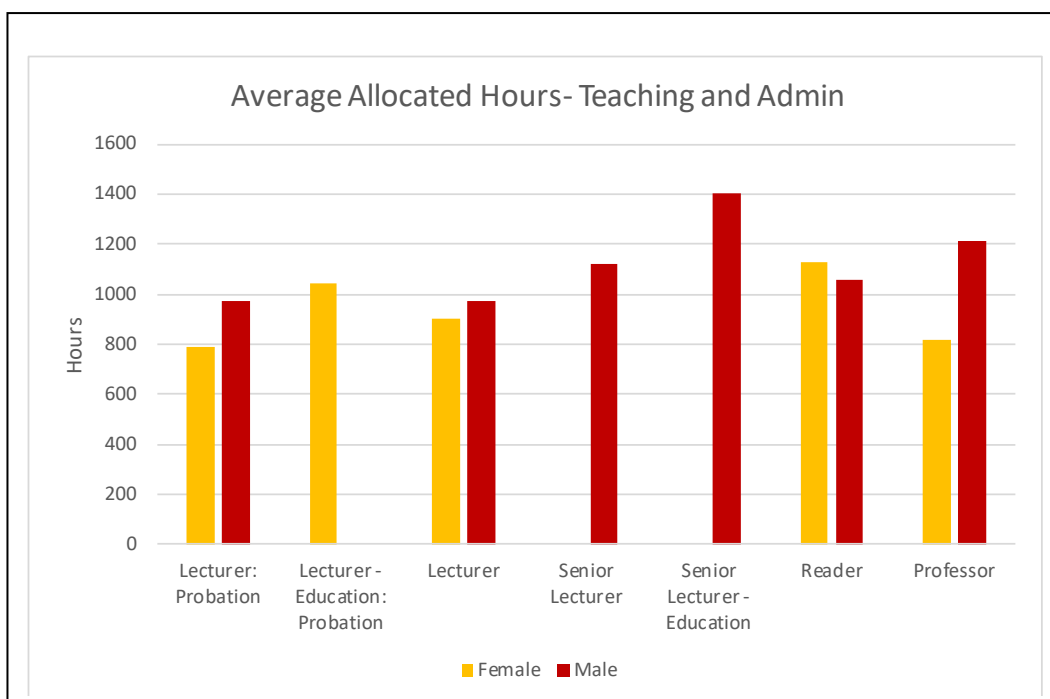
Describe any workload allocation model in place and what it includes. Comment on ways in which the model is monitored for gender bias and whether it is taken into account at appraisal/development review and in promotion criteria.

Comment on the rotation of responsibilities and if staff consider the model to be transparent and fair.

Our WAM is intended to give guidance on appropriate time spend on tasks. **Table 30** indicates that, although there was no perception of imbalance based on gender, the communication of WAM transparency needed improvement. **Impact:** in late 2019 the WAM process was reconstructed with significant consultation from all staff to include only teaching and administration duties. Our current WAM shows slightly higher workloads for men by grade, and higher workloads for women when considering only the administration allocation (**Fig 40**). Female Reader workload exceeds that of male readers in both cases. The imbalance at the professorial level is due to having a single female professor with a research focus.

Every Operational Team is included as administration and accounted for in the WAM. All probationary staff are also allocated an additional protected weekly “research day” (20% of their working week) to allow them to build up their profile.

**ACTION:** 3.1 Ensure parity of workload with respect to gender for both teaching and administrative tasks.



**Fig. 40** SMAE Workload Allocation for Teaching and Administration by Role and Gender, 2019

**Table 30** 2019 SMAE Culture Survey: Staff Views on Work Load Allocation  
(57 returned Surveys: 10 Female, 27 Male, 11 Prefer not to say)

	Strongly Agree/Agree			
	Overall	Women	Men	Prefer not to Identify
In my School, work is allocated on a clear and fair basis, irrespective of gender	67%	80%	67%	36%
Overall, in my School, work is allocated on a clear and fair basis.	53%	40%	52%	36%
In my School, my allocated work represents my actual workload.	53%	50%	59%	9%

[Sub-total 147 words]

(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.

All formal School meetings are scheduled between 10am and 4pm (excluding 1-2pm).

RCC social events take place during working hours and cater towards part-time staff and staff with caring responsibilities. Our first School Social Away Day in 2017 (Figure 36) encompassed both afternoon and evening events allowing staff to attend one or both activities. Staff were encouraged to bring family members, including children.

