



# Department Application Bronze Award



Department application	Bronze	
<b>Word limit</b>	<b>10,500</b>	<b>9922</b>
<i>Recommended word count</i>		Actual WC
1. Letter of endorsement	500 +200	700
2. Description of the department	500	555
3. Self-assessment process	1,000	767
4. Picture of the department	2,000	2501
5. Supporting and advancing women's careers	6,000	5781
6. Case studies	n/a	0
7. Further information	500	318

<b>Name of institution</b>	Sheffield Hallam University	
<b>Departments</b>	Department of Engineering & Maths, and Materials and Engineering Research Institute (MERI)	
<b>Focus of department</b>	STEMM	
<b>Date of application</b>	November 2017	
<b>Award Level</b>	Bronze	
<b>Institution Athena SWAN award</b>	Date: Nov 2013	Level: Bronze
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## 1. LETTER OF ENDORSEMENT FROM THE HEAD OF DEPARTMENT

Dear Athena SWAN manager and assessment panel,

It is our privilege to endorse this application for an Athena SWAN Bronze award. As the Head of Department for Engineering and Mathematics (E&M) and as the Director of the Materials and Engineering Research Institute (MERI) we confirm that Athena SWAN has been, and continues to be, a driver for positive change in our departments.

Over recent years E&M has undergone numerous significant structural changes and throughout this period we have kept Athena SWAN principles in focus and taken every opportunity to align our actions accordingly. Securing £11M of internal and external funding has enabled us to create the new Hertha Ayrton STEM centre. The name of the building, and inviting the IMechE president Carolyn Griffiths to open it, were deliberate decisions to raise the profile and celebrate the achievements of women in engineering and mathematics.

One of our key success stories has been the increase in the recruitment and promotion of female academics within E&M. We are now reaching or exceeding the sector norms for numbers of female appointments across all academic grades. We work to retain these staff by offering them well-structured career development opportunities. The results of our last Employee Opinion Survey (EOS) showed that female colleagues were generally more satisfied within their roles with 100% being happy to work at Sheffield Hallam University (70% male). Our action plan will ensure that initiatives currently benefitting female staff are replicated for male colleagues.

Our female students achieve better outcomes, and outperform males in terms of completion rates (98% F compared with 94% M) and good honours rates (78% F compared with 71% M) across all courses. However, few of our female students progress onto postgraduate study (between 2 and 5 each year), and recruitment of female students onto engineering courses remains below the sector norms, although this gap is closing.

In MERI we are proud of our track record on female engineering Postgraduate Research enrolments which has increased steadily from 17% in 2011/12 to 32% in 2015/16. We are committed to increasing applications from females by increasing the number of female supervisors, highlighting female role models and ensuring they meet prospective students, developing more female focused adverts and identifying new sites to advertise on. We continue to promote gender equality in engineering research in MERI by publicly celebrating the success of the current female staff and students, on our web site and via other media outlets. We will, of course, continue to provide summer placements for female pupils wishing to explore science and engineering as a career.

Working towards this Athena SWAN award has raised awareness across both departments of the importance of supporting students from a diverse range of backgrounds. Our Women in Engineering and Mathematics Society has contributed to this application and the ongoing action plan. Through focus groups and outreach work, members have helped us develop female-specific interventions to improve student experience, student support and student recruitment. We are delighted that our activities have led to us being invited to join an EPSRC Inclusion Matters consortium led by the University of Sheffield. In addition, we are working with the Equality Challenge Unit to obtain more enhanced data that we can use to increase the recruitment of female students, and to improve student experience for other groups of students with protected characteristics.

Gathering and analysing quantitative and qualitative data on all aspects of all women's experience in the departments has made us reflect on how to improve gender equality and inclusive practice. We have made good progress, but we realise that we have some way to go, notably in career progression opportunities for mid-career female academics. We will apply resources to encourage successful applications for readerships from our female staff within 3 years and personal chairs within 5 years.

We confirm that the information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the department and research institute. We fully support the Action Plan submitted with this application which will address these issues, and are confident that the department and the research institute have the commitment and strategy to continue to make significant progress in promoting Athena SWAN principles.

Yours faithfully,

Prof Alan J Smith, CEng, FIMMM, PhD

Director of Materials and Engineering Research Institute (MERI)

and

Prof Nasser Sherkat, BSc, PhD, CEng, FIET

Head of Department of Engineering and Mathematics

[700 / 700 words, as application from two departments]

**List of abbreviations:**

ACES	(Faculty of) Arts, Computing, Engineering and Science
AS	Athena SWAN
ASSET	Athena Survey of Science, Engineering and Technology
AWP	Academic Work Plan
BME	Black and Minority Ethnic
CPD	Continuing Professional Development
DHoD	Deputy Head of Department (E&M)
DLT	Department Leadership Team (E&M)
DoRI	Director of Research Institute (MERI)
E&D	Equality and Diversity
E&M	Engineering and Maths
ECR	Early Career Researcher
Eoi	Expression of Interest
EOS	Employee Opinion Survey
F	Female
FHEA	Fellow of the Higher Education Academy
FT	Full-Time
FTE	Full-Time Equivalent
GTA	Graduate Teaching Assistant
HC	Head Count
HE	Higher Education
HEFCE	Higher Education Funding Council for England
HoD	Head of Department (E&M)
HoPS	Head of Professional Services (ACES)
HoTS	Head of Technical Services (ACES)
HR	Human Resources (ACES)
IET	Institution of Engineering and Technology
IMechE	Institution of Mechanical Engineers
IoM3	Institute of Materials, Minerals and Mining
LFHE	Leadership Foundation for Higher Education
LTA	Learning, Teaching and Assessment
M	Male
MERI	Materials and Engineering Research Institute
NS	Not Specified
NSEW	National Science and Engineering Week
PDRA	Post-Doctoral Research Assistant or Associate
PGCHE	Postgraduate Certificate in Learning and Teaching in Higher Education
PGR	Postgraduate (Research)
PGT	Postgraduate (Taught)
PL	Principal Lecturer
PRF	Principal Research Fellow
PT	Part Time
RF	Research Fellow
SAT	Self Assessment Team
SDR	Staff Development Review (Appraisal)

SGL Subject Group Leader  
SHU Sheffield Hallam University  
SL Senior Lecturer  
SRF Senior Research Fellow  
SSG Senior Staff Grade (professor or higher)  
SW Sandwich (FT degree course with year out in industry)  
UAS Unmanned Aircraft Systems (IMechE student competition)  
UG Undergraduate  
UoA Unit of Assessment  
WES-SHU Women's Engineering Society (SHU student group)  
WiEMS Women in Engineering and Maths Society (SHU student society)  
WISE Women Into Science and Engineering  
WiSET Women in Science, Engineering and Technology (team in SHU)  
WPG Women Professors Group

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## 2. DESCRIPTION OF THE DEPARTMENT

Both the Department of Engineering & Mathematics (E&M) and the Materials and Engineering Research Institute (MERI) sit within the Faculty of Arts, Computing, Engineering and Sciences (ACES) at Sheffield Hallam University (SHU). Within SHU, teaching is managed through academic departments (e.g. E&M), and research is managed through institutes (e.g. MERI). E&M is home to 2241 undergraduate and postgraduate students, with a further 268 students at partner colleges within the UK and overseas, and 104 members of academic staff, 14 Professional Services and 23 Technical Services staff. MERI comprises 30 FTE research staff and 84 PhD students, with 6 Professional Services and 5 Technical Services staff. Gender breakdowns are given in Table 1.

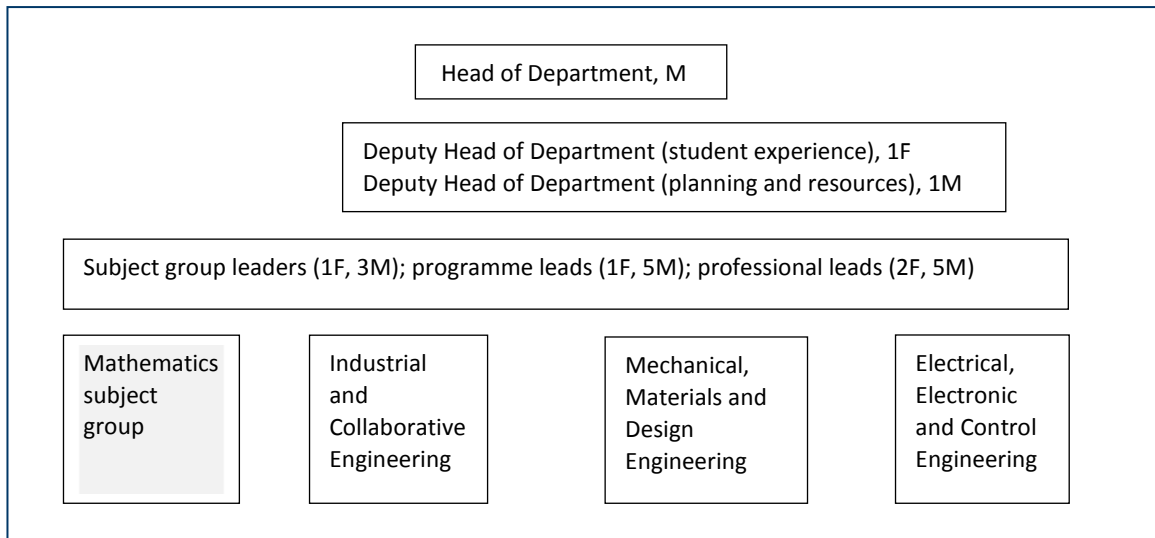
**Table 1: Total numbers of staff and students within Engineering & Mathematics and MERI**

	Academic staff	Professional Services	Technical Services	Students	Students in partner colleges
Engineering & Mathematics	12 FT women ■ PT women 83 FT men ■ PT men	■ FT women 6 PT women ■ FT men	■ FT women 20 FT men	306 women 1935 men	29 women 239 men
MERI	■ FT women 28 FT men	■ FT women ■ PT women ■ FT man	■ FT woman ■ FT men	16 women 68 men	0

Many academic staff within E&M undertake research within MERI, and MERI staff deliver teaching in E&M; some PhD students supervise laboratory sessions and lead tutorials. This symbiosis between E&M and MERI extends to undergraduate and masters projects, summer internships for UG students, and opportunities for academic staff to maintain professional competence within their disciplines. These close links embed research into our taught curriculum, leading to an excellent student experience and highly employable graduates (90% of graduates are in full-time work or further study with 84% in professional or managerial roles [DLHE 2015/16]). The department's Industrial Advisory Board (2F, 23M) strengthens our links with employers, as do the consultancy and knowledge transfer activities undertaken through MERI. All of our full time undergraduate courses have a sandwich year (SW) option, with approximately 50% of our students undertaking a year in industry.

Technical and Professional Services are managed by the faculty, with specific teams being allocated to support the departments. Technical Services staff support students with extra-curricular projects as well as with scheduled teaching and research. Professional Services staff in the departments provide student support in addition to administration.





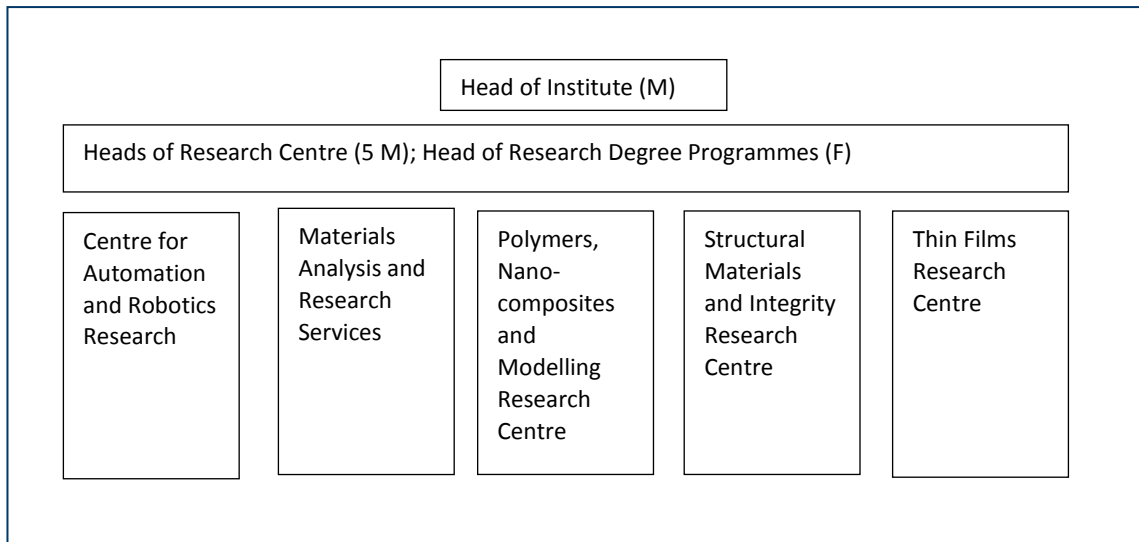
**Figure 1: Engineering & Mathematics organisational structure for academics**

Figure 1 shows the organisational structure of E&M. The Head of Department (HoD) has responsibility for teaching activities, staff development and management. The leadership team consists of: the HoD (M); 2 deputies (1F, 1M); 4 Subject Group Leads (1F, 3M) who manage most academic staff; and 6 Programme Leads (1F, 5M) who manage our courses. The team also includes 7 professional leads (2F, 5M) who manage particular areas of department business such as Employability. Roles undertaken by Senior Lecturers include Course Leaders (6F, 12M) and Link Tutors for our collaborative provision (2F, 4M).

The 3 engineering Subject Groups are all closely linked with MERI which provides the focus for research and knowledge transfer. Results from REF 2014 (4F, 28M staff submitted) rated 56% of our research as 4\* and 3\* within UoA 13 (Electrical and Electronic Engineering, Metallurgy and Materials). This represented an increase of 21% in international standard research on the 2008 submission.

The mathematics Subject Group in E&M is internationally recognised for its work on HE mathematics education and contributions to national initiatives including the HEA's MSOR (Mathematics, Statistics and Operational Research) Subject Centre.

MERI comprises five Research Centres (Figure 2). The Head of Research Degree Programmes (F) works across both research institutes in ACES but is not based in MERI. The institute recently celebrated 25 years of engagement in work from semiconductors to concrete and theoretical modelling to industrial applied multi-layer nanocoatings, focusing on the delivery of high quality research, knowledge transfer and consultancy. It is strategically fundamental for the University and the region.



**Figure 2: MERI organisational structure for academics**

[555 / 500 words]

### 3. THE SELF-ASSESSMENT PROCESS

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

The SAT team has met bi-monthly since 2012 to monitor progress against an E&M AS action plan from 2011. Three years ago, we reviewed the membership of the SAT and made the positive decision to double the team's size to include representatives of the student body, technical and professional services staff and MERI (membership will continue to be reviewed annually). Athena SWAN and broader equality and diversity (E&D) priorities are now embedded throughout the Department's activities and particular initiatives are owned by all of the department's committees.

The current SAT (Table 2) comprises 6 women and 6 men. In addition to this core team, other colleagues are invited to attend specific SAT meetings to discuss particular issues or initiatives. These associated members include Subject Group Leaders, the Faculty E&D representative, and members of the Department leadership team.

Table 2: Self-assessment team

Name and Departmental Role	Relevant work/life details	Role as part of the SAT
Dr. Emma Carter (F), Senior Lecturer Engineering, FT	Chartered Engineer (IMechE), FHEA Staff member since 2016. Dual career family. STEM ambassador.	Departmental Athena SWAN Champion since Dec 2016; chair of SAT; responsible for data collection and presentation, and staff and student surveys
Dr Karen Vernon-Parry (F), Deputy Head of Department, FT	Chartered Physicist, FHEA Had a 3-year career break (20 years ago.) Two children at university. Dual career family. STEM ambassador.	Previous Athena SWAN Champion; Faculty rep on SHU Equality and Diversity Committee; responsible for data analysis and narrative
[REDACTED]	Former mature student. Course Leader and advocate for WISE. Dual career family Grandchildren.	Responsible for narrative on key career transition points, flexibility and managing career breaks
[REDACTED]	Championed the #9PercentIsNotEnough photo campaign	Responsible for supplying student employability and placements data
[REDACTED]	Late career academic preparing for retirement	Maths academic representative; provided narrative on Maths students' data
[REDACTED]	Caring responsibilities. Split appointment (50:50) between MERI and E&M	ECR staff representative; provided narrative on engineering and PGR student data
[REDACTED]	WES chair, Product Design Engineering student (Level 6), International student.	UG Student representative, gathering student opinion from E&M.
[REDACTED]	Graduate teaching assistant, balancing PhD studies and teaching responsibilities	PGR student representative, gathering student opinion from MERI.
[REDACTED]	Dual career family; two school-age children	MERI representative; responsible for sections describing MERI, research (including REF) and action points related to MERI
[REDACTED]	Dual career family	Technical services representative; responsible for technical services staff data
[REDACTED]	Manages student support team within the department	Professional services representative; responsible for professional services staff data

F	Job share with another colleague Flexible hours around school run	Co-ordinates and takes minutes for SAT meetings. Updates AS SharePoint site; checks E&M data
<p><b>Co-opted members include:</b></p> <p>Professor Nasser Sherkat (M), Head of Department (E&amp;M), Member of the Institutional SAT</p> <p>Professor Alan Smith (M), Director of Research Institute (MERI)</p> <p>██████████ Deputy Head of Department (E&amp;M)</p> <p>██████████ Recruitment and Outreach Lead (E&amp;M)</p>		

(ii) an account of the self-assessment process

In 2014/15 the university developed the role of Athena SWAN champions at department level, 0.1 FTE is allocated for this work on the annual academic work plan (AWP). All the AS Champions within the university meet every 8 weeks to discuss various aspects of gathering and analysing the data required for the application process, and share their experience of leading SATs and broader staff engagement.

For the past 18 months, the expanded department SAT has met monthly; minutes of these meetings, data and working documents are stored on a shared drive to which all members of the SAT have access. Data on staff and students have been supplied by university central services using the information portal 'The Source' (Figure 3), introduced in early 2016. As well as being used to present the data for this application, The Source will be used to update the charts each year in order to monitor progress of related actions. Towards the end of the data collection period the AS champion held a focus group with the WiEMS committee (5 students, all female) and also carried out an online staff survey with 38 responses from E&M and MERI (24M, 13F, 1NS). The results from these and previous ASSET and Employee Opinion surveys have informed the development of the action plan, and will also influence the future operation of our courses and the deployment of resources of the department. Members of the SAT have contributed to various parts of this application and action plan as well as reviewing the overall submission document.