QUB has received awards and commendations (2015, 2016, 2017) in the Family Friendly Employer Awards. Initiatives such as flexible working, Childcare Vouchers and other employee benefits make it easier for parents at our School to balance their home and work life.

[Sub-total 104 words]

(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 School is pro-active in the organisation of talks and seminars to develop understanding and provide networking opportunities across our research disciplines (**Table 31**). Female representation among the speakers has been over 50%. Funds are available through our Research Budget to cover the travel expenses of invited speakers. Internally, Prof Biqiong Chen introduced her research to a School audience as part of a Research Culture Committee breakfast event (**Fig. 41**). As a new, international, and female member of our team, this was an excellent opportunity to further embed her into the School's culture.

Key outlets for publicity materials include our School website and social media channels. Female staff and students feature prominently across all content (**Fig. 42**). Our School News page highlights the achievements of our students and staff across our range of educational, research and outreach activities – showcasing our excellent role models (**Fig. 43 a & b**). **Impact:** of the 75 news stories on our School website (2016 – present) 48% have featured the achievements and activities of female staff and students. Our School Facebook page chronicles our staff, student, and outreach activities and achievements (**Fig. 44**). **Impact:** content typically reaches up to 2,000 people per upload.

**Impact:** working under the supervision of female Lecturer Dr. Dani Soban, MEng Aerospace undergraduate, Edward Tsang created a technically comprehensive and historically accurate model of a vintage aircraft for the School's full motion flight simulator (**Fig. 45**). Their work was included in a BBC documentary 'The Great Flying Challenge' which was aired nationally over the summer of 2016.

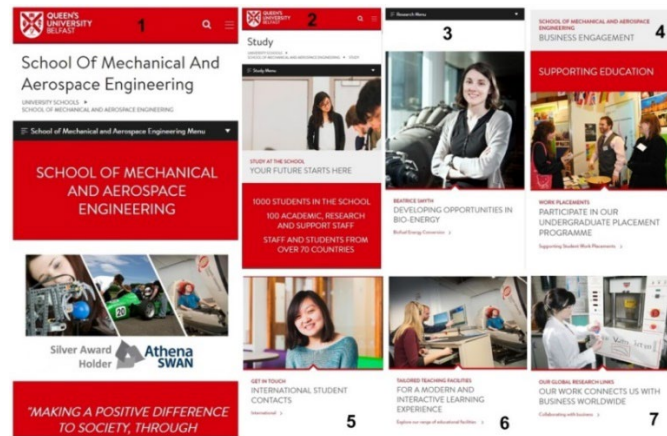
**Table 31** SMAE Talks and Seminars. Female Speakers Underlined.



Speaker:	Institution:	Talk / Seminar Title:	Date:
<u>Prof Julia Kornfield</u>	California Institute of Technology	"Multiplicity of Morphologies in Poly (L-lactide) Bioresorbable Vascular Scaffolds"	16/4/18
<u>Carolyn Griffiths</u>	President, Institute of Mechanical Engineers	'Women in Engineering; International Women's Day 2018'	8/3/18
Dr Rongjun Chen	Imperial College, London	"Engineering anionic biomaterials for intracellular delivery"	30/10/17
<u>Dr. Katharina Edkins</u>	Queens University	"Molecular Interactions in Pharmaceutical Materials"	11/10/17
Dr. Shipeng Li	Tianjin University, China	"Cutting tools for difficult machining materials"	21/6/17
<u>Ruth Wilcox</u>	University of Leeds	"Hips, spines, knees and toes: engineering medical devices to keep us moving"	10/5/17
Dr Pu Zhang	University of Manchester	"Material modelling and novel composite design for additive manufactured photopolymers".	16/1/17
Frank Kirkland	Rolls Royce, UK	"From physical verification to virtual certification - the evolution of large aerospace gas turbine certification"	24/11/16
<u>Dr Artemis Stamboulis</u>	University of Birmingham	"Biomaterials and Nanomaterials"	14/10/16
Dr Toby Jenkins	University of Bath	Designing microbial coatings for medical devices with potential theranostic activity."	20/4/16
<u>Dr Catherine Feart</u>	INSERM, University of Bordeaux	"The Mediterranean Diet and Brain Health: from observational studies to randomized controlled trials"	3/12/15

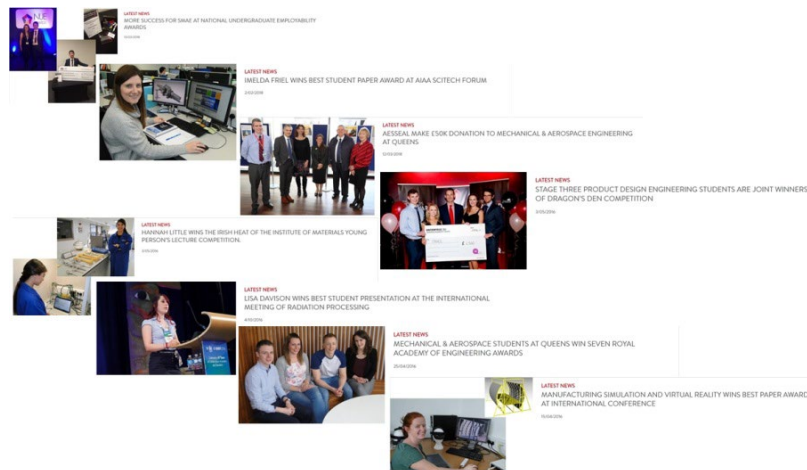


**Fig. 41** Research Seminar: Prof. Biqiong Chen, SMAE, QUB.



**Fig. 42** Publicity Materials: School Website & Sub Pages.

1. Home Page, 2. Study Page Header, 3. Research Page: Feature, 4. Business Engagement Page, 5. International Page: Contacts, 6. Education Feature, 7. Research Feature.

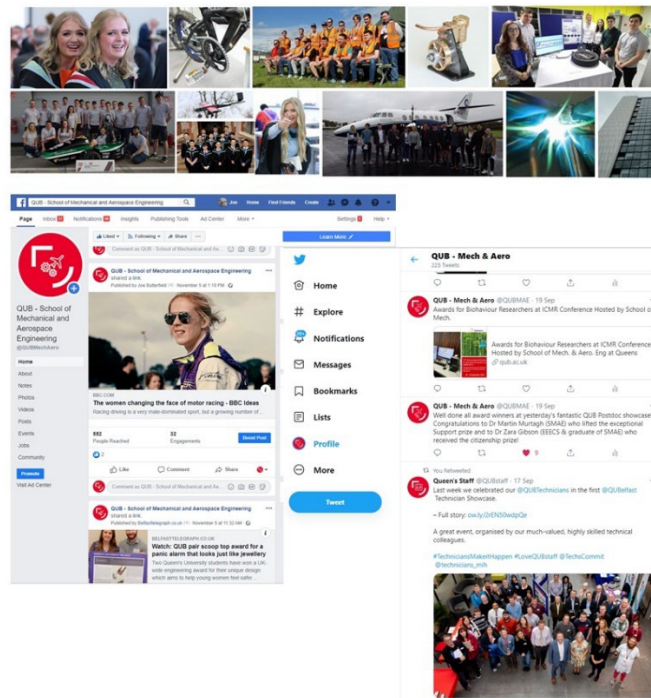


**Fig. 43 (a)** Publicity Materials: News Items From SMAE School Website



**Fig. 43 (b)** Publicity Materials: Notable awards and achievements for female staff and students at SMAE

(<https://www.qub.ac.uk/schools/SchoolofMechanicalandAerospaceEngineering/Discover/News/>).



**Fig. 44** Publicity Materials: Header & Features for SMAE Facebook Page & Twitter feed.



**Fig 45** Publicity Materials: UG Edward Tsang and Dr Dani Soban Featured in the 'The Great Flying Challenge', BBC Television Documentary, 2016.

Our staff and students have played an active role in national competitions (**Fig 46 and 47**) and have been featured prominently internally and in external news outlets. The BMFA Payload Challenge Team in 2016 placed third (50% female). The 2017 IMECHE UAS Challenge team placed 7<sup>th</sup> (37% female) also achieving a Best Environmental Solution award. Our 2018 UAS challenge teams were placed second and third overall (**Fig. 38**). Female Lecturer Dr Dani Soban was one of



the three supporting academics for the competition teams. The **impact** of our efforts and actions to ensure visibility is evidenced by staff survey responses (**Table 32**).



**Fig. 46** Publicity Materials: SMAE Formula Student Team, July 2017.



**Fig. 47** Publicity Materials: Left - SMAE BMFA Payload Challenge Team 2016/17.  
 Right – SMAE IMECHE UAS Challenge Team 2017/18 & 2018/19.