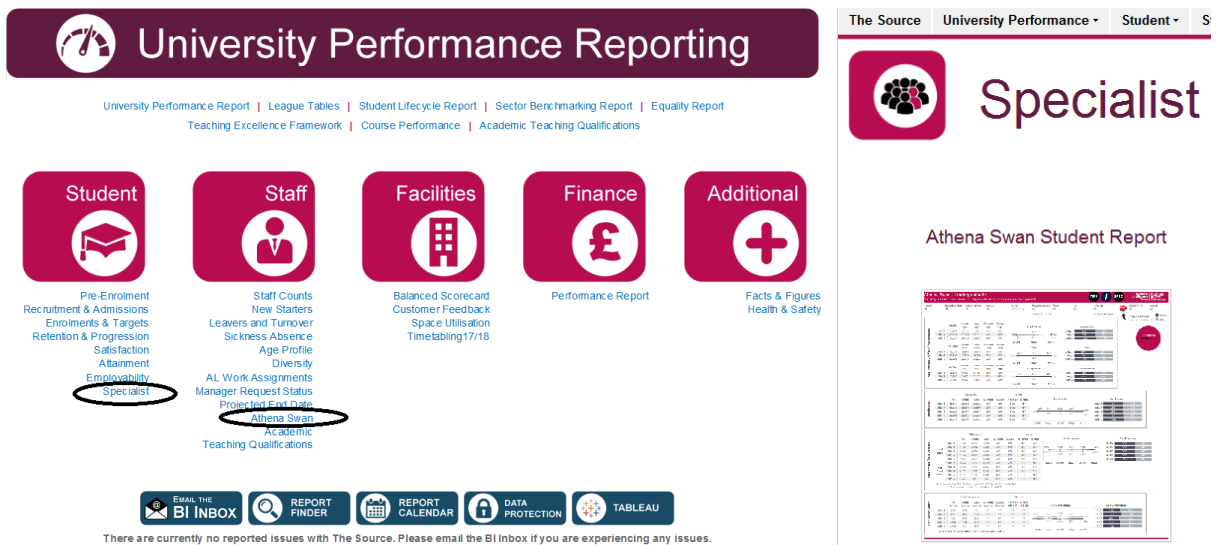


Figure 3: University data portal 'The Source', showing links to student and staff Athena SWAN reports

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

The team will meet on a bi-monthly basis over the next four years to progress points of the action plan, review the success of interventions, and identify and instigate any further support or actions that may be required. From Jan 2018 the meetings will be moved to a lunch-time to reduce potential timetable clashes and lunch provided to value the time and effort invested by SAT members. Future minutes will be made available to all staff and students within E&M and MERI. Relevant actions from the SAT will be a standing agenda item on the E&M and MERI leadership team meetings. The leadership teams and committees will be responsible for actions on the Athena SWAN plan relevant to that team. Equality and Diversity issues are monitored in all of the standing and executive committee meetings within the department and MERI, which all feed into the Faculty Executive. The AS champion sits on the university Gender Equality Operations Group which reports into the Gender Equality Steering group which, in turn, reports to the E&D committee.

The progress against the Action Plan will be reported quarterly to the departments' Leadership Teams (DLT) and included in the Annual Review (January each year). Progress against the AS action plan will be communicated at the end of each semester to all staff and students to maintain awareness of Athena SWAN and encourage ownership of gender equality issues amongst all staff and students. Each member of the SAT will have responsibility for part of the AS action plan, and will encourage wider participation in E&D initiatives within the department. In addition, the representatives of the SAT will continue to review applications for departmental bursaries, prizes and scholarships for our female students.

Awareness of Athena SWAN in general and in the specific context of E&M and MERI is currently low amongst most staff not directly involved and almost all students. The first set of actions is aimed at embedding gender equality and AS in the departments' culture.

**ACTION:** Athena SWAN event: Food and drink reception. Presentation to launch Athena SWAN action plan, promote AS ideals, panel discussion and Q&A. Promote via screen saver, e-mail invites **(AP 1.1)**

**ACTION:** Produce a printed leaflet (and electronic version) to distribute to staff & students (e.g. give out at events) - include history and principles of AS, SAT members, current status of award, benefits of a gender-balanced workplace etc. **(AP 1.2)**

**ACTION:** End of semester update e-mail on AS progress to all staff including successes, challenges and future actions to focus on during next semester. Invite staff to feedback on whether their priorities are reflected in the action plan. **(AP 1.3)**

**ACTION:** Standing item on agenda of all staff meetings to highlight any progress and discuss any actions as necessary. Chairs to feed back any suggestions or comments to AS champion. **(AP 1.4)**

**ACTION:** AS information and celebration display board including an infographic poster summarising content from 1.2 in the STEM building exhibition space to maintain visibility. Highlight where suggestions have been acted upon: ("You said ....; changes made ....") **(AP 1.5)**

**ACTION:** Large plasma screen display to be utilised in the new STEM exhibition space to convey AS information and maintain visibility. **(AP 1.6)**

**ACTION:** Carry out and analyse annual staff survey (E&M and MERI) on Athena SWAN issues. **(AP 1.7)**

**ACTION:** Introduce a physical Athena SWAN suggestions box for gathering ideas and feedback and maintaining visibility. **(AP 1.8)**

**ACTION:** SAT meetings to be held at lunchtime (lunch provided) every 2 months. **(AP 1.9)**

**ACTION:** Minutes of SAT meetings made available to all staff and students in E&M and MERI. (AP 1.10)

[767 / 1000 words]

#### 4. A PICTURE OF THE DEPARTMENT

##### 4.1. Student data

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

There is a common foundation year (the 'Extended Degree') for E&M after which most students will go on to enrol on engineering degree courses. The Extended Degree typically recruits students who do not have sufficient entry qualifications for direct entry to a degree course. Figure 4 shows that the proportion of female students has become more aligned with the sector average in recent years.

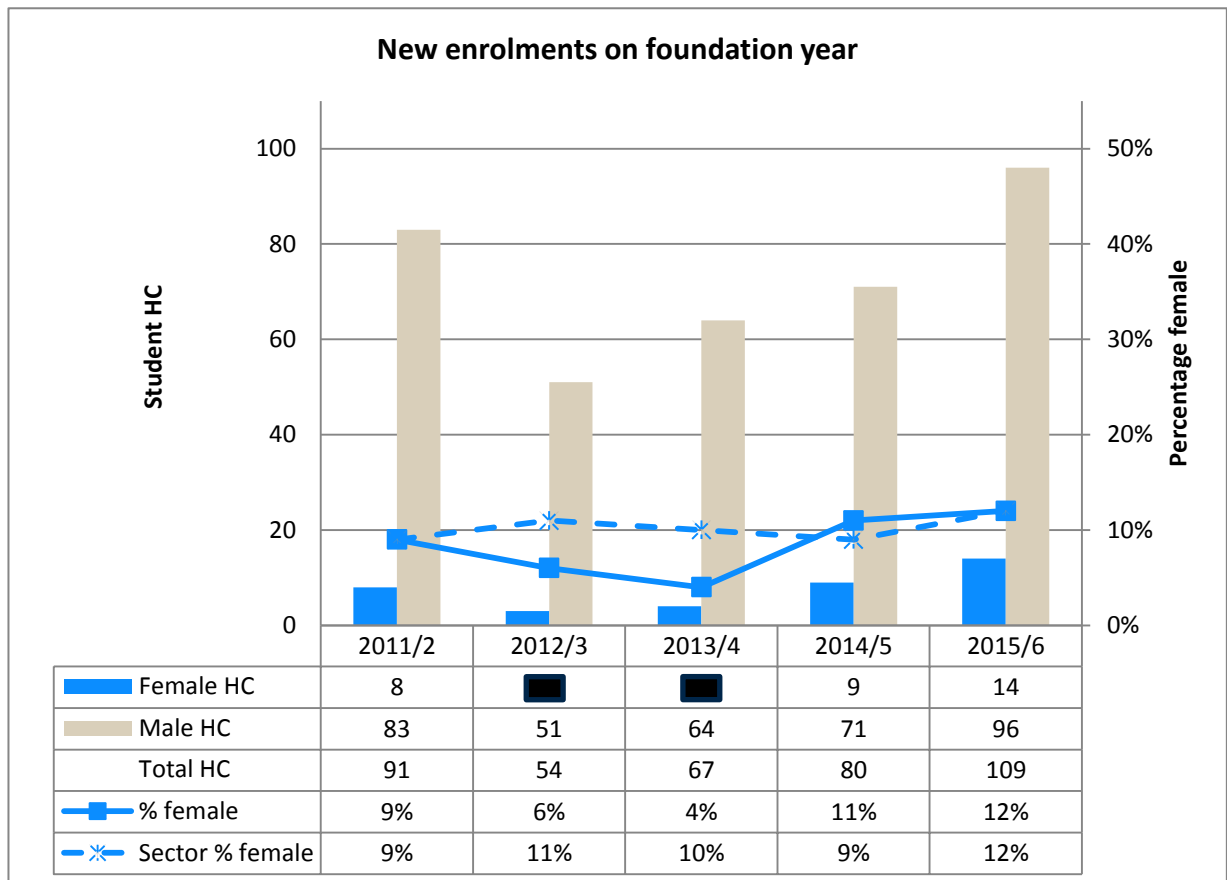


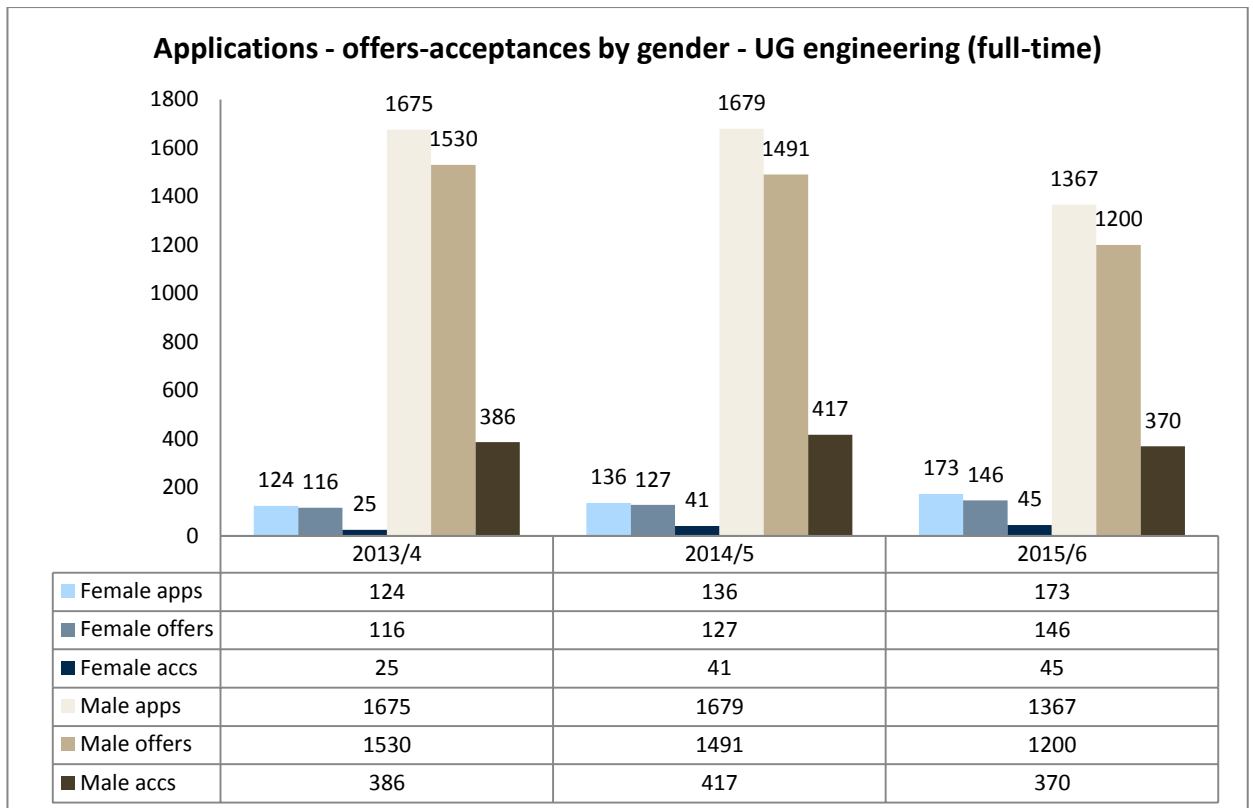
Figure 4: All new enrolments on foundation year ('Extended Degree').

###### (ii) Numbers of undergraduate students by gender

The following data have been disaggregated between the Engineering courses and the Mathematics course to provide a clearer picture for comparison with the sectors.

##### Applications, offers and acceptance (Engineering):

Applications from women for FT engineering UG courses have been steadily increasing while those from men have declined slightly (Figure 5), leading to a corresponding increase in the proportion of women enrolled on these courses.



**Figure 5: Applications, offers and acceptances for full-time UG engineering courses by gender**

Figure 6 shows the percentage of applications resulting in offers for FT UG Engineering courses for females and males respectively and the percentage of offers which were accepted for the past 3 years. Women were slightly more likely to receive an offer in 2013/14 and 2014/15 but this dropped to below the male applicant rate in 2015/16 and will therefore be monitored closely in future.

The main issue we must address is increasing the number of women applying to our engineering courses. This requires a combination of working with engineering professional bodies to showcase careers in engineering in general, and actions within the department to encourage female engineering applicants to study at SHU in particular.

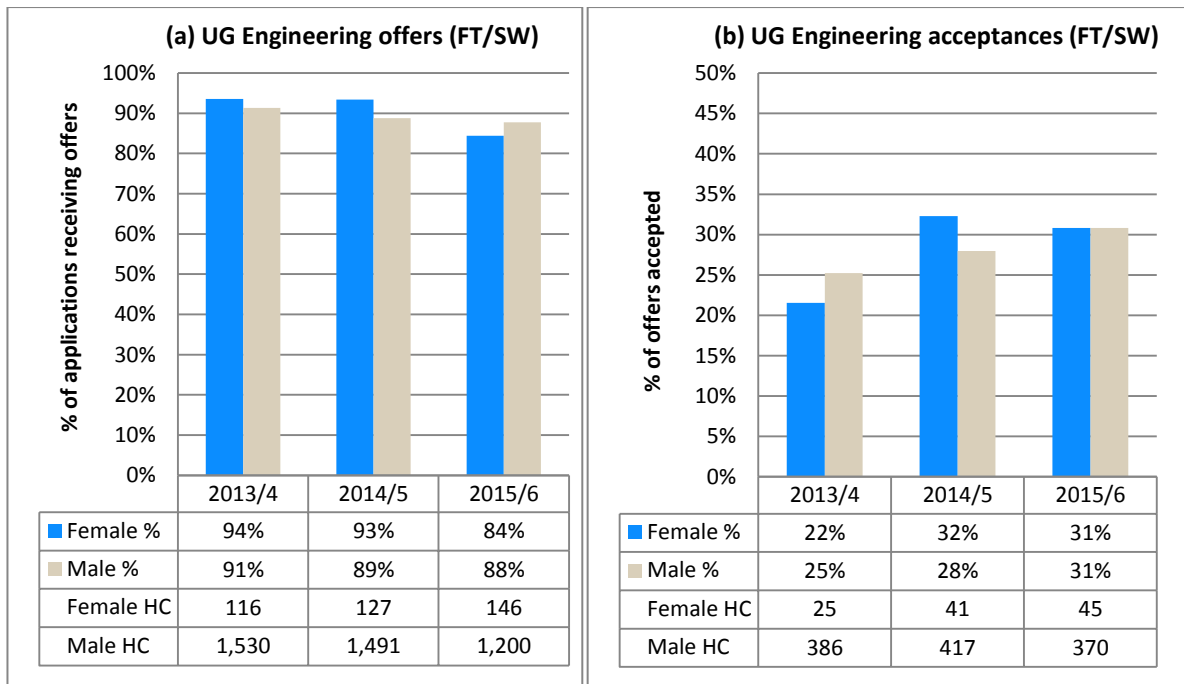


Figure 6: UG engineering courses (FT/SW): (a) Percentage of applications receiving offers and offers HC by gender; (b) percentage of offers accepted and acceptances HC by gender.

Student numbers on our engineering courses have reduced since 2012/13 as part of an active strategy to improve the student experience by rationalising our course portfolio (Figure 7). This chart also shows that since 2014 we are now only 3 points below sector average for percentage female students on FT UG engineering courses, increasing from 4% in 2013/14 to 10% in 2015/16.

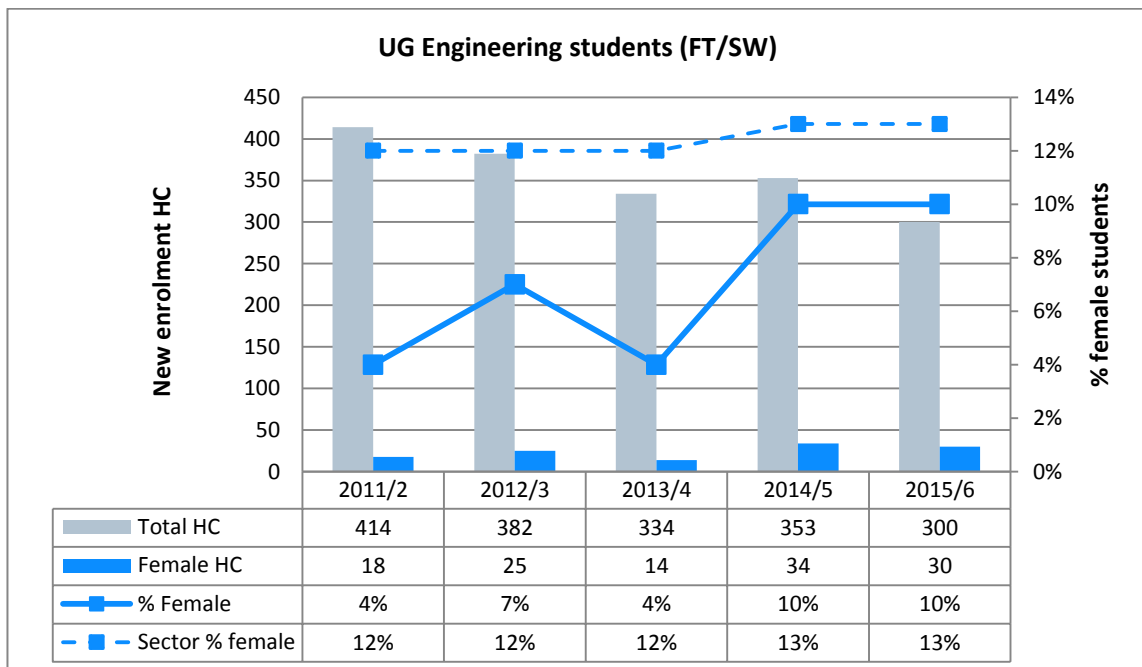


Figure 7: New enrolments for FT/SW UG engineering courses

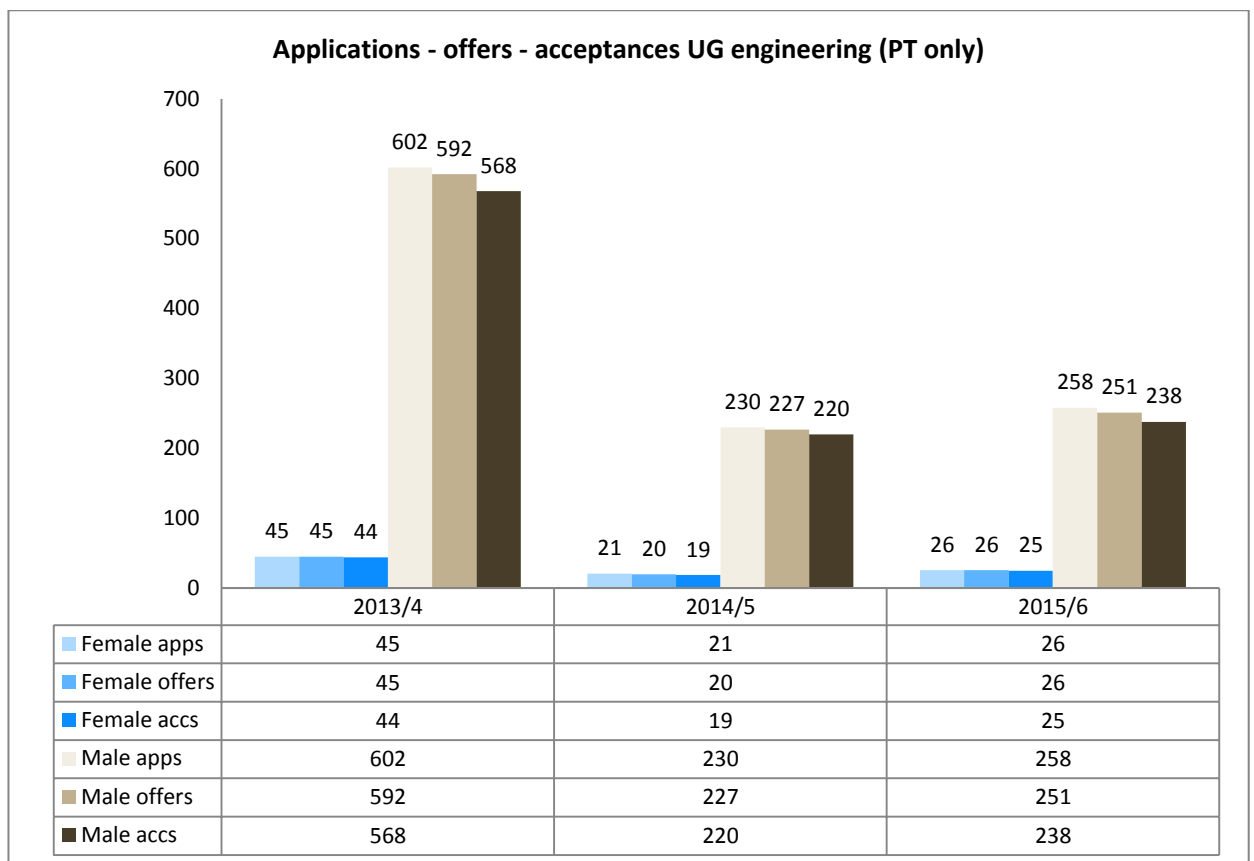
These data, together with the increase in applications from women, suggest that previous actions aimed at increasing the proportion of female students have had some impact. Actions have included



increasing the visibility of female students and staff in marketing materials and at open days as well as outreach events.