**Table 32:** 2019 Gender Equality Survey: Role Models.

Survey Question	Percent Agree/Strongly Agree	Percent Females	Percent Males Agree/Strongly Agree

		<b>Agree/Strongly Agree:</b>	
'My School uses women as well as men as visible role models'	83%	90%	85%

**ACTION:** 3.4 Encourage and promote high profile School activities: Build a Plane, Formula Student, Design Build Fly

[Sub-total 357 words]

(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.

Outreach and contribution to society are key elements of both our School ethos and our academic profile. Activities are recognised in the promotions and appraisals process, and accounted for in our WAM. Outreach includes Open Days, Parent's Night and school visits (primary and secondary schools) and STEM-specific public events. Participation rotas for both staff and students are carefully balanced with respect to gender, and tracked to ensure fair distribution of workload (**Tables 33-35**). UG and research students are compensated for their time.

The School conducts outreach activities (**Fig. 48**) to develop the profile of the engineering profession and highlight its contribution to local society. In addition to structured School events, an all-female team delivered STEM demonstrations to several local primary schools (**Fig. 49**). We also host School visits throughout the academic year, **Fig. 49** shows members of our IMechE UAS challenge teams with a group of School children in advance of their trip to the IMECHE competition (**Fig. 49**). Sandra McMillan and Dr Dani Soban are also leading School efforts in the RAES Build a plane programme which also includes eight student mentors from our School (5 female, 3 male) (**Fig 49**). Staff (male and female) also undertake activities as STEM Ambassadors in partnership with organisations such as SENTINUS (science and technology programmes to schools across Northern Ireland).

Further outreach examples include the International Student Association arranging international students from INTO to visit to the School in 2017 (**Fig. 50**) and an Engineering and Physical Sciences Roadshow where our postgraduate and staff members visited various locations around the country, informing School students about Engineering.

**Table 33:** Staff Rota: Open Day 2019. (Female Staff Underlined)

	Thursday 5 September			Friday 6 September		
	09:00-10:00	10:00-12:00	12:00-14:30	09:00-10:00	10:00-12:00	12:00-14:30
Marquee	K Manda	E Cunningham B Smyth	F Buchanan S Spence	K Manda	F Buchanan E Cunningham	B Smyth Rob Watson
Ashby Foyer	Ali Aravand	Sung In Kim Ali Aravand	Gasser Abdelal	Sung In Kim	Gasser Abdelal	Sung In Kim
Group Work Room 1 and 2 (DBT Prototypes)		P Hermon	B Chen		P Hermon Y Mahmoudi-Larimi*	B Chen
Group Work Room 2 (Employability)		Lynsey Holland J Cole	Lynsey Holland Rob Watson		Lynsey Holland Rob Watson	Lynsey Holland
		Kathryn Fee*			Kathryn Fee*	
Ashby Laboratory Room		Y Mahmoudi-Larimi*	L Pick		D Soban	L Pick D Soban
		D Thornhill*			D Thornhill*	
Formula Student (Ashby Boardroom)		D Nolan	C McCartan		D Nolan	C McCartan
		Rob Watson*	G McCullough*		Rob Watson*	G McCullough*
Prototyping Room	R Finney	R Finney	R Finney	R Finney	R Finney	R Finney
Ashby Computer Room		Chi Wai Chan	Zahur Ullah		Chi Wai Chan	Zahur Ullah
Talks (GM/001)	M Geron (12:00)			C McCartan (12:00)		

**Table 34:** Staff Rota: Offer Holders Event 2017 (Female Staff & Students Shown in Red).

**Talk Schedule:**

2.00pm-2.20pm	Mechanical Engineering	Trevor Robinson / <b>Jessica Wilson</b>
2.30pm-2.50pm	Aerospace Engineering	<b>Juliana Early</b> / Stephen Colbert
3.00pm-3.20pm	Product Design Engineering	Charlie McCartan / Ben Linsay
3.30pm-3.50pm	Mechanical Engineering	Trevor Robinson / <b>Jessica Wilson</b>

**Staff Roles:**

Location	Staff
Programme Talks	Trevor Robinson <b>Juliana Early</b> Charlie McCartan
Ashby Foyer (Meet/Greet and Tours)	Damian Quinn Marco Geron <b>Juliana Early*</b> Trevor Robinson*
Ashby Computer Laboratory	Chi Wai Chan
Prototyping Room	Raymond Finney
Ashby Workshop	Robert Vaughan
Materials Testing	TBC
Board Room (Formula Student)	Geoff Cunningham
Ashby Laboratory	Dani Soban Charlie McCartan*
Groupwork Room 1/2 Group Design Project Work	Joe Butterfield Paul Hermon <b>Aoife Foley</b>
Groupwork Room 3 Employability	<b>Lynsey Holland</b> <b>Kathryn Fee</b>

**Table 35:** Women's Day School Visits 2016 - 2018: F = Female, M = Male, PS = Primary School.

Date:	Location:	Academics:	Researchers (F):	Researchers (M):
March 2018	Stranmillis PS & Botanic Primary PS	Dr Dan Sun (F) Dr Dani Soban (F)	Imelda Friel Clare Burnett Zhijun Guo Katie Harte Joanne Cambell	Andrew Scott Suhail Stephen Smith Hugo Nolan George Graninger
March 2017	St Brides PS	Dr Dan Sun (F) Dr Dani Soban (F)	Cara Harley Imelda Friel Xudan Yao Emer McAleavy	Marc Ritchie
March 2016	Stranmillis PS	Dr Dan Sun (F) Dr Dani Soban (F)	Xudan Yao	Mark Wright



**Fig. 48** Outreach Events: Left - Dr Dani Soban (left), Science Uncovered, Ulster Museum 2016. Right Students Completing the Tinfoil Boat Challenge, Ashby Building 2018.





**Fig. 49** Outreach Events: Top Left: School Visit to St Brides Primary School Belfast, 2016(left), Top Right: School visit to Design Build Lab 2019, Bottom Centre: RAE Build a Plane Project Including SMAE Student Mentors 2019 (Chloe Dalzell, Rebecca Jones, Saidatul Zairin, Emily Fleck, Emily Bond, Sam Agnew, Aaron Graham, Omar Salem)



**Fig. 50** Outreach Events: SMAE International Student's Association Christmas Lunch Co Hosted By SMAE Student Representatives, 2018.

(Currently 273 words sub total)

## SILVER APPLICATIONS ONLY

### 6. CASE STUDIES: IMPACT ON INDIVIDUALS

**Recommended word count: Silver 1000 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.

#### **Female Academic-Kathryn Fee**

I took up a PhD position within the School's Bioengineering Research Group in October 2009. Throughout my PhD I had excellent support from my supervisor who both encouraged me and gave me the freedom to avail of a number of opportunities. Participating in School and central QUB training workshops, delivering lab class & tutorials, organising symposiums, securing travel grants, presenting at international conferences, highlights the array of activities that I undertook. It was a bonus that this was formally recognised by QUB through the Researcher Plus Award which I received when graduating.

Following my PhD, I secured a two year post-doctoral research position, within the School. Unfortunately all good research projects come to an end and it was at that point I found myself at a bit of a crossroads, career wise. Albeit very tough at times, I thoroughly enjoyed my PhD and post-doc position but I was starting to question whether a career in research was for me. I knew I wanted to remain within the academic environment but try something a little different. For personal reasons I needed to remain within N. Ireland and this somewhat limited my options. Thankfully QUB operates an internal redeployment system which allowed me to see jobs, at my grade and below, not only within my School but across the University.

Through redeployment I applied for the position of Placement Officer (maternity) within the School. I saw this as the perfect opportunity to 'try something different', build up more experience in education and liaise directly with industry. Within this role, I completed 'Introduction to Teaching in Higher Education'. Funded by SWAN, this training was specifically designed 'in-house' to provide those participating with formal lecturing experience. I found this a very valuable process to go through and I benefited greatly from the peer assessment elements.

Covering the role of Placement Officer ignited a passion for engineering education and I knew this was the direction I wanted my career to take, with the aim of becoming a Lecturer (Education). The experience I gained as Placement Officer and the support I received from our Director of Education put me in the position to secure the role of MSc Programme Coordinator for the School's new MSc Mechanical Engineering with Management. In addition to this I took over the coordination of our Engineering Leadership Programme.

Through SWAN, the School sponsored me to attend the Next Generation Leadership Programme, in November 2017. Participating in the programme, combined with the challenges I faced as MSc Coordinator, gave me new focus and the confidence to continue with my goal of becoming a Lecturer (Education). I am delighted to say I have recently been appointed Lecturer (Education) within SMAE!

### **Female-Katie Harte**

Having completed my primary degree in Engineering at Trinity College Dublin I spent six years at home with my two young children. During this time I trained and worked a few hours a week as a yoga teacher but I still had aspirations to pursue a career in Engineering so I decided to look into the possibility of returning to academia. The taught MSc program at the School of Mechanical and Aerospace Engineering (SMAE) at Queens enabled me to return to my studies on a part time basis. I was able to choose modules and schedule meetings around my children's school hours with the support of the academic staff at the School.