Recruitment to new courses in Food Engineering, Chemical Engineering and Physics has been in line with sector averages (33%, 26% and 19% respectively), but we have yet to increase the number of women enrolling on core engineering disciplines such as Electrical and Electronic Engineering (7% female against a sector average of 12%).

Applications from women for UG engineering courses are particularly low for part-time courses (Figure 8), but those who do apply are very likely to receive an offer and accept it (Figure 8 and Figure 9). However, as Figure 10 shows, many of these women do not actually enrol for the course, a phenomenon which warrants further investigation and action.



**Figure 8: Application, offers and acceptances for part-time UG engineering courses by gender**

The picture for students studying part-time is shown in comparison with sector averages in Figure 10. The high numbers of PT students in 2011/12 and 2012/13 were due to summer students from an international partner college, which had a large number of female students. This also explains why the proportion of students that are female was above the sector average in those years. The number of home part-time students and the gender balance is very sensitive to the local economy and employer hiring practices. The effect of the introduction of Higher and Degree Apprenticeships is still to be determined.

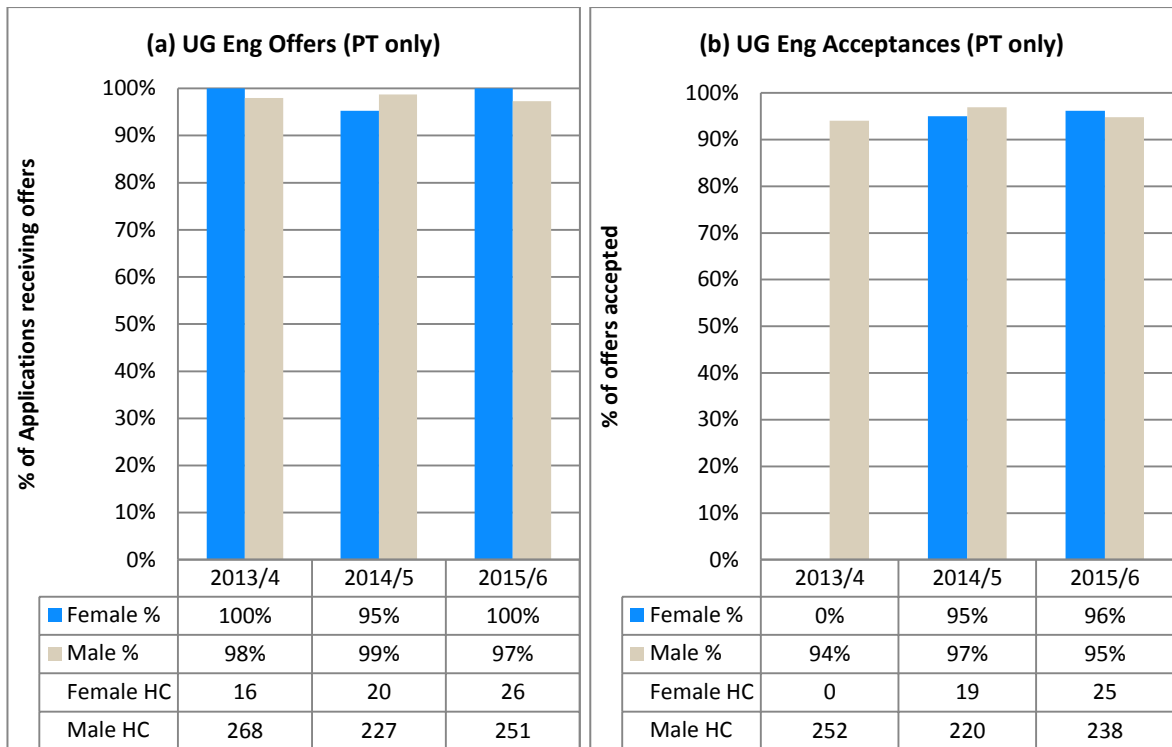


Figure 9: UG engineering courses (PT): (a) Percentage of applications receiving offers and offers HC by gender; (b) percentage of offers accepted and acceptances HC by gender.

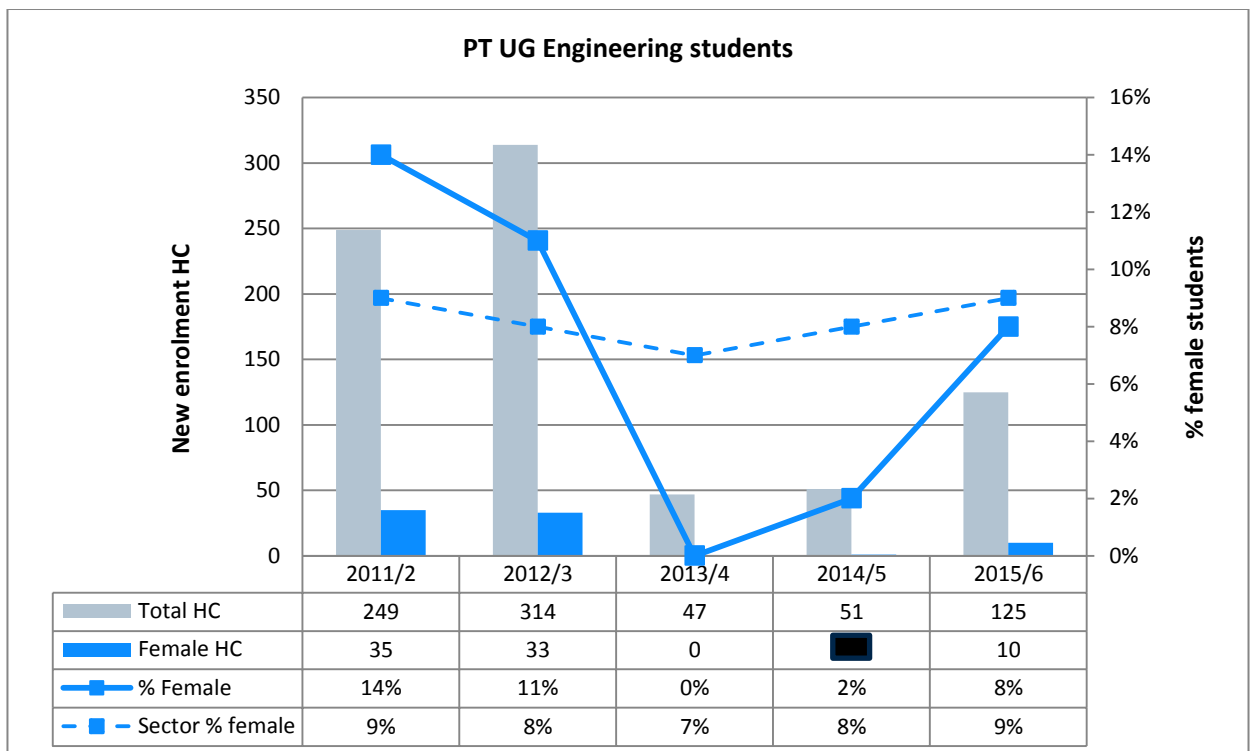


Figure 10: New enrolments for UG engineering courses (PT only)

Actions to address low numbers of female UG Engineering students:

**ACTION:** Use Engineering exhibition space to increase visibility of female academic staff, alumni and current students (near main reception, used for open days etc). **(AP 3.1)**

**ACTION:** Recruit L or SL for supportive cross-cutting role in Engineering outreach (12 month role) - see section 5.6(viii) for outreach related actions. **(AP 4.1, 4.3 - 4.7)**

**ACTION:** AS Champion to run focus group with female engineering students and alumni to find out why they chose to study engineering and what made them choose to study at SHU. **(AP 4.2)**

**ACTION:** Identify female engineering alumnae and students with positive stories to: produce case-study posters for display around Engineering exhibition space and MERI reception; create 'talking head' videos for displaying on large plasma screens and online prospectus. **(AP 3.4)**

**ACTION:** New Women's Engineering Society Student group to create and participate in female student-run outreach events (going into schools or participating in schools events on campus) **(AP 4.8)**

**ACTION:** Produce an information leaflet to send out to all female prospective engineering students with offers (including clearing), emphasising: the success of our female engineering students; the number of female academic teaching staff; the Women's Engineering Society Student Group; peer mentoring for women etc. **(AP 4.9)**

**ACTION:** Work with Engineering professional bodies and women's engineering societies to develop targeted career development and networking opportunities for female students and female-oriented outreach activities etc. **(AP 4.10)**

Actions to address low numbers of Part-time female UG Engineering students in particular:

**ACTION:** Produce list of employers where PT students come from to aid targeted communications. **(AP 5.1)**

**ACTION:** Liaise with employers and college partners to actively promote female participation **(AP 5.2)**

**ACTION:** Monitor total PT student applications, numbers and bursary recipients and attainment by gender and ethnicity **(AP 5.3)**

**ACTION:** Business, PGT and Apprenticeship leads to report to DLT quarterly and at Department Annual Review with recruitment and attainment progress by gender **(AP 5.4)**

**ACTION:** Run focus group with female PT students to identify reasons for lower numbers and potential actions to increase them. **(AP 5.5)**

**ACTION:** Investigate why so many female PT students do not enrol on the course they have accepted a place on. (Follow-up phone calls/ e-mails to prospective students by Recruitment team) **(AP 5.6)**

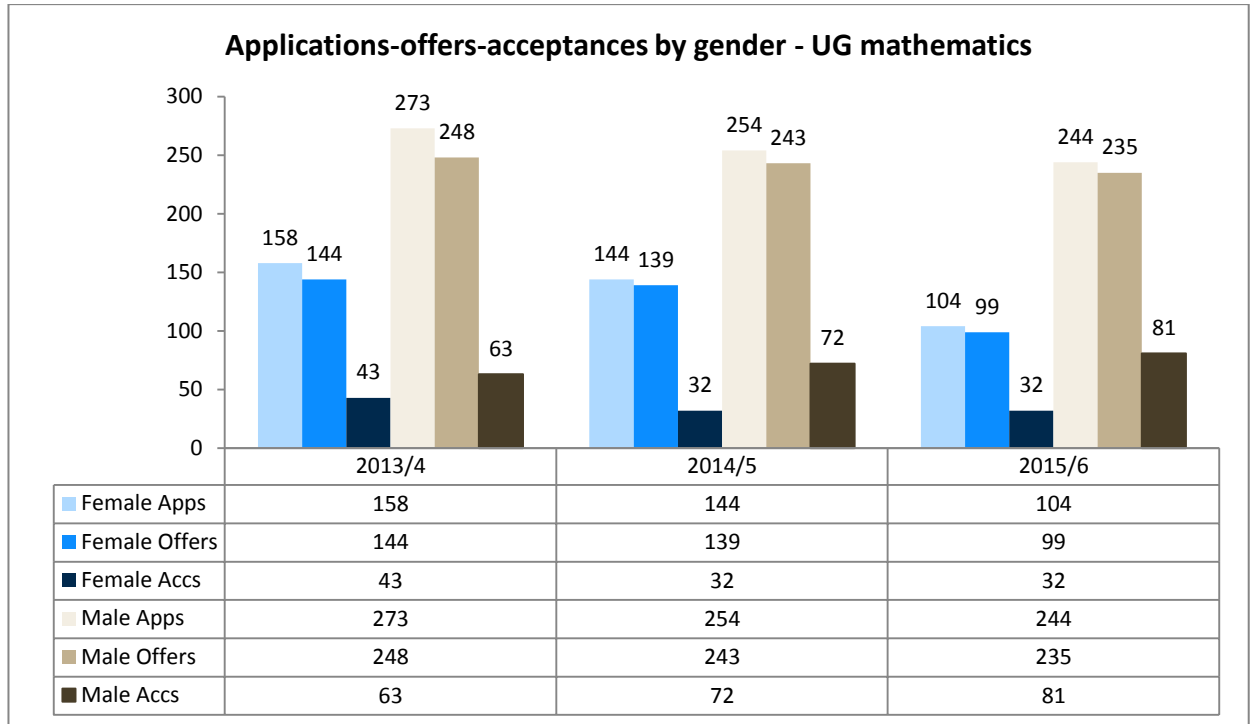
**ACTION:** Survey employers to establish their perception of PT study including potential barriers, numbers of and attitudes to female employees etc. **(AP 5.7)**

**ACTION:** Update online and printed marketing and recruitment material (PT courses) for image gender balance and gender neutral wording. **(AP 5.8)**

**ACTION:** Produce specific communications about PT study targeted at employers and female students including case-studies, Q&A, funding opportunities **(AP 5.9)**

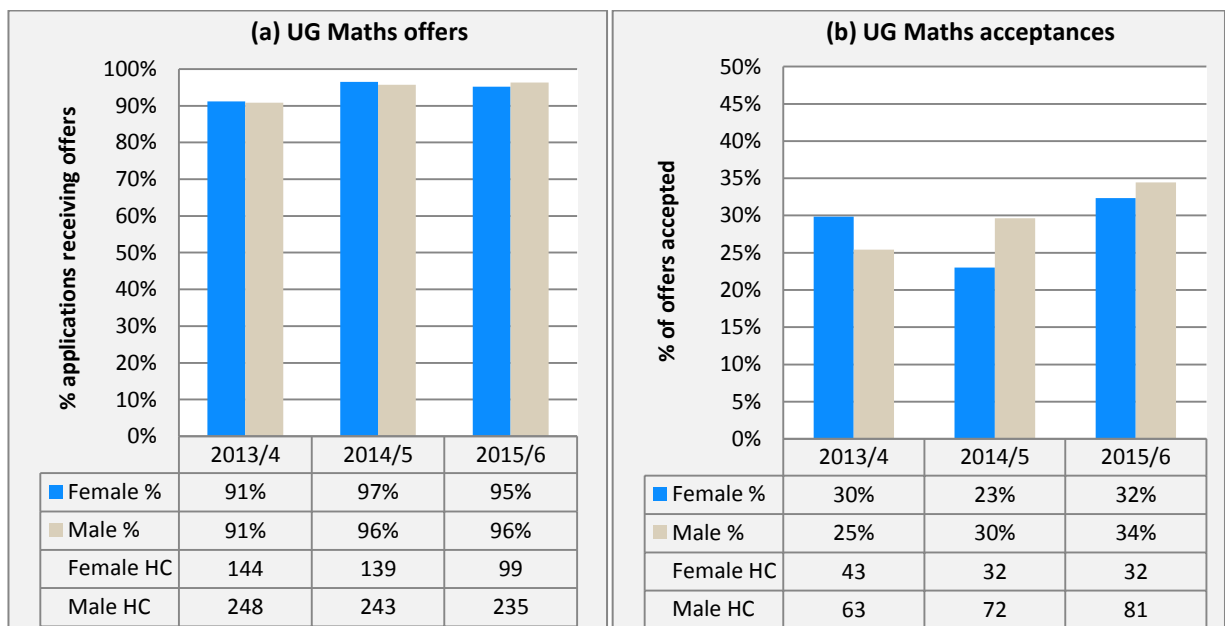
**Applications, offers and acceptance (Mathematics):**

The Mathematics course has FT and SW modes of study. Applications for part-time study (e.g. for health or family reasons) are considered on a case by case basis. Applications have been declining, most sharply for females, and actions are planned to address this.



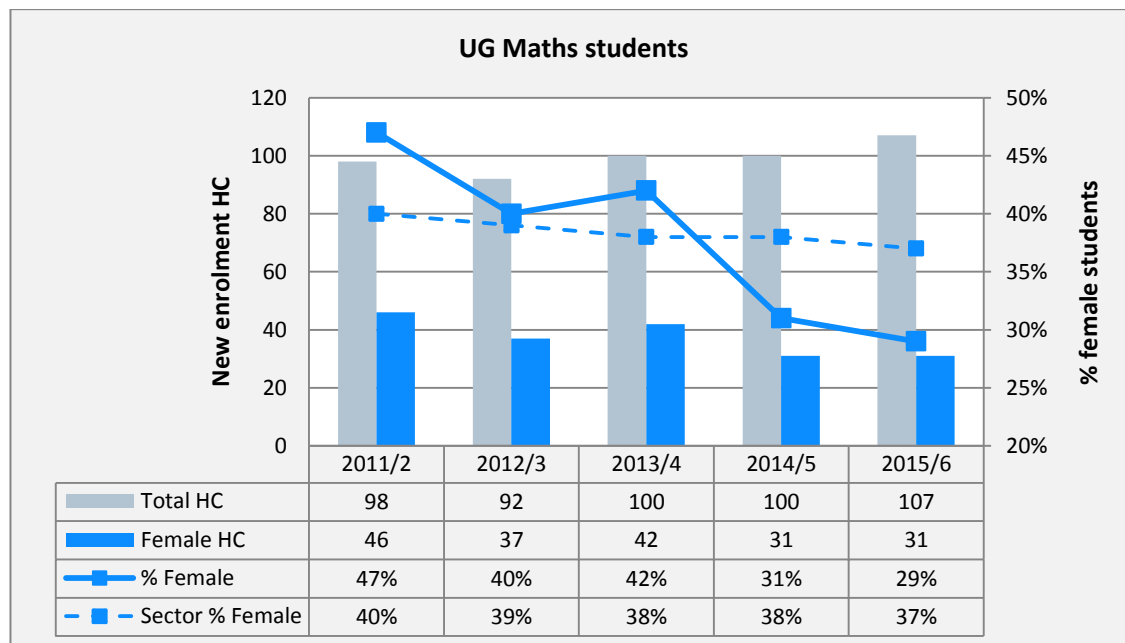
**Figure 11: Applications, offers and acceptances for UG mathematics courses by gender**

The offer rates to male and female applicants have remained steadily high and relatively gender neutral over the past few years. The female acceptance rate dipped in 2014-15 but recovered the following year (Figure 12).



**Figure 12: UG mathematics courses: (a) Percentage of applications receiving offers and offers HC by gender; (b) percentage of offers accepted and acceptances HC by gender.**

The proportion of female students enrolled on the course has, on average, declined year on year since 2011/12 (Figure 13), despite a strong female staff presence at all recruitment events. The absolute numbers suggest that this is a consequence of male students increasingly choosing to accept the offer of a place at SHU (34% offers accepted in 2015 against 25% offers accepted in 2013), whereas the proportion of female students accepting an offer has remained relatively constant.



**Figure 13: New enrolments for UG maths courses with benchmarking**

Actions to address declining numbers of female Mathematics UG students:

**ACTION:** Review Maths open day (monitor attendance by gender and qualitatively assess style and content in relation to engagement with prospective female students) and make recommendations for future events. **(AP 8.1)**

**ACTION:** Carry out analysis of Applications /Offers / Acceptances and Enrolments by gender including data on 1<sup>st</sup> choice and conditional offers. Find out reasons for declining applications from women who reject offers for BSc Mathematics **(AP 8.2)**

**ACTION:** Implement changes to open day and other recruitment activities based on findings from 8.1 and 8.2 including training for course leaders on giving open day talks **(AP 8.3)**

**Degree completion and attainment (Engineering):**

Historically, female engineering students have outperformed their male counterparts, but this gap closed in the most recent set of data due to a slight improvement in male attainment (the result of a drive to reduce the gender attainment gap) and a 6% drop in female attainment (Figure 14).

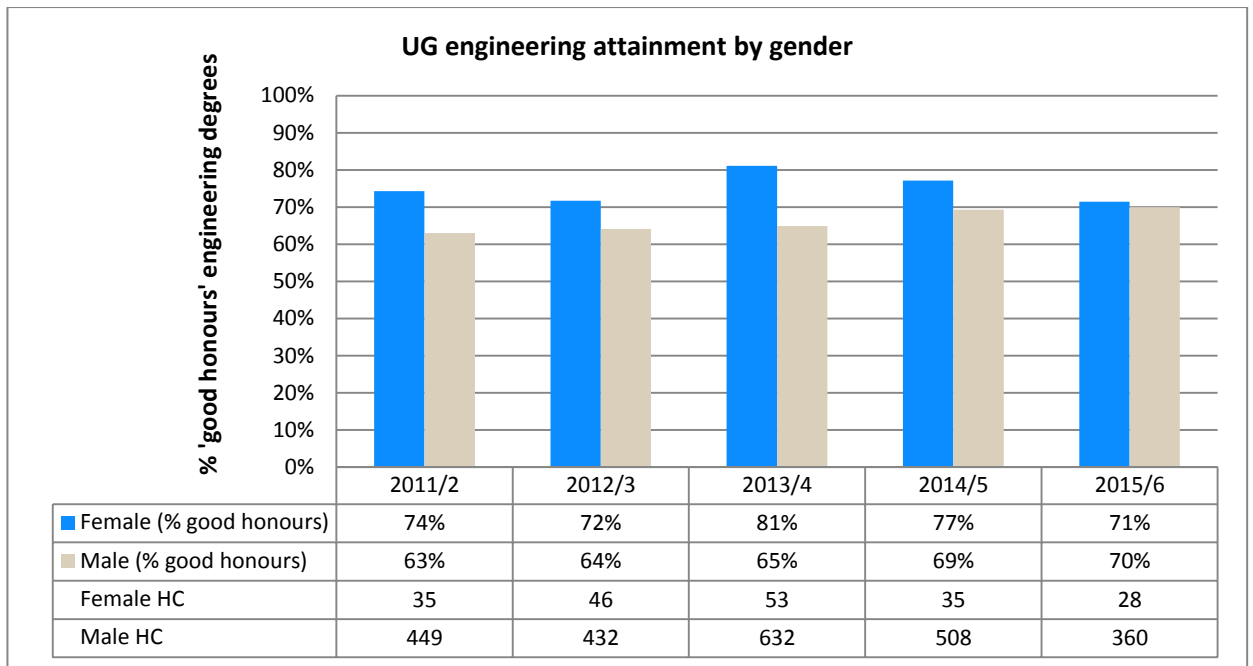


Figure 14: UG Engineering attainment: 'good honours' degrees as a percentage of total graduating head count by gender

Non-continuation rates for both female and male students are in line with sector average (Figure 15). In 2017/18 E&M introduced monitoring of student engagement to identify “at risk” students. Student support services work with each student to identify and implement suitable support structures. Although both male and female student non-continuation rates are in-line with sector, it is intended to halve this over the next 3 years.

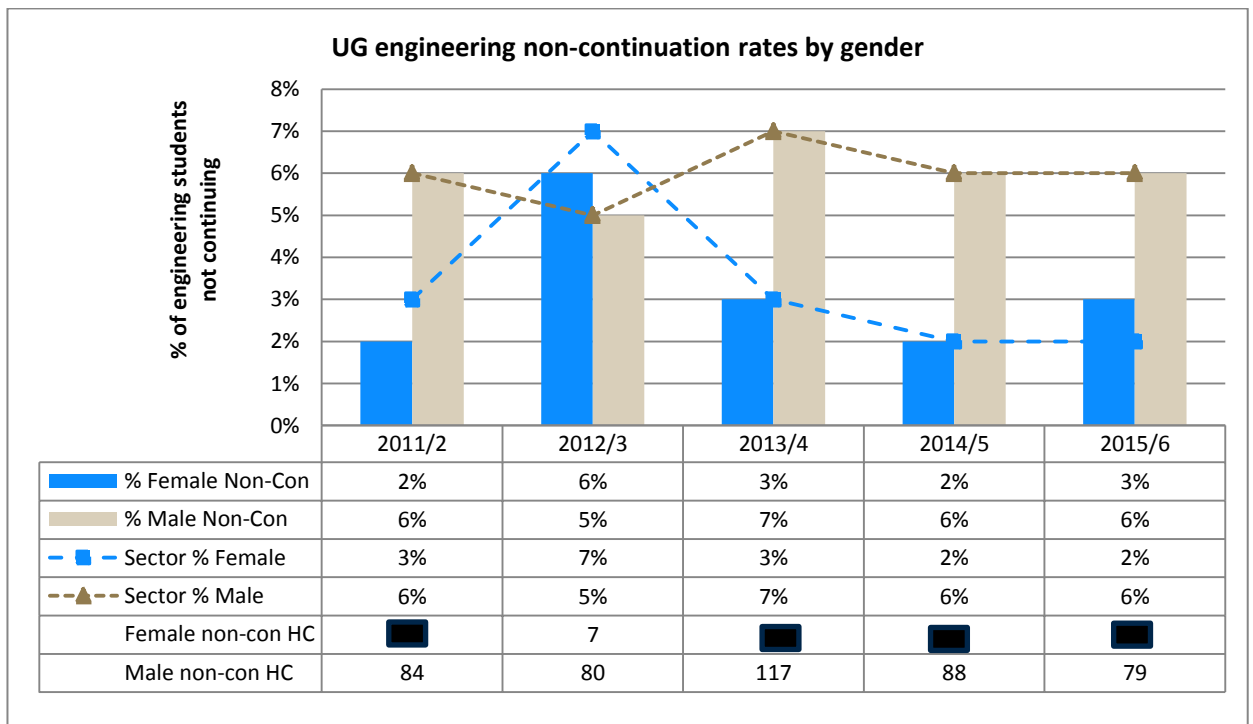


Figure 15: UG engineering non-continuation rates and HC with sector averages by gender

There are a number of bursaries funded by the Alcoa Foundation and AESSEAL PLC (Figure 16) specifically to support female UG engineering students at SHU - these have also contributed to the low non-continuation rate of our women students.



Figure 16: Engineering student [redacted] being presented with one of two AESSEAL PLC prizes for female engineering students by Dr. Emma Carter, Nov 2017.

**Degree completion and attainment (Mathematics):**

The very high proportion of 'good honours' gained by Mathematics students (Figure 17) may be a reflection of the effective learning environment experienced in E&M but may also be a consequence of many students undertaking a placement year, and returning to their final year with greater maturity. We liaise frequently with the external examiners to ensure that standards remain in line with external benchmarks. The attainment by gender will be closely monitored to ensure the recent drop in female 'good honours' is not ongoing.

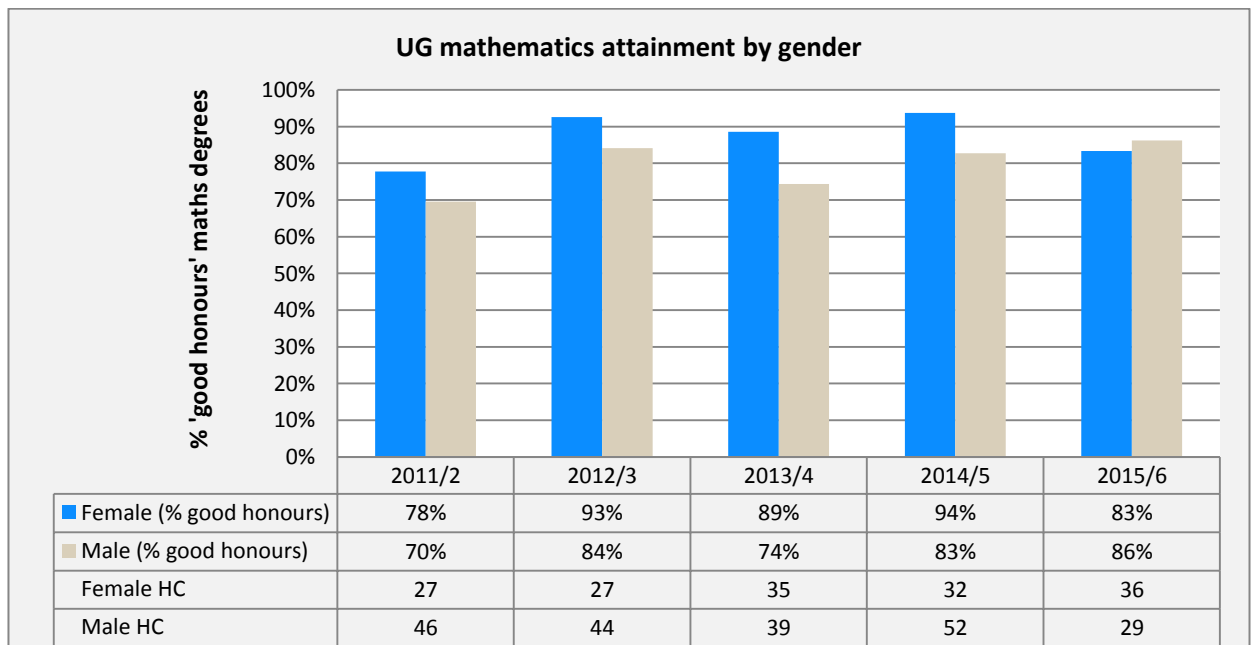


Figure 17: UG mathematics attainment: 'good honours' degrees as a percentage of total graduating head count by gender

Non-continuation rates for male and female maths students (Figure 18) have improved and now closely mirror those of the engineering students. Changes within the course in this period include: a new shared-space home (Figure 19) for the Mathematics staff and students leading to increased contact

with academic year tutors, and the introduction of a peer mentoring scheme. The peer mentors work in pairs with small groups of students in the first and second year of the course.

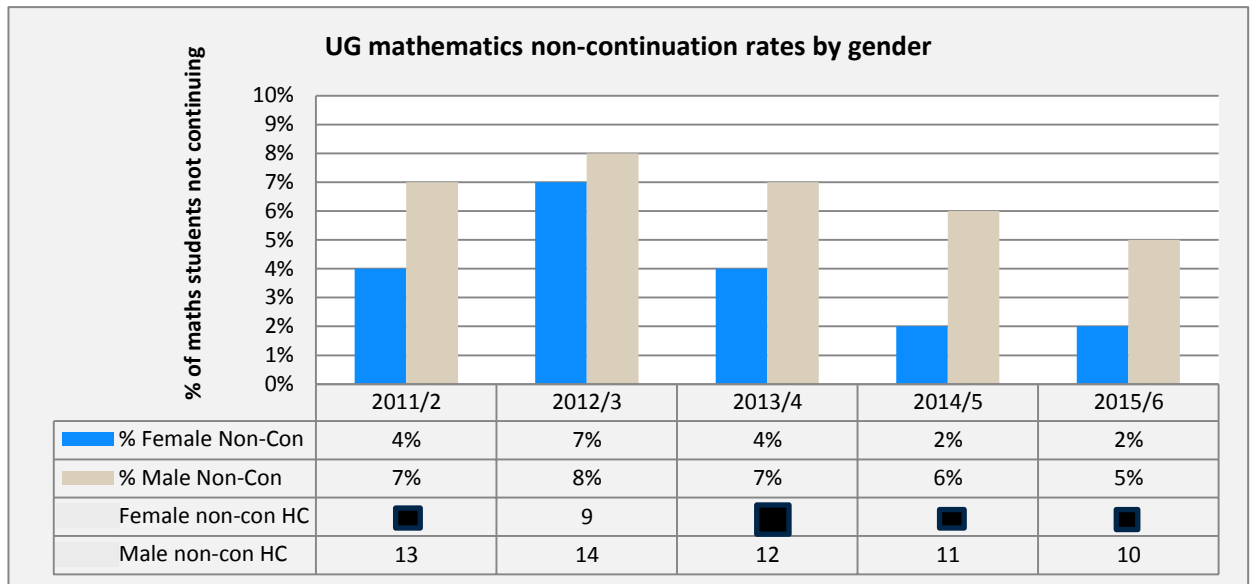


Figure 18: UG Mathematics non-continuation rates and HC by gender

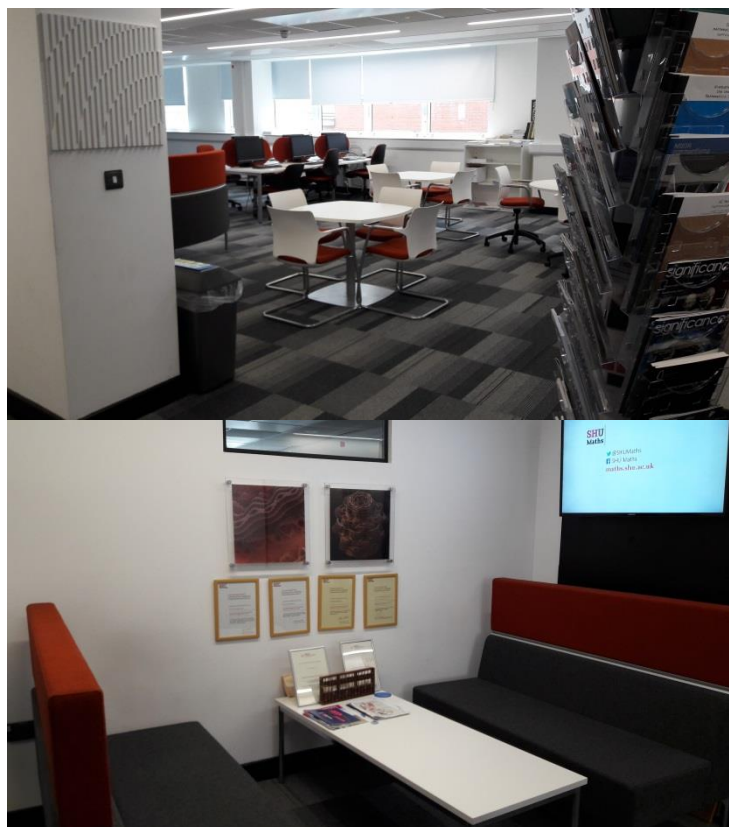


Figure 19: Maths home space for staff and students

The female student focus group highlighted that a 'home space' was lacking for engineering students, particularly for female students as they are in a significant minority in tutorial groups. This physical community is therefore something that engineering can emulate partly by utilising the new STEM centre areas.



Actions to reverse decline in female UG attainment and reduce / halt non-continuation (all courses)

**ACTION:** All teaching staff to complete unconscious bias (UB) training and training in inclusive practice in teaching **(AP6.1)**

**ACTION:** Carry out more detailed study into female UG attainment (specific to courses and modules). Carry out separate female and male UG student focus groups to explore and identify attainment issues and potential solutions. **(AP6.2)**

**ACTION:** Set up task group to review all assessment with regard to opportunities for unconscious bias and gender-biased assessment styles. **(AP6.3)**

**ACTION:** Use results from focus groups and study to design 2 – 3 training sessions or events for UG students to address specific issues (e.g. presentation skills, writing, CAD) **(AP6.4)**

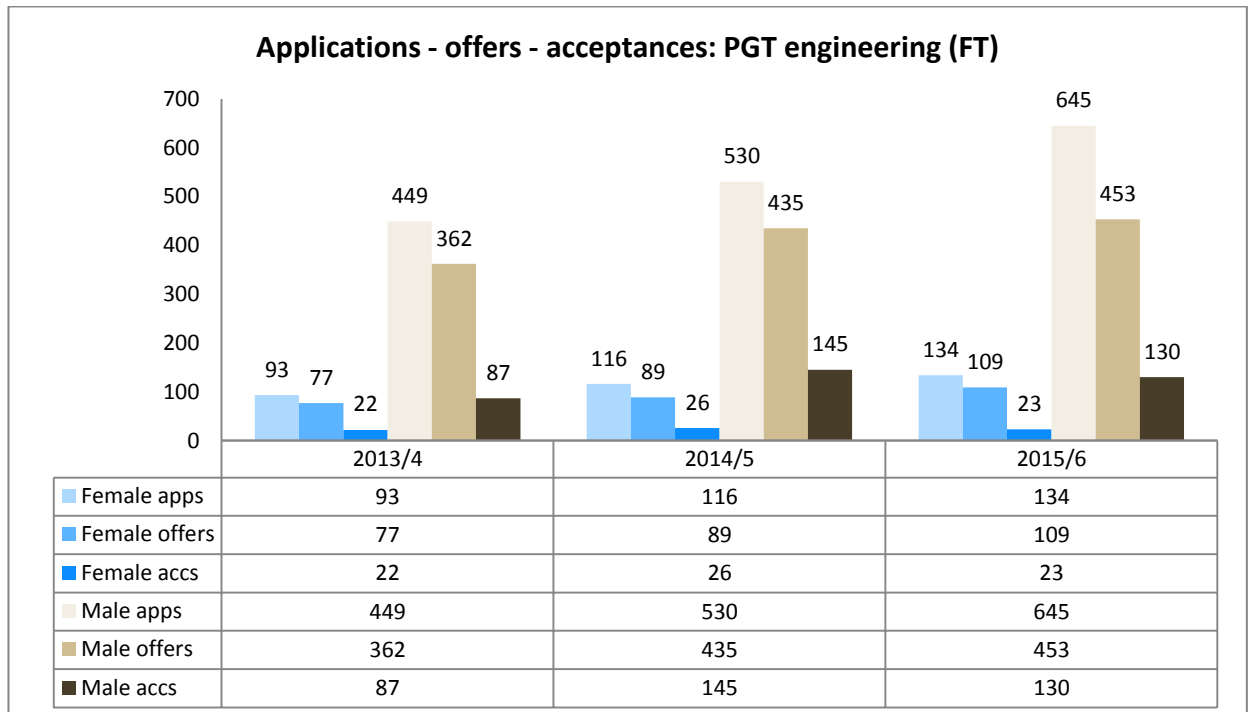
**ACTION:** Task group to produce guidance on unconscious bias and gender neutral assessment (and good assessment practice) and training workshops for teaching staff **(AP6.5)**

**ACTION:** Introduce peer mentoring pilot scheme for female engineering students. **(AP6.6)**

**ACTION:** Roll out peer-mentoring for all engineering students. **(AP6.7)**

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

The department currently offers only engineering PGT degrees. The majority (over 80%) of the PGT students study full time, and about 75% are international (85% of the female students are international). There has been a steady increase in both M and F students applying for PGT courses, (Figure 20).