After completing my MSc I wanted to continue the research that I had been working on as part of my Masters program. Dr Alex Lennon put forward a research proposal in this area at SMAE and thanks to the support provided by Dr Lennon and Dr Gary Menary I began my PhD in October of 2017. It was my time away from engineering that inspired me and this coupled with interest of Dr Lennon and the support of the School, continues to motivate my work which is a Biomechanical Investigation of Injury Mechanisms to the Pelvic Floor Muscles as a Result of Childbirth. For me, it is a privilege to work in research in general but particularly in this area, generations of women before me lived with incontinence and other pelvic disorders without reporting it or not being taken seriously when it was reported. This was simply accepted as the cost of childbirth, a process which sustains the human race and our society. I feel it is hugely important to take any opportunity to bring attention to the research itself and the potential of its benefits and impact to entire communities not just women. To bring this full circle and relate it back to women staying in the work force and taking up higher positions, something that has many complicated layers of reasons but to take one, health - health is essential to everyone for quality of home and work life.

My children are now aged 6 and 9 years old. I have found Queen's in general and the School of Mechanical and Aerospace Engineering in particular, to be very flexible and supportive of my family commitments. This allows me to deal with the realities of balancing PhD study while raising a family. The PhD program at SMAE is flexible and supportive of family life. My desktop is set up for me to remote access from my home laptop which allows me to work at night, at home with no childcare costs. The private sector is incredibly unforgiving of the reality of home life commitments when you have young children, particularly if you don't have family support in the area.

(Current word count 924, limit 1000)

## 7. FURTHER INFORMATION

Recommended word count: Bronze: 500 words | Silver: 500 words

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

Our continuing engagement with SWAN has meant that we have recognised the importance of addressing challenges for females in engineering at all points in the educational and professional pipeline. This leads from formative years in primary school through secondary education through to tertiary institutions and we have framed our SWAN activities to span all of these levels. A strong theme that runs through existing approaches to outreach, recruitment and our action plan has been to better inform females in particular about career choices, self-improvement and progression. This has resulted in improving our female numbers relative to national figures for both student and staff numbers. We have seen improvements in female representation at the higher academic levels within the School and with succession management in mind, we now have a female deputy head of School. As success breeds success, our improved funding levels have seen postdoctoral recruitment increase which includes higher female numbers among or researchers.

We have recognised the importance of resourcing. In addition to a strong, active SWAN team, we have been successful in securing funding to support women in Engineering through direct School funding (£7.5K per annum, subject to institutional budgets) and industrial support (AESEAL - £50k, Caterpillar - £8K) during the reporting period. Our industrial sponsors not only recognise the importance of promoting women in STEM but the ability of our School to make a meaningful contribution to equality and diversity through our SWAN action plan. This played a major role in securing the funding. Our use of the funds to date has had a direct impact on our female researchers and early stage academics allowing them to overcome progression barriers through improved access to training in areas such as leadership and access to international academic events. This support would not have been possible through existing funding channels.

We have made significant progress as a School based on our previous SWAN plans having gained a Bronze Award, progressed to Silver and achieved Silver Award retention. SWAN principles are firmly embedded in the day to day running of our organisation. This has helped us to reflect on our culture and practices as well as to formulate new actions in areas where we can improve. Through the action plan presented in this application we have ensured that the articulation of our actions across a timeline is clear and that our actions are SMART.

The commitment of our School SWAN Team, the continued engagement of our own School Management Board (Both of our SWAN champions are members), our participation in the Queens SWAN Champion's Network and the support of our Institutional SWAN Self Assessment Team (SMAE SWAN Co-Champion Dr Joe Butterfield is a member) means that we have never been in a better position to implement SWAN within our School. Our engagement and support network both internally (School and Institution) and externally is a clear demonstration of our ongoing commitment to SWAN and the fact that we endeavour to improve equality and diversity in and beyond our School.

(Current word count 531, limit 500)

## 8. ACTION PLAN

The action plan should present prioritised actions to address the issues identified in this application.

Please present the action plan in the form of a table. For each action define an appropriate success/outcome measure, identify the person/position(s) responsible for the action, and timescales for completion.

The plan should cover current initiatives and your aspirations for the next four years. Actions, and their measures of success, should be Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

See the awards handbook for an example template for an action plan.




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