**Figure 20: Applications, offers and acceptances for FT PGT engineering courses by gender**

There is no gender bias in the offer:application ratio (Figure 21); the proportion of female applications receiving offers has remained consistent where the proportion of offers made to men has dropped

slightly. The dip in female acceptances in 2015/16 will be monitored to ensure it is not the beginning of a trend.

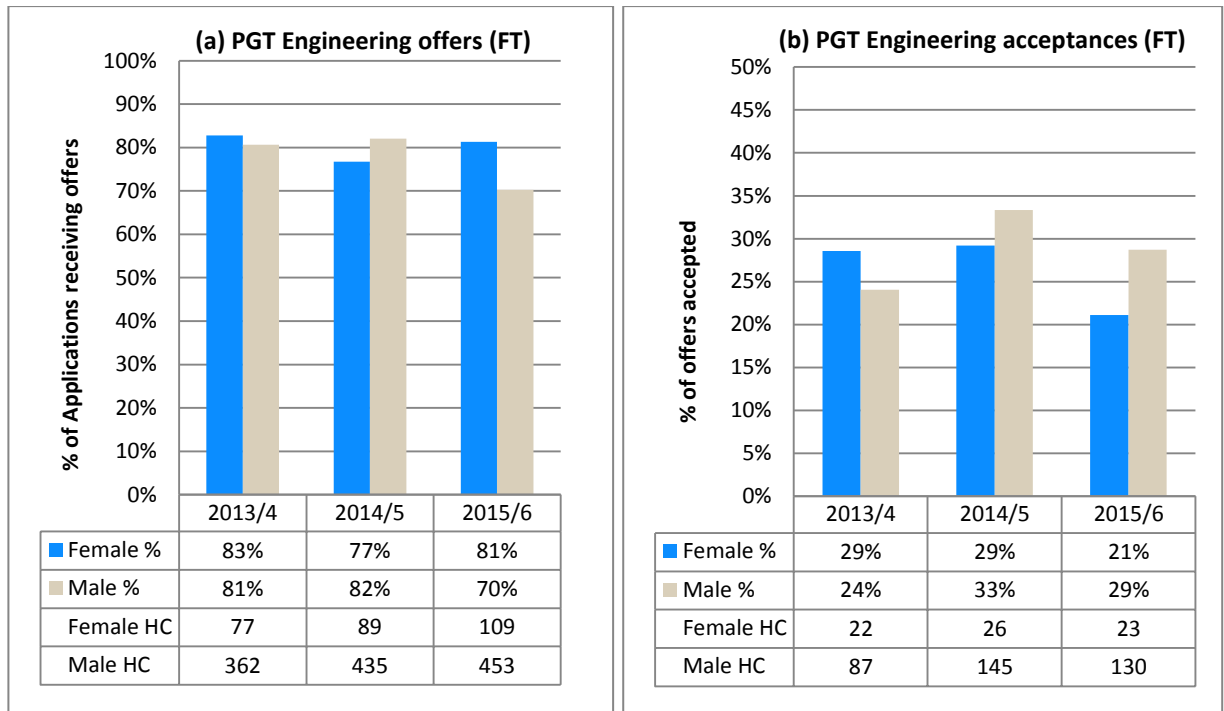


Figure 21: PGT FT engineering courses: (a) percentage of applications receiving offers and offers HC by gender; (b) percentage of offers accepted and HC of acceptances by gender

The numbers of female PGT student enrolments are low (Figure 22), making statistical inferences difficult. The low enrolment numbers compared with the offers made reflects the difficulty that international students can experience in undertaking their PG studies; this is noticeably more difficult for female students).

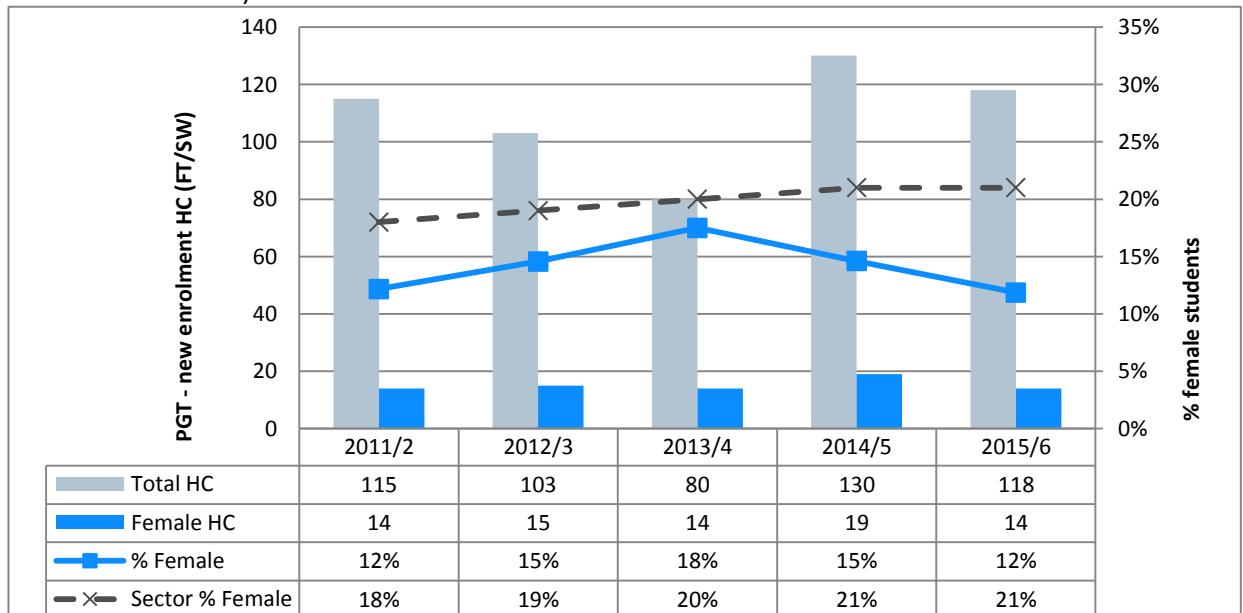


Figure 22: PGT Engineering Students enrolments including % female and sector benchmark (full-time only)

In 2016/17, two competitive full-fees scholarships for home female students sponsored by AESSEAL PLC on three "near-STEM" engineering conversion MSc course scholarships were introduced; the long-term

impact of these measures is still to be determined. In the first year, 20% of the students on the conversion courses were female so this is a potential opportunity for increasing the pool of female engineers.

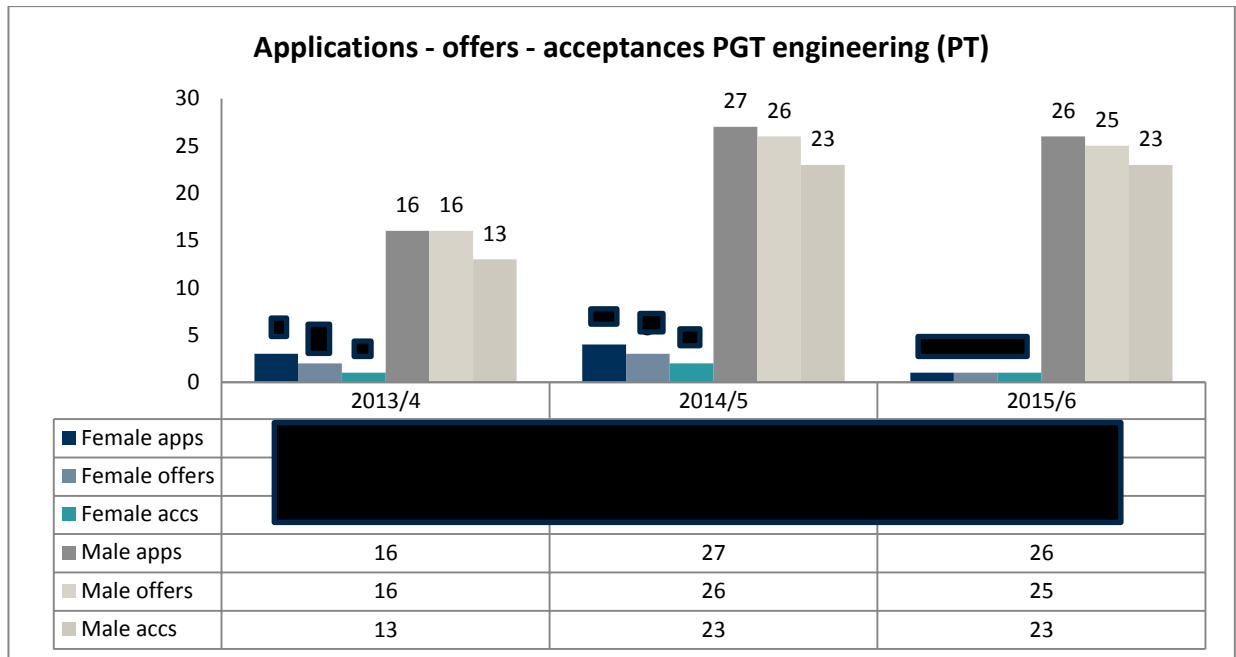


Figure 23: Applications, offers, acceptances for PGT engineering courses (PT) by gender

We have very few female PGT part-time applications (Figure 23) and therefore enrolments (Figure 24).

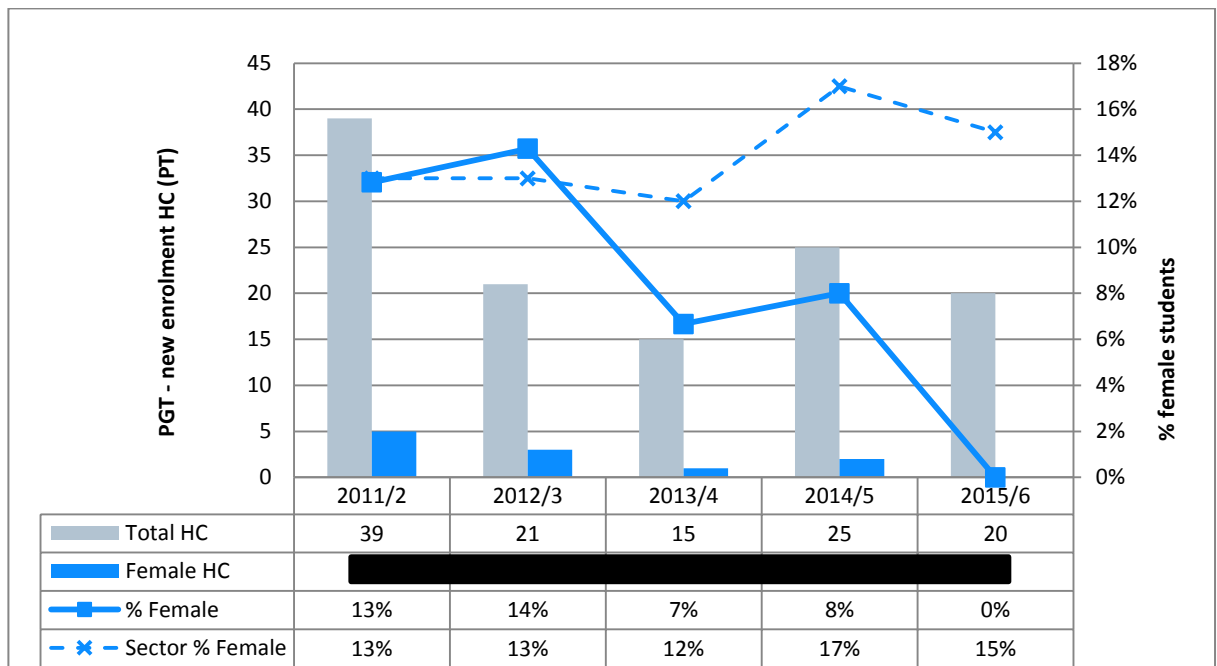


Figure 24: PGT Engineering Students enrolments including % female and sector benchmark (part-time only)

Table 3 shows that a greater proportion of female students complete their studies and are awarded an MSc or MBA. The unusually high proportion of students exiting with an intermediate award in 2012/13 (Table 4) was due to a large employer withdrawing sponsorship of a cohort part way through their studies.

**Table 3: PGT (higher degree attainment, all modes of attendance)**

Year	Total undertaking PGT		Higher degree attainment (MSc, MBA)			
	Female HC	Male HC	Female HC	Male HC	Female %	Male %
2011/12	30	229	27	185	90%	81%
2012/13	9	101	5	56	56%	50%
2013/14	21	128	20	95	95%	74%
2014/15	16	104	15	78	94%	75%
2015/16	16	110	15	88	94%	80%

**Table 4: PGT (intermediate exit award)**

Year	Total undertaking PGT		Intermediate exit award (PgD, PgC)			
	Female HC	Male HC	Female HC	Male HC	Female %	Male %
2011/12	30	229	2	1	7%	11%
2012/13	9	101	3	11	33%	44%
2013/14	21	128	1	5	5%	23%
2014/15	16	104	1	6	6%	17%
2015/16	16	110	1	6	6%	16%

Our female students are very successful in completing their degrees (Table 5). The decreasing non-continuation rate overall reflects the effectiveness of our student support mechanisms (including specific maths, IT and English language support).

**Table 5: Non-continuation on PGT degrees**

Year	Total undertaking PGT		Non-continuation			
	Female HC	Male HC	Female HC	Male HC	Female %	Male %
2011/12	30	229	1	3	3%	8%
2012/13	9	101	1	1	11%	7%
2013/14	21	128	0	3	0%	2%
2014/15	16	104	0	8	0%	8%
2015/16	16	110	0	4	0%	4%

**ACTION:** Evaluate HEFCE MSc conversion course Pilot scheme (designed to increase female enrolment on engineering PGT programmes) with respect to numbers of female applicants, and the effect of offering scholarships to female home students. **(AP 7.1)**

**ACTION:** Develop CPD offer with local employers to encourage sponsorship of female PT PGT students **(AP 7.7)**

**ACTION:** Work with international office to understand why fewer female international students with an offer enrol on PGT Engineering compared with male. (Follow-up phone calls/e-mails to prospective students) **(AP 7.8)**

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

Two thirds of PGR students in MERI are international, often sponsored by foreign governments. SHU introduced Graduate Teaching Assistant and University Studentships in September 2014; both are fully-funded for UK students and have the dual benefits of enabling ECR staff who supervise them to start building a research group and giving the opportunity for some of our UG students to continue their academic career at SHU. MERI typically awards 2-3 studentships each year.

Staff within MERI participate in several interdisciplinary research programs which have recruited female PhD students and female post docs. For example, MERI co-hosts (with the BioMedical Research Centre) a Daphne Jackson Fellow, [REDACTED] who is working on the repair of intervertebral disc tissues.

PGR student numbers remain relatively stable despite their vulnerability to overseas governments continuing to fund their scholarship programmes due to MERI overseas alumni promoting the university's reputation in this market.

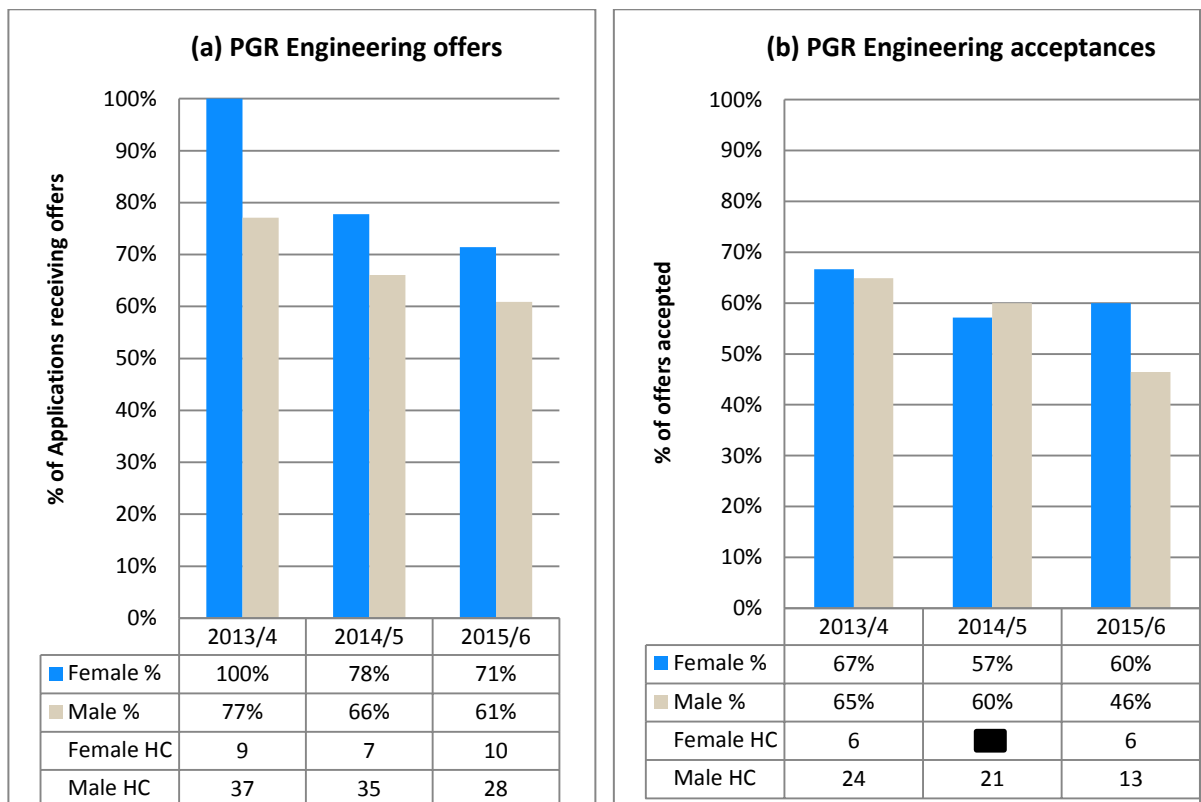


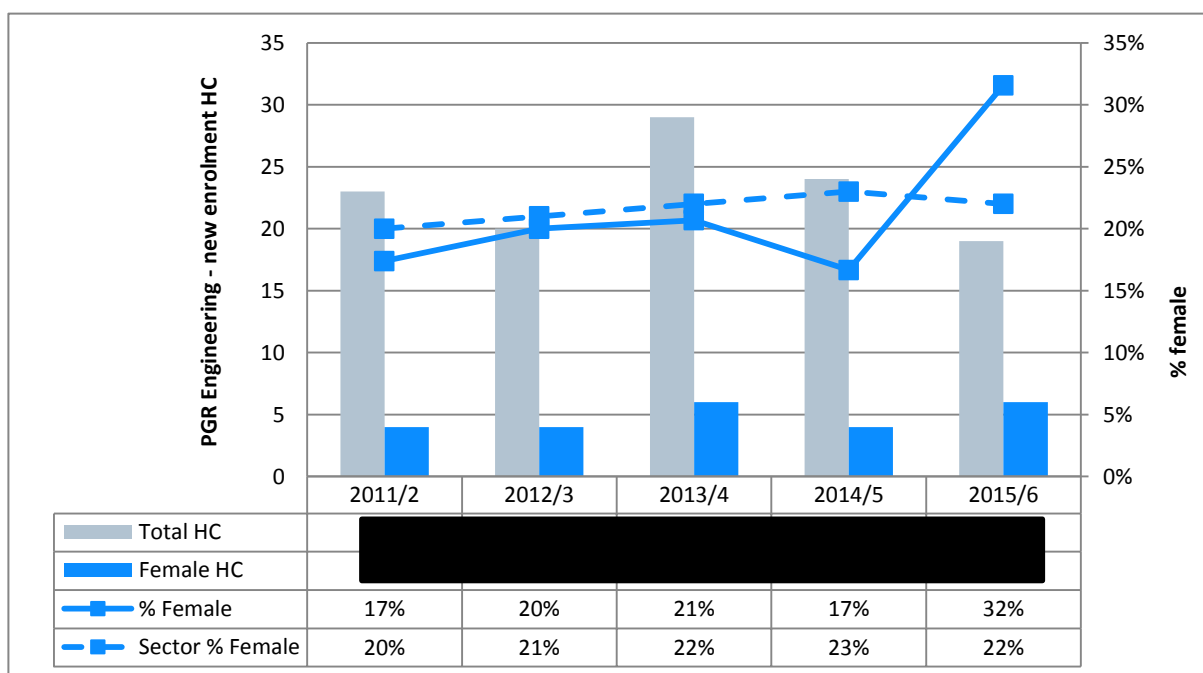
Figure 25: PGR Engineering courses (a) percentage of applications receiving offers and offer HC by gender; (b) percentage of offers accepted and acceptances HC by gender

The data in Figure 25 and Table 6 show that female applicants are more likely to be given an offer and more likely to accept it. The differences between male and female PGR students become more pronounced in conversion of accepted offer to actual enrolments.

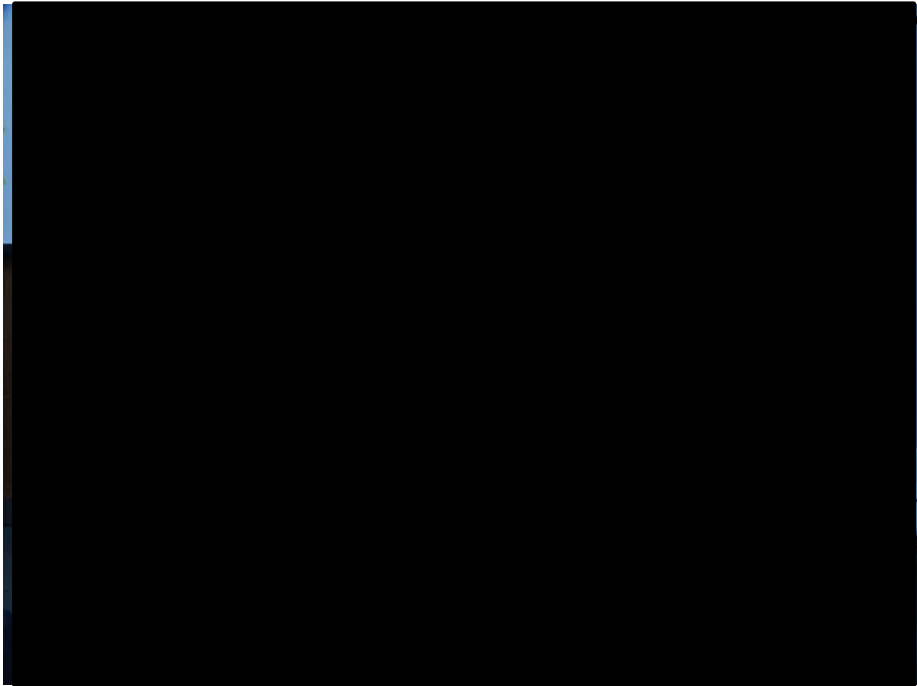
**Table 6: PGR Engineering Students**

	All			Female			Male		
	Applications	Offers	Acceptances	Applications	Offers	Acceptances	Applications	Offers	Acceptances
2013/14	57	46	30	9	9	6	48	37	24
2014/15	62	42	25	9	7	6	53	35	21
2015/16	60	38	19	14	10	6	46	28	13

The percentage of PGR Engineering female enrolment at SHU has increased from 17% in 2011/12 to 32% in 2015/16 (Figure Figure 26), well over the sector benchmark. Although this partly reflects success in female PGR student recruitment, it is also partly due to a drop in male enrolments. There have been very few part-time PGR students; none in 2015/16, 2 male in 2014/15 and 1 male in 2013/14. Students undertaking PGR part-time are all working in a relevant career in a company near Sheffield which partly explains both the low numbers of PT applications and the 100% acceptance rate.



**Figure 26: PGR Engineering new enrolments**



**Figure 27: Female PGR students presenting at annual MERI research symposium**

Our female PGR students (Figure 27) are highly motivated and extremely capable, demonstrated by the fact that they out-perform their male colleagues at the annual MERI research symposium (Table 7) and are more likely to complete their PhD (Table 8). For the past 5 years, all of our female PGR students have completed. Improvements in student support since 2013 have also greatly reduced the number of male students failing to continue with their studies (only 1 per year for the past 3 years compared with 4 in 2012/13).

**Table 7: PhD student awards by gender at annual MERI research symposium.**

Year	Oral Presentation (1 <sup>st</sup> prize)	Best poster	Total prize winners
2014	1 <sup>st</sup> prize: 1F 2 <sup>nd</sup> prize: 1F	1F	3F
2015	Joint 1 <sup>st</sup> prize: 1M, 1F	1M (Judge's vote) 1F (public vote)	2F, 2M
2016	Joint 1 <sup>st</sup> prize: 1M, 1F Runner- up: 1F	1 <sup>st</sup> prize: 1F Runner- up: 1F	4F, 1M

**Table 8: PhD completions**

Year	All	Female	Male
2011/12	10	█	█
2012/13	9	█	█
2013/14	7	█	█
2014/15	13	█	█
2015/16	13	█	█

**ACTION:** Review proportion of females obtaining GTA (Graduate Teaching Assistant) and SHU studentships. Report to SHU E&D committee and to SHU Research degrees committee. **(AP 7.4)**

**ACTION:** Display name, photo and abstract for each winning student from MERI Research Symposium in Engineering exhibition space. **(AP 7.5)**

**ACTION:** Be more proactive in converting the offer to acceptance and ultimately enrolment. This could involve follow-up phone calls/emails by recruitment/PGR tutor/Admin to females offered places, highlighting the success rate of our female PhD students. **(AP 7.6)**

(v) Progression pipeline between undergraduate and postgraduate student levels

The introduction of a greater number of MEng programmes and the lack of PGT options in Mathematics reduced the overall number of our students progressing to PGT study in 2013/14, although the numbers are recovering with the introduction of student loans for PGT courses (Table 9). The strong industrial/applied focus of all our UG programmes in E&M, and the demonstrated ability of our female students (Figure 14 and Figure 17) enable our female students to obtain graduate trainee positions with many of the top engineering and financial companies, such as Jaguar Land Rover and Experian.

**Table 9: Progression from UG to PG**

Year	All		Female		Male	
	PGT	PGR	PGT	PGR	PGT	PGR
2011/12	25	█	█	0	21	█
2012/13	32	█	█	0	27	█
2013/14	15	█	█	0	12	█
2014/15	18	█	█	0	16	█
2015/16	28	█	█	0	26	█

Most of our female students progressing to PGT study are international (Table 10). The university's GTA and SHU studentship schemes are inspiring some of our UG students to study for a research degree in MERI; this year two of six SHU engineering graduate applicants (1F, 1M) were successful in gaining one of these awards.

**Table 10: Progression from UG to PGT (Engineering) - comparison of home and international students**

Year	All students			Home / EU			International (non-EU)		
	All	Female	Male	All	Female	% female	All	Female	% female
2011/12	25	█	█	14	█	█	11	█	█
2012/13	32	█	█	12	█	█	20	█	█
2013/14	15	█	█	7	█	█	8	█	█



2014/15	18	█	█	12	█	█	6	█	█
2015/16	28	█	█	23	█	█	5	█	█

**ACTION:** Promote PGR opportunities to UG and PGT students, including Assistant Dean for Research to give annual talk to final year students, and opportunities for female final year students to talk to female PGR students. **(AP 7.2)**

**ACTION:** Encourage increased attendance of female students (UG and PG) to MERI seminars (described in section 5.6(vii)) For example, promote when female engineers are presenting through female engineering student e-mail list **(AP 7.3)**

#### 4.2. Academic and research staff data

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

The following data do not include Associate Lecturers on 'zero hours' contracts, shown separately in section 4.2 ii.

There has been an expansion in the number of academic staff (all of whom are on teaching and research contracts) within E&M since 2013. This is in addition to replacement of staff who have retired or resigned. This has enabled us to recruit excellent ECRs (usually at Lecturer grade), many of whom are female. This has led to a doubling of the number of female Engineering academic staff over the past 5 years, with 15% now female (Table 11). All of the female lecturers appointed in 2015/16 have already progressed to SL.

**Table 11: Academic staff (Engineering) by grade and gender**

		All grades	Lecturer	SL	PL	SSG / Prof
2011/12	F	6 (9%)	0	█	█	0
	M	█	7	37	18	█
2012/13	F	7 (11%)	0	█	█	0
	M	59	8	31	15	█
2013/14	F	8 (11%)	1 (10%)	5 (12%)	1 (6%)	1 (20%)
	M	█	9	36	15	█
2014/15	F	9 (13%)	█	█	█	█
	M	62	6	37	16	█
2015/16	F	12 (15%)	█	█	█	█
	M	█	7	38	19	█

The Mathematics subject group has traditionally had a much more equal gender balance; this has improved slightly since 2011/12 from 36 to 40% in 15/16. The high proportion of female Lecturers is a reflection of the number of women successfully applying for academic positions in 2011-2014. These women have since been promoted to SL, so that the proportion of female Lecturers has decreased from 100% to 50% and that of female Senior Lecturers has increased from 20% to 47% (Table 12) over the 5 year period. However, it is a concern that in 2015/16 there were no female Maths academics above the

level of Senior Lecturer. This is due to the relatively few suitable promotion opportunities within the department in this period.

**Table 12: Academic staff (Mathematics)**

		All grades	Lecturer	SL	PL	SSG / Prof
2011/12	F	8 (36%)	█	█	█	0
	M	14	█	8	█	█
2012/13	F	8 (36%)	█	█	█	0
	M	14	0	9	█	█
2013/14	F	9 (41%)	█	█	█	0
	M	13	0	8	█	█
2014/15	F	9 (41%)	█	█	█	0
	M	13	0	8	█	█
2015/16	F	10 (40%)	█	█	0	0
	M	15	█	9	█	0

The relatively low proportion of female academic staff in MERI is not reflective of the number of research-active female academics reported in the REF by MERI (see 5.2 iv). Rather it is a consequence of more of our female staff choosing a teaching and research position within E&M after one (or more) post-doctoral positions. Two of our ECRs (1M, 1F) have split contracts, 50% in MERI and 50% in E&M, to more clearly delineate the time allocated to each aspect of their career. Employment contracts in MERI are either research-only (e.g. an externally funded research project), or research and teaching; it is easy to transfer between the two types of contract.

**Table 13: Academic staff (MERI)**

		All grades	R / L	SL	PL	SSG / Prof
2013/14	F	█	█	█	0	0
	M	25	8	█	█	7
2014/15	F	█	█	█	0	0
	M	25	7	█	█	9
2015/16	F	█	█	█	█	0
	M	25	7	█	█	9

**ACTION:** Set up mentoring programme to support women in developing their applications for PL roles. Nominate women for SHU Aspire mentoring programme to develop applications for Readership and personal Chair. **(AP 9.5)**

**ACTION:** Provide work shadowing opportunities to support women in developing their applications for Readership /Professor roles **(AP 9.7)**

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

The Department has been gradually reducing the use of Associate Lecturers (often retired or industry-based lecturers on zero-hours contracts) to improve consistency in teaching (Table 14). Fixed-term contracts are typically used to provide maternity cover or to fill a short-term need (e.g. funded research project). There are very few females in E&M employed under either a fixed term contract or a zero-hours contract, and these contract types are declining for both males and females

**Table 14: E&M academics staff contract type by grade and gender**

		All grades		AL		L		SL		PL		SSG / Prof	
		F	M	F	M	F	M	F	M	F	M	F	M
2011/12	Zero-hours (AL)	█	35	█	35								
	Fixed-term	0	█			0	0	0	█	0	█	0	0
	Open-ended/permanent	14	70			█	8	8	39	█	19	0	█
2012/13	Zero-hours (AL)	6	38	6	38								
	Fixed-term	█	█			0	█	0	█	█	█	0	0
	Open-ended/permanent	16	69			█	7	8	38	█	18	0	6
2013/14	Zero-hours (AL)	6	41	6	41								
	Fixed-term	█	█			█	0	0	█	█	█	0	0
	Open-ended/permanent	15	75			6	9	7	43	█	18	█	█
2014/15	Zero-hours (AL)	6	38	6	38								
	Fixed-term	0	█			0	0	0	0	0	█	0	0
	Open-ended/permanent	18	74			█	6	9	45	█	19	█	█
2015/16	Zero-hours (AL)	█	23	█	23								
	Fixed-term	█	█			0	0	0	0	█	█	0	0
	Open-ended/permanent	21	80			6	9	13	47	█	21	█	█

Zero-hours contracts (Associate Lecturers) are not used in MERI but there are several staff on fixed term contracts due to funded research projects, usually only at RF / Lecturer grade.

**Table 15: MERI academic staff contract type by grade and gender**

		All grades		RF / L		SL / SRF		PL		SSG / Prof	
		F	M	F	M	F	M	F	M	F	M
2011/12	Fixed-term	7	7	7	█	0	0	0	█	0	█
	Open-ended/permanent	█	17	0	█	█	█	0	█	0	█
2012/13	Fixed-term	█	7	█	█	0	0	0	█	0	█
	Open-ended/permanent	█	17	0	█	█	█	0	█	0	█
2013/14	Fixed-term	█	9	2	7	0	0	0	█	0	█
	Open-ended/permanent	█	16	0	█	█	█	0	█	0	6
2014/15	Fixed-term	█	8	█	6	0	0	0	0	0	█
	Open-ended/permanent	█	17	0	█	█	█	0	█	0	7
2015/16	Fixed-term	█	6	█	█	0	0	0	0	0	█
	Open-ended/permanent	█	19	█	█	█	█	0	█	0	8

Staff coming to the end of a fixed-term contract are always shortlisted for any internal position they apply for, where they meet the essential criteria. The experience they have gained while working at SHU enables them to perform confidently at interview; we have been able to recruit two permanent members of the Maths subject group staff (1F, 1M) in this way.

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

Academic staff leave the department on retirement, for career progression to senior positions in academia or industry, or for a variety of personal reasons. Since 2011/12 twenty seven (11F, 16M) academic staff have left E&M, and twenty one (7F, 14M) academic staff have left MERI. Tables 16-19 give the breakdowns by department, gender and grade. It is common for E&M staff to take phased retirement. There are no differences by gender, and each case is unique. Exit interviews are held by the Head of Department/Institute, and pertinent information is sent to the university's Human Resources directorate.

**Table 16: Engineering and Maths leavers by grade and gender (FT)**

	All grades	L	SL	PL	SSG/Prof
2011/12	■		■		
2012/13	■	■	■		
2013/14	■		■	■	■
2014/15	■		■		
2015/16	■		■	■	

**Table 17: Engineering and Maths leavers by grade and gender (PT)**

	All grades	L	SL	PL	SSG/Prof
2011/12	■		■		
2012/13	■		■		
2013/14	■		■	■	
2014/15	■		■		■
2015/16	■		■	■	■

**Table 18: MERI leavers by grade and gender (FT)**

	All grades	R/L	SR/SL	PL	SSG/Prof
2011/12	■	■	■		
2012/13	■	■			
2013/14	■	■			
2014/15	■	■	■		
2015/16	■	■			

**Table 19: MERI leavers by grade and gender (PT)**

	All grades	R/L	SR/SL	PL	SOG/Prof
2011/12	1M, 1F	1M, 1F			
2012/13	1M				1M
2013/14	1M	1M			
2014/15					
2015/16					

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## 5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

### 5.1. Key career transition points: academic staff

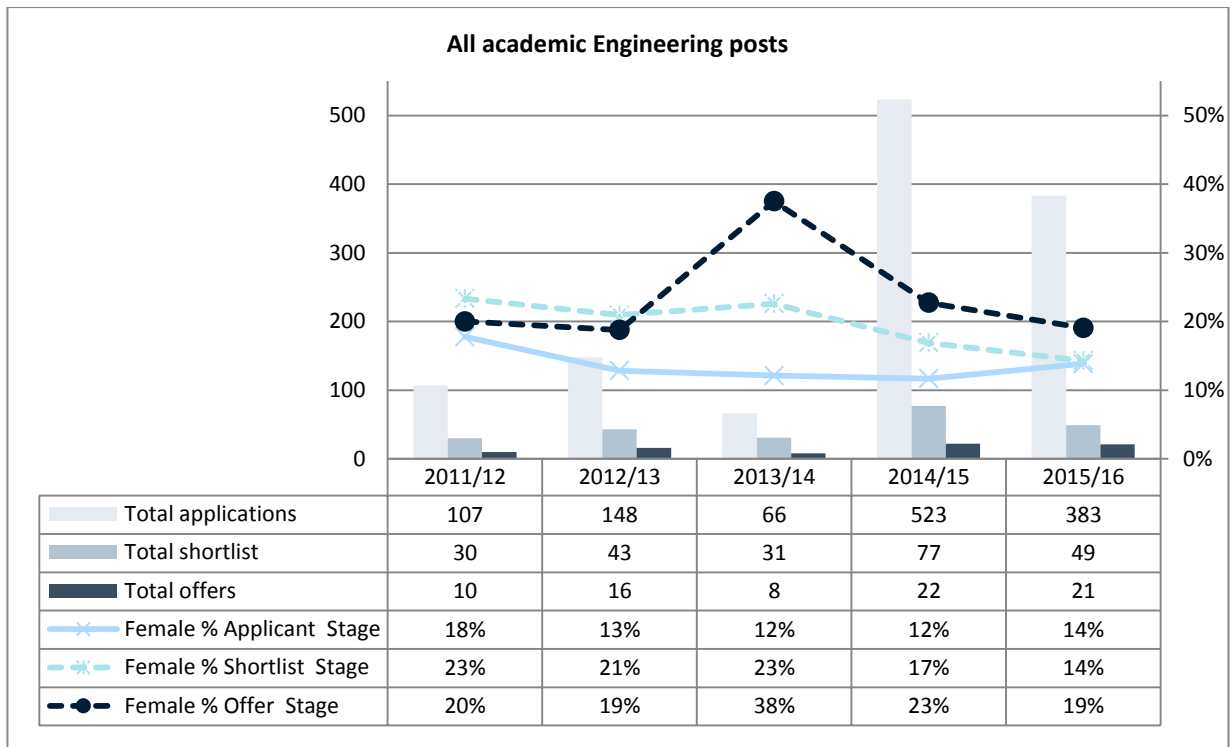
#### (i) Recruitment

Table 20 shows the total numbers of applicants, shortlist and offers (both male and female) and the female applicants, shortlist and offers (as both a HC and % of the total HC). Central records have data since 2014/15 for all departments and E&M have kept data for engineering appointments since 2011/12. Although the proportion of female applicants is low for all three groups, it is encouraging to see that the proportion of successful candidates that are female is always exceeds that of the proportion of applicants.

**Table 20: Academic recruitment: applications, shortlist and offers by department and gender**

All posts advertised within specified period	Number of posts	Total HC (F & M)			Female HC and % of total		
		Applications	Shortlist	Offers	Applications	Shortlist	Offers
Engineering (2012-2016)	77	1227	230	77	160 (13%)	43 (19%)	17 (22%)
Maths (2014-16)	13	143	27	13	33 (18%)	12 (44%)	4 (31%)
MERI (2014-16)	4	170	30	13	49 (29%)	7 (23%)	3 (33%)

MERI posts were all advertised at RF, L or L/SL grade. In Maths, 2 of the 13 offers were for PL (both of which were awarded to male applicants) and the remainder were L/SL or SL. The data for Engineering are presented below:



**Figure 28: Academic recruitment: applications, shortlist and offers (Engineering)**

Until 2015/16, there has been a higher proportion of females at the shortlist stage than at application stage, suggesting that women are less likely to apply if they do not meet all the essential criteria for the job. It is interesting to note, however, in 2015/16 there was an almost equal proportion of females at both stages. Since 2013/14 the proportion of females has been higher than at the shortlist stage. This could be due to the introduction of unconscious bias training for all interviewers, or to refinement of the recruitment procedure to that described below. These figures will continue to be monitored closely and actions have been proposed to address the low numbers of female applicants, which has remained fairly steady over the past 4 years at 12-14%.

Table 21 shows the total Applications, Shortlist and Offer figures for Engineering over the past 5 years grouped by academic grade. On average, the percentage of females shortlisted is higher than at application. For L/SL roles, the offer rate to females mirrors the shortlisting, whereas for the more senior positions, the offer rate to females is much higher than might be expected from the shortlisting. This could be a consequence of women not applying for a more senior position unless they are sure that they have a good chance of success or, in the case of the PLs (internal promotions), it might be a consequence of the female-centred leadership development and mentoring described in section 5.3.

**Table 21: Academic recruitment: applications, shortlist and offers by academic grade (Engineering only) 2011-2016**

	Applicant stage			Shortlist stage			Offer stage		
	Total HC	Female HC	Female %	Total HC	Female HC	Female %	Total HC	Female HC	Female %
L/SL	1183	158	13%	199	39	20%	63	13	21%
PL			4%			11%			23%
HoD / Prof			5%			33%			100%

Table 22 and Table 23 show the total Applications, Shortlist and Offers figures grouped by grade for Mathematics and MERI. The proportion of females receiving offers for mathematics L/SL posts is 50% higher than at the application stage. There remains work to be done during the staff appraisal process to support female mathematics staff in identifying suitable senior positions and developing their careers to be able to submit successful applications for them. The MERI data for L/SL, where both recent posts have been filled by women, are encouraging. Recruitment to the researcher posts show that women are more likely to apply for these fixed-term contracts without meeting all the essential criteria on the job specification; the proportions shortlisted and given offers are essentially the same.

**Table 22: Academic recruitment: applications, shortlist and offers by academic grade (Mathematics) 2014-2016**

	Applicant stage			Shortlist stage			Offer stage		
	Total HC	Female HC	Female %	Total HC	Female HC	Female %	Total HC	Female HC	Female %
L/SL	136	32	24%	23	12	52%	█	█	36%
PL	█	█	14%	█	█	0%	█	█	0%

**Table 23: Academic recruitment: applications, shortlist and offers by academic grade (MERI) 2014-2016**

	Applicant stage			Shortlist stage			Offer stage		
	Total HC	Female HC	Female %	Total HC	Female HC	Female %	Total HC	Female HC	Female %
R	99	31	31%	█	█	18%	█	█	14%
L/SL	71	18	4%	█	█	38%	█	█	100%

In order to attract a wide range of candidates and ultimately recruit the best person for the job, E&M and MERI have broadened the criteria and requirements included in person specifications since 2011. We now include rather than exclude potential applicants at the shortlisting stage, and have widened our potential pool of interviewees to include candidates (particularly women) who previously may not have met some of the criteria due to career breaks, part-time working etc. We also provide a named contact for people to ring to find out more about the role on offer. All job advertisements and application forms include the institutional Athena SWAN logo highlighting our commitment to encouraging women into STEM roles. MERI produce short videos with one or more of the research team giving an overview of the project and the vision of the group.

Formal interviews are preceded by a short presentation, typically 10-15 minutes long. For research posts this allows the candidates to showcase their research and highlight any skills that may not be included in the assessment criteria, but may be pertinent to the role. For teaching and research posts the presentation is a “mini-teach” on a subject related to the candidate’s area of expertise suitable for second year undergraduates. We believe this is an inclusive approach which does not require candidates to have extensive industry and/or research experience. Interviews are conducted in person or via video conferencing/Skype facilities thereby not penalising candidates who may not easily be able to travel due to personal circumstances or geographical location.

In E&M the mixed-gender panels always consist of the Head of Department (or deputy), the Subject Group Leader and another senior member of teaching staff from the relevant discipline. We often also include less experienced colleagues on the panel as part of their professional development. There is

always a research-active member of staff involved in the interview process to allow the candidate's research achievements and aspirations to be addressed where appropriate.

In the past, mixed-gender interview panels have not always been utilised in MERI. In order to ensure all interview panels are mixed-gender in the future while avoiding over-burdening female MERI academics, female staff from E&M will support MERI in the recruitment process. A MERI interview panel typically consists of the project PI in the case of a PDRA position or the Head of Research Centre (HoRC) for a new academic researcher, another member of the research centre and an independent member of staff (this person may be one of the HR team or someone from another research centre). We often include less experienced colleagues on the panel as part of their professional development.

All staff involved in the recruitment process undertake Recruitment & Selection and Unconscious Bias training.

Results from the ASSET survey in 2016 show that female staff value the flexibility of working hours and SHU's reputation for career development, and that all staff value the work/life balance offered and the diverse and inclusive working environment.

[993 words]

**ACTION:** All interview panels in MERI to be mixed-gender in future. Data on all interview panel gender balance to be gathered by appropriate administrative staff and reported to SAT. **(AP 15.3)**

**ACTION:** Report each recruitment round to Leadership Team by gender at each stage of process (for gender bias accountability). **(AP 15.4)**

#### (ii) Induction

Both departments have a good track record of developing new academics in their first appointment. In E&M, we ensure that sufficient time is scheduled into the academic work plan to enable colleagues to study for the PG Certificate in Learning and Teaching in Higher Education. All newly appointed staff are provided with a mentor to support induction into our large and complex department, and there is a year-long structured induction programme to deliver key information at the appropriate point in the academic year. Since 2012, a total of 21 academic staff in the department of Engineering & Mathematics (3F and 18M) have undergone the induction programme. In the same period a total of 8 staff in MERI (1 F, 7 M) have been through the similar researcher induction programme.

The effectiveness of the induction programmes is monitored informally by senior staff through chats, and formally by the Subject Group Leaders or Heads of Research Centre as part of the SDR. The mentoring programme is reviewed and revised annually by the HoD and DoRI.

The E&M department gives all new academics a reduced workload for the first year to establish their research and teaching practice at Sheffield Hallam. All staff recruited from 2017 onwards will be given an additional 0.1FTE allocation on their work plan for one year specifically to establish their research. This opportunity will be backdated to staff recruited since 2014 over the next two years.

All new academic staff participate in a two-day induction to the Faculty which incorporates learning, teaching and assessment best practice along with working with support staff in administration and technical services. The induction programme includes specific training on Equality and Diversity. In addition, all staff complete a mandatory university E&D online module.



“My mentors have ... supported me on teaching ... and ...research. I ...appreciate enormously their support and guidance, and feel happy and settled at my working environment.” [REDACTED], working mother of two.

The E&M Leadership Team also runs a more informal induction event, where they introduce themselves and their respective roles. The morning of activities concludes with an opportunity to network with colleagues from E&M and MERI over lunch.

**ACTION:** All line managers to offer new female staff members the option of a female mentor. All mentors of female staff to be fully supportive of equal opportunities for women in academia. (AP 9.2)

**ACTION:** AS overview to be part of MERI new staff induction (AP 15.2)

(iii) Promotion

Progression, promotion and regrading figures by gender for the past 5 years are presented in Table 24.

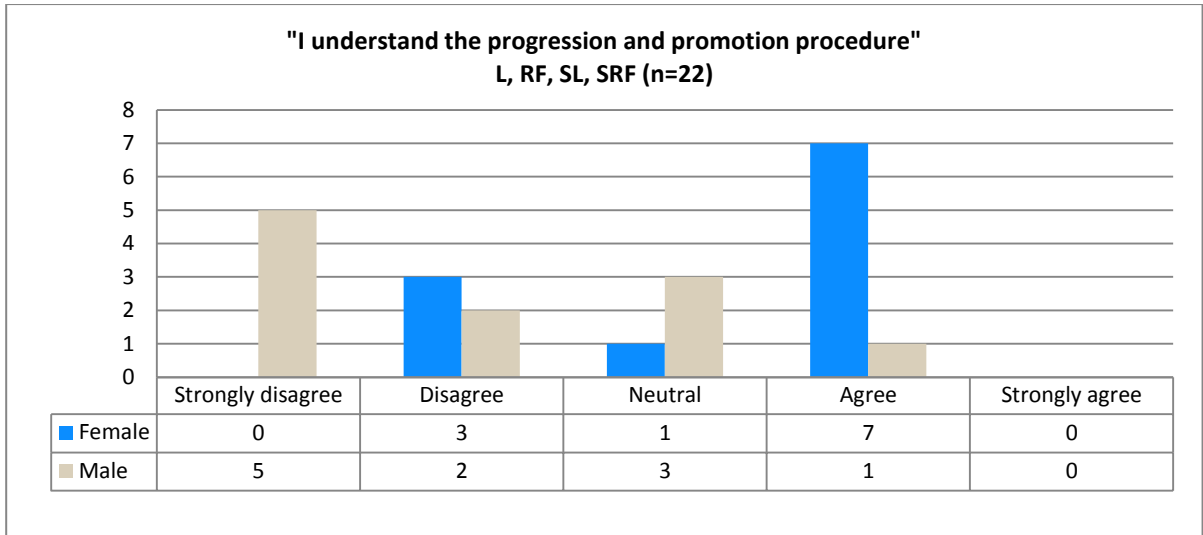
**Table 24: Progression and promotion numbers by gender**

	Engineering	Maths	MERI
2011/12	Progression: 1M		Promotion: 1M Regrading: 1M
2012/13	Promotion: 1F	Progression: 1M Promotion: 1M	
2013/14	Progression: 1M Promotion: 1M Regrading: 1M	Promotion: 1M	Regrading: 1M
2014/15	Progression: 8M Promotion: 1M, 1F Regrading: 1M	Progression: 1F	
2015/16	Progression: 1M, 1F Promotion: 1M, 1F Regrading: 1M	Progression: 1F Promotion: 1M	Regrading: 1M

In order to assess staff opinion on issues related to Athena SWAN principles, an online survey was sent to all academic staff in E&M and MERI in 2017. The questions covered progression and promotion, training and development opportunities, staff appraisal and workplace culture. A total of 38 responses (16 from PL grade or higher, 22 from SL grade or lower) were received:

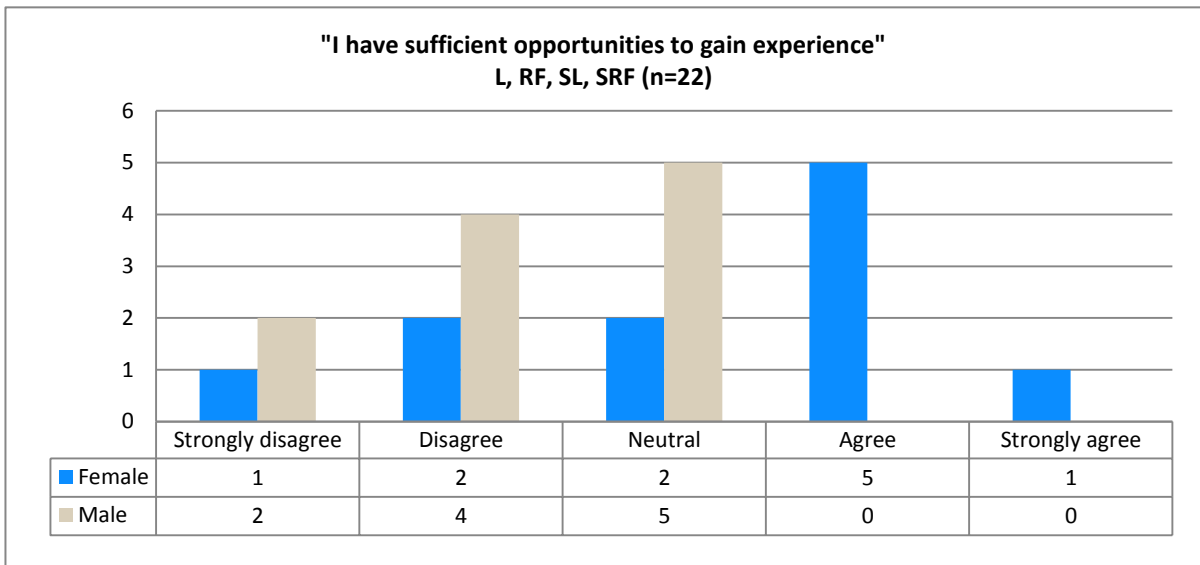
73% of PL / PRF / Prof / SSG understand the progression procedure compared with 36% of other grades (L, SL, RF, SRF). This is almost certainly because they have successfully been through the progression procedure and / or are involved in supporting staff through the process. Male respondents seemed less likely to understand the progression procedure than female staff. Information on progression, regrading and promotion is available on the staff intranet.

Of the 22 staff in L/SL/RF/SRF grades, there were 11 Male and 11 Female respondents. The responses are analysed below.

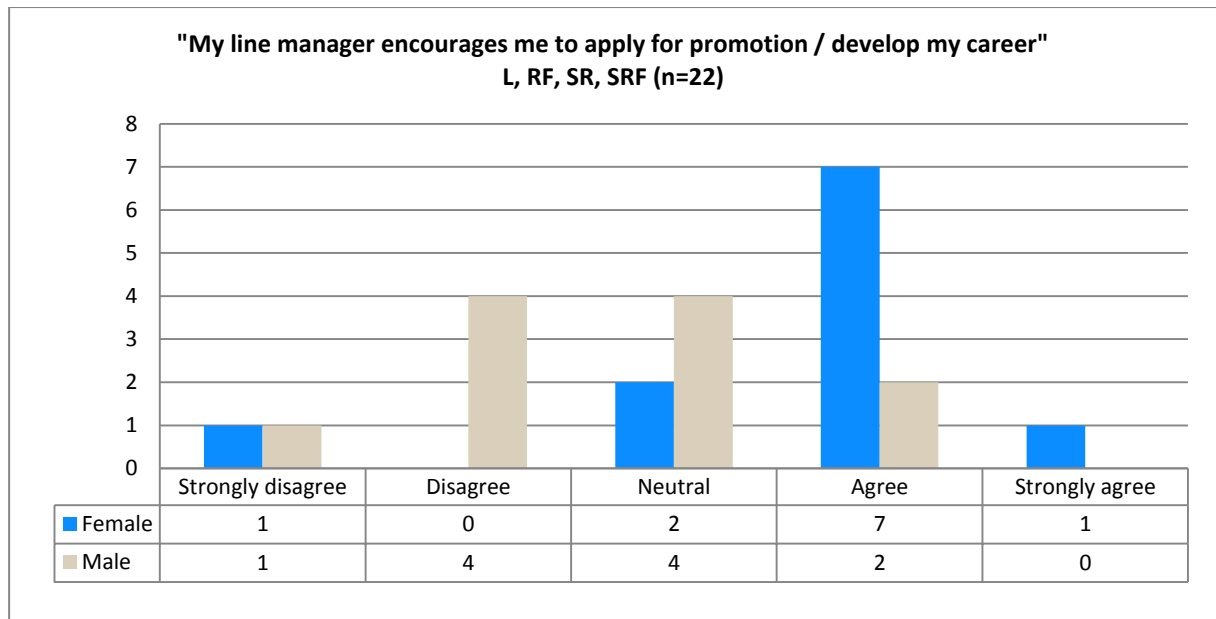


**Figure 29: Staff survey results (question regarding the understanding of progression and promotion procedures)**

There is a noticeable trend towards females having a better understanding of the progression process (Figure 29), suggesting that they are preparing to apply for progression or promotion. Females also seem more optimistic about the opportunities they have to gain the necessary experience (Figure 30), and report greater encouragement from their line manager (Figure 31).



**Figure 30: Staff survey results (question regarding opportunities for gaining experience for promotion)**



**Figure 31: Staff survey results (question regarding promotion / progression encouragement by line manager)**

In the survey, staff gave written comments to support their answers. Comments regarding promotion and progression included:

*".... I feel that there are more opportunities available for career progression than there were before. It is good to see staff development for developing research starting to happen too - although I think much more could be improved in this area."* Engineering academic (F)

*"In general, there are insufficient opportunities for staff reward and recognition. Most that exist are role based and only available when existing staff move on."* Maths academic (M)

*"Opportunities for promotion are always linked to taking on specific managerial responsibilities. There are no promotion opportunities related to developing your work with students."* Maths academic (M)

*"Some female members of staff have been given more responsibility, without the promotion."* Maths academic (F)

The departments' commitment to gender equality ensures that female staff have opportunities to develop their profile and skills. The **ASPIRE** programme (a mentoring scheme set up by the Women Professors Group (WPG) at SHU) has proved particularly effective for female staff wishing to advance their career within E&M. Two members of staff who have undergone the training are currently employed as a programme lead (PL) and a Deputy Head in the department; they both sit on decision-making bodies at Faculty and University level. We have now made the ASPIRE programme available to female colleagues at all grades, and three more female SLs joined the programme in March 2016.

Female colleagues can also apply to join the **Aurora** leadership development programme run by the Leadership Foundation for Higher Education. Each participant is matched to an internal mentor, and also attends five networking and development days. Of the 28 participants in this programme at SHU in 2015/16, 6 were from the department.

Preparation for more senior roles comes through a mixture of training courses and on-the-job learning with support from senior staff. In the past, promotion opportunities for both female and male staff as a result were limited by the number of vacancies within the department. A reorganisation during 2013/14 led to the creation of a number of additional PL posts in recognition of the increased size and

complexity of the growing department, providing increased opportunity for progress through promotion.

To help prepare for the transition to senior roles, staff are offered the opportunity to join the University's academic leadership training programme, giving an insight into the roles and responsibilities of senior staff. Each participant on the course is allocated a mentor at PL level and the department is trialling giving staff at this transition point experience by shadowing of professional leads.

Progression to Reader/Professor requires a substantial/outstanding research record (either discipline-specific or pedagogical or knowledge transfer) as part of the criteria. Since the introduction of readerships in 2014/15, E&M has supported three staff (1M) in their progression applications. E&M and MERI are looking at ways to support women to progress to Reader/Professor within SHU including the delivery of career development workshops for women *and* men as well as the ASPIRE mentoring programme described above.

E&M enables all colleagues to develop their research career by two mechanisms: work-planning and mentoring. Colleagues are able to request one day per week be kept clear of teaching commitments to focus on unfunded research such as the development of a grant application or publications. Of the 16 colleagues making this request for 2016/17, 6 were female. ECRs are mentored by a professor in the preparation of their first grant applications. The MERI and E&M professors and readers also review journal submissions and grant applications.

[817 words]

**ACTION:** Actively encourage female staff to apply for progression and specific promotions where appropriate. Ensure research training is promoted to all colleagues. **(AP 9.1)**

**ACTION:** Improve staff mentoring: Provide training for both mentor and mentee and write formal guidance and scope for mentoring relationship. **(AP 9.2)**

**ACTION:** Monitor impact of new research promotion process for gender balance **(AP 9.3)**

**ACTION:** Nominate at least one Female academic from the Dept. per year for the Aurora leadership programme (details above) **(AP 9.4)**

**ACTION:** Line managers to identify and nominate female academics from E&M and MERI for the Aspire mentoring programme (details above) **(AP 9.5)**

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

Of the 32 staff submitted to UoA 13 by MERI in REF 2014, 4 were female (2 from MERI and 2 from E&M). In 2016/17 MERI ran a "mini-REF", which is an internal review of publications by staff wishing to be included to the next REF in the Metallurgy/Engineering UoA. Of the 60 Academic staff taking part in the mini-REF, 11 were female (2 MERI, 9 E&M). The review panel included 5 members of E&M staff (2F, 3M) and 3 MERI professors (3M) as well as the Assistant Dean Research and Director of MERI. The E&M staff were at various stages of their research careers for staff development purposes. The proportion of female academics/researchers submitted to the mini-REF was slightly higher than overall staff proportions would suggest. This is a reflection of the number of young, research-active female engineering lecturers appointed in the past 4 years.

Only one member of E&M (M) submitted to the Education UoA mini-REF.

**ACTION:** Publicise research of female academics in display area of Hertha Ayrton STEM centre to raise profile of women academics to other staff and students. **(AP 3.1)**

**ACTION:** Ensure funding is made available for female academics to attend conferences in order to present research papers. **(AP 9.7)**

**ACTION:** Explicitly encourage the nomination of female speakers for weekly MERI seminars through direct invitation of internal research active lecturers. **(AP 10.2)**

**ACTION:** Identify appropriate REF 2021 UoA for staff engaged in engineering/mathematics education research; support staff in preparing high impact papers for inclusion in REF 2021. **(AP 9.8)**

### 5.3. CAREER DEVELOPMENT: ACADEMIC STAFF

#### (i) Training

Staff development is arranged at departmental, subject group and individual levels, and may be provided by the university directorates or by external providers. It includes attendance at scientific meetings and conferences to build and strengthen research networks, training in specialist software, refreshing of pedagogical approaches and leadership development. The data reported in Table 25 are those for staff booking training through the SHU human resources directorate. It does not include group training organised by the department or external CPD paid for by the department on an individual basis (e.g. ASPIRE, Aurora, attendance at meetings and conferences).

**Table 25: Institution-facilitated training course attendance**

Training category	2013/14		2014/15		2015/16	
	Female	Male	Female	Male	Female	Male
Appraisal /Staff Development Review	1	0				
Career Progression			2	0		
Induction	3	0	4	1	3	0
Leadership					0	2
Management	3	1	10	0		
Other	6	1	8	2	1	1
Total	12 (86%)	2 (14%)	22 (88%)	3 (12%)	4 (57%)	3 (43%)

A comment from the recent staff survey implied that staff were willing but unable to attend training due to clashes with teaching:

*“Internal training always falls during teaching time when I have no time available to participate, more opportunities at other times would be appreciated.”* Female Engineering academic (2017 survey).

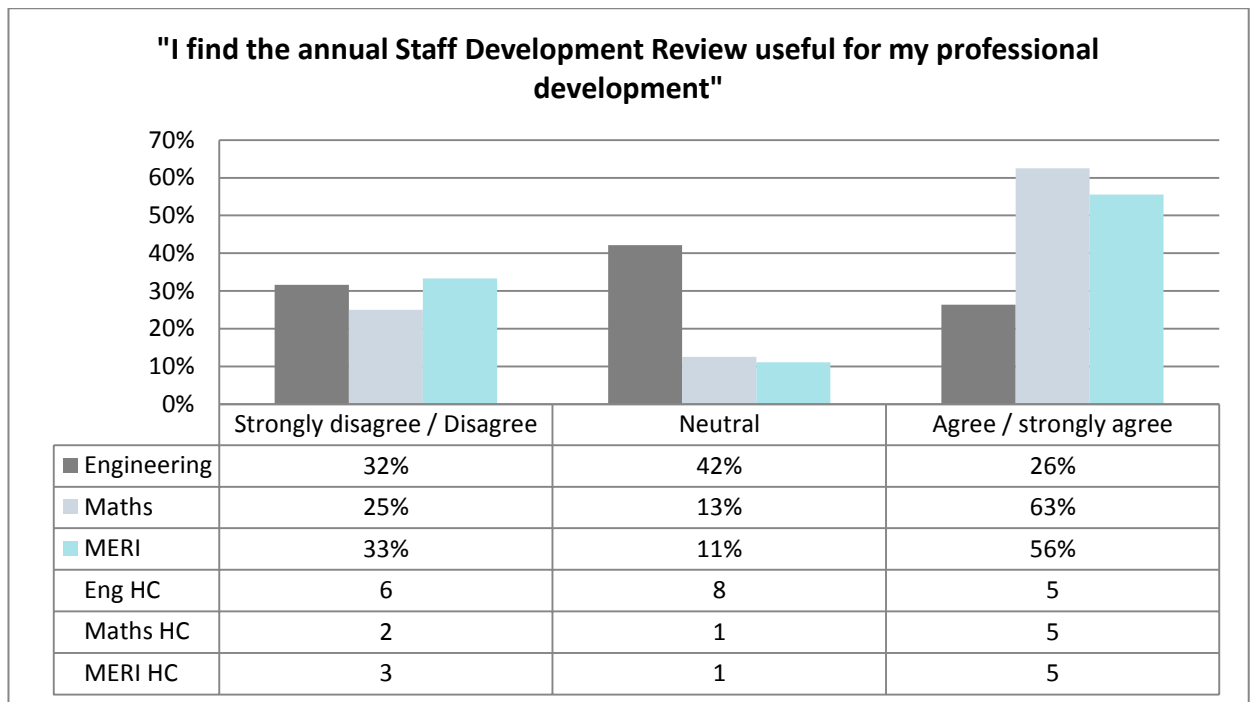
**ACTION:** Timetable weekly meetings for subject groups for operational discussions, training and social events. **(AP 13.1)**

**ACTION:** Ensure longer bespoke training events are arranged outside the main teaching weeks to ensure staff with high teaching loads can attend. **(AP 13.2)**

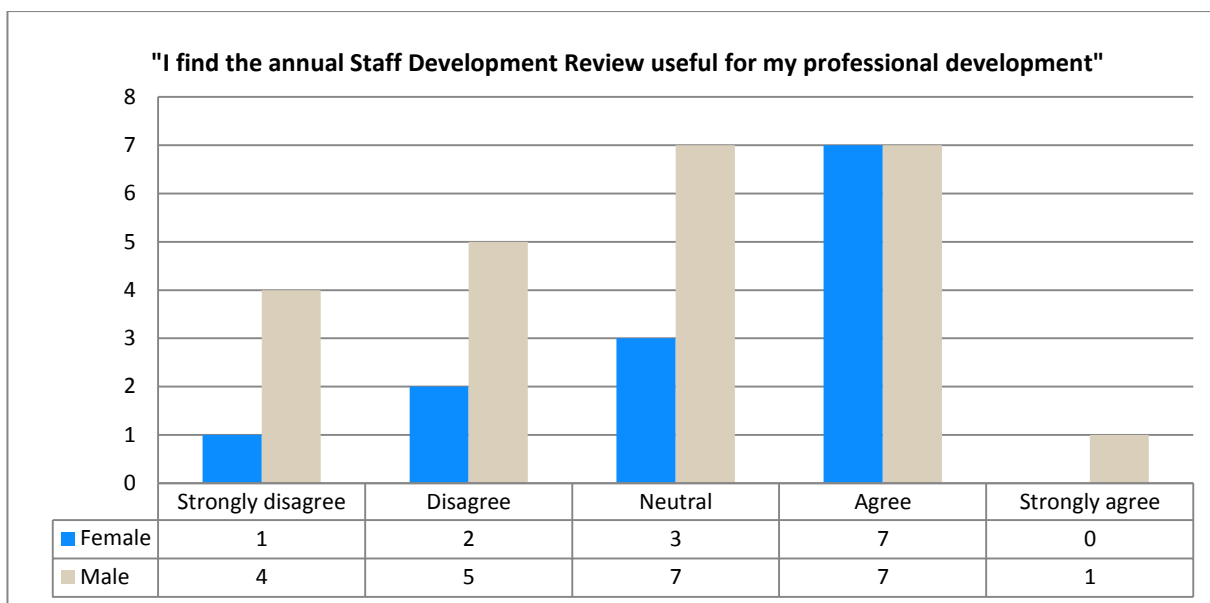
**ACTION:** Monitoring of staff training to include all types of training (numbers by gender and ethnicity) including research-related training and attendance at conferences and pedagogic training both internal and external. Report a summary of staff development activities for the year in the Department Annual Review. **(AP 13.3)**

(ii) Appraisal/development review

All staff at SHU undergo an annual Staff Development Review (SDR). A recent staff survey found that: 63% of Maths staff and 56% of MERI staff responding to the survey reported the SDR useful for their professional development compared with only 26% of Engineering staff (Figure 32). This suggests that some work needs to be done on the perceived efficacy of the SDR in Engineering. Suggested actions include Appraiser and/or Appraisee training for academic staff in Engineering in particular.



**Figure 32: Staff survey results (perception of appraisal process by subject area)**



**Figure 33: Staff survey results (perception of appraisal process by gender)**

54% of females agreed that the SDR was useful compared with 33% of males (Figure 33). This may partly be a reflection of the higher proportion of females in Maths, which was more supportive of the SDR, but of the 5 respondents who 'strongly disagreed', 4 were male. These data could suggest that female academic staff particularly benefit from a well-designed SDR facilitated by a trained line manager and that currently this is being done more effectively within MERI and Maths than in Engineering.

**ACTION:** Add points of discussion with regard to encouraging career development, progression and promotion for female academics, equality issues and awareness of Athena SWAN. **(AP 14.1)**

**ACTION:** Introduce the gathering of anonymous data related to AS from SDR to better quantify the support given for advancement of women's careers. **(AP 14.2)**

**ACTION:** Provide training for appraisers (direct line manager) to include emphasis on line managers using SDR to encourage staff regardless of gender to apply for progression or promotion as appropriate to their level of experience. **(AP 14.3)**

**ACTION:** Provide training for all staff to get the most out of their SDR. **(AP 14.4)**

### (iii) Support given to academic staff for career progression

In 2013/14, the application process for promotion to Reader or Professor was changed to recognise pedagogic research, with workshops offering further guidance. The 2-year bar to reapplying if unsuccessful was removed for Readership applications, and a process of allocating mentors to prospective chairs was launched. This process should make it easier for academic staff primarily attached to teaching departments to apply for promotion. The seven colleagues who have been promoted since this change have all had significant time allocated to research institutions (i.e. have had external research funding). ■ female colleagues in this position have both been promoted to Principal Lecturers, and ■ further female colleague made a professorial application in 2016.

The SAT will monitor progression to Reader/Professor over the coming years to evaluate the impact of this change. We will also ensure that females have equal access to support, career development and training in establishing research careers.

PDRAs in MERI are encouraged to develop their teaching skills supporting the undergraduate teaching programmes. They are eligible to attend the PGCHE training programme and all in-house learning, teaching and assessment courses organised by the department. They are supported in applying for recognition as an Associate Fellow of the HEA.

An annual Learning Teaching and Assessment (LTA) conference is held by the faculty to disseminate best practice. All staff are invited to both attend and contribute. This provides an opportunity to identify collaborators for grants from the faculty's Teaching Enhancement Fund. Table 26 shows that female E&M staff are likely to make a successful application for Teaching Enhancement funding and present their findings at the faculty LTA conference. MERI hosts an annual 2 day conference where PGR students (poster in 2<sup>nd</sup> year, talk in 3<sup>rd</sup> year) and both departments' staff present their research. The best 20 final year UG engineering project posters are exhibited alongside the 2<sup>nd</sup> year PGR posters to showcase research projects initiated within E&M.

**Table 26: Engagement in pedagogic research**

	Speakers at ACES LTA Conference		Teaching Enhancement Fund Grants	
	Female	Male	Female	Male
2013/14	2 (29%)	5	5 (71%)	2
2014/15	3 (50%)	3	10 (71%)	4
2015/16	3 (75%)	1	4 (50%)	4

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

Preparing our students for a successful career is part of the ethos of the departments. E&M pays any professional body membership costs for UG and PGT students (e.g. IMechE, IET, IOM3, Institute of Applied Maths), and student chapters of our accrediting institutions exist. A series of guest speaker programmes at course level is developed each year, and students are encouraged to attend the more generalist MERI research seminars. There is a dedicated placements and employability team for E&M and a specialist careers advisor offers one-to-one support at all stages of applying for internships and graduate positions. The Assistant Dean for Research gives a talk on the research opportunities at SHU including graduate scholarships, to UG and PGT students at the beginning of their final year. Some students are able to undertake their final year research project within MERI, and others take part in the KTP-internship scheme.

There are two bursary schemes funded by the Alcoa Foundation and AESSEAL PLC specifically to support female UG engineering students; both are awarded annually in a competitive process. In addition, AESSEAL PLC funds two graduation prizes for best female UG engineering students (Figure 16), AESSEAL PLC also funds two full fee scholarships for female home students on MSc conversion courses.



The MERI research seminars (30 per year) offer UG, PGT and PGR students the opportunity to extend their professional networks through a series of invited speakers. These include external speakers, new E&M and MERI colleagues describing their previous research, and information on new experimental techniques.

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

Applications for research grants are managed through MERI and the Research and Innovation Office of the university. Support available ranges from notification of grant calls to grant writing workshops, costing of proposals, proof reading and final checking before submission. Feedback from unsuccessful applications is reviewed with a senior member of MERI, and a targeted improvement plan to strengthen/rework the proposal and identify the most appropriate funding stream is drawn up.

## 5.5. FLEXIBLE WORKING AND MANAGING CAREER BREAKS

### Academic staff:

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

The department and MERI's policy is to provide maternity cover via fixed-term contracts. We cover long-term sickness absence in a similar way. Adjustments to teaching timetables are made to meet the needs of the staff member concerned.

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

Regular Keep In Touch meetings are held with the subject group leader/head of research centre, and new parents are encouraged to bring their child(ren) to work to introduce them to their colleagues. As the proposed return to work date approaches, discussions take place about teaching load, timetables (e.g. late start/early finish), etc.

Two Professional Services colleagues (Grade 5) have recently taken maternity leave, their roles were covered by fixed term appointments. Staff on maternity leave are supported through keep in touch days / communications, and reintroduction programmes.

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

Returning mothers are able to negotiate a return to work with reduced duties, for example reduced hours or a temporary reduction in administrative work.

One PS colleague secured a promotion in another Department in the University shortly after returning from maternity leave.

(iv) Maternity return rate

Engineering: [REDACTED] staff took maternity leave in 2016; returned to full-time work in 2017.

Maths: [REDACTED] staff took maternity leave in 2014; [REDACTED]

MERI: [REDACTED] on a fixed-term contract took maternity leave in 2013/14; returned until end of contract.

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

The Department's ethos is very much about recognising that it is not always predictable when parental leave will be required. It is part of the line manager's role to continually update work plans to take account of personal circumstances.

During the period of review, four members of staff have taken paternity leave, all have returned to normal duties on completion. The unpredictable nature of paternity leave timing meant that these colleagues negotiated local arrangements within the subject group to cover immediate teaching duties, in exchange for additional staffing that was provided to reduce the group's marking load before the semester 2 assessment board.

The Department supports new parents returning to work, through taking a more flexible approach to office hours on an informal basis during the first few weeks and months. This approach works well and staff are keen to support the organisation as well as their new family. In addition when children are ill, staff have the flexibility to take time off and/or work from home whenever possible.

No requests for adoption leave have been made in the period of review.

The university does not have a consistent policy for levels of support that should be provided to colleagues taking parental leave. The HR directorate has recently established a parental returners group to help develop new process and practice. Two colleagues from the department (1F, 1M) are participating in this group.

#### (vi) Flexible working

Requests for flexible working are viewed sympathetically. Both men and women in E&M and MERI are able to apply for and are granted flexible working to enable them to cope with demands at home, to date, no request has been refused. The relatively lower rate of turnover among female colleagues is in part due to our positive promotion of flexible working opportunities. We have 9 colleagues in this category, including █ female staff who reduced their hours to spend more time with young children. One returned to a full contract in 2016/17, another has taken a further period of maternity leave. The remaining colleagues (██████) are all planning their phased retirement.

Staff can identify times when they are not available for work, either for personal or childcare reasons, and E&M accommodates these requests as fully as possible. Four colleagues (██████) are currently working compressed hours as they have particularly long commutes to work.

E&M delivers a number of part-time courses both at Undergraduate and Postgraduate levels which require the students to attend evening sessions (6-9 pm) so that their release from work can be most effectively utilised. These take place from Monday to Thursday so there is a burden on staff to cover these sessions to meet the needs of the part-time students. Staff are given notice of their draft timetable in July to allow them to make necessary arrangements for cover, however Departmental policy is to try to accommodate colleague's home circumstances as far as possible, while retaining a level of consistency for all staff. SGLs work with their staff to achieve an acceptable work pattern for all. The University protects Wednesday afternoon for sports and social activities, recognising this to be a valuable part of student life, contributing to transferable skills and employability.

The University's offer with regards to flexible working is valued by Professional and Technical Services staff. The most recent all staff survey (November 2014) showed 80% of Faculty Professional Services staff were positive about flexible working opportunities (data isn't available for the teams in Engineering and Mathematics or MERI as the number of respondents was too small). There is a strong

record of the application of these flexible working arrangements within the E&M and MERI Professional and Technical Services Teams. For example, over the last three years:

- A part time member of staff (Grade 4) was supported in a period of long-term sickness. Colleagues covered their role and they were supported by keep in touch meetings and communications throughout the period. They have now returned to their substantive hours.
- A PT member of staff (Grade 5) is currently undertaking additional hours for a piece of project work; these have been arranged around her family commitments.
- One PT colleague (Grade 5) who would like to work full time has recently been giving the opportunity for a short fixed term full time appointment at a higher grade.
- A FT member of staff (Grade 7) commutes to work using SHU's flexi-time arrangements to attend school activities for her young family.

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

The flexible working arrangements described above enable staff to transition gradually from part-time to full-time working. Subject groups schedule their meetings to enable all staff (FT, PT, working compressed hours) to attend most of them; from 2018/19 these will be planned into teaching calendars. This ensures that all staff can benefit from discussion around course and subject development, be brought up to date on university and department initiatives and participate in training and social events organised by the subject group.

**ACTION:** Timetable weekly meetings for subject groups for operational discussions, training and social events. **(AP 13.1)**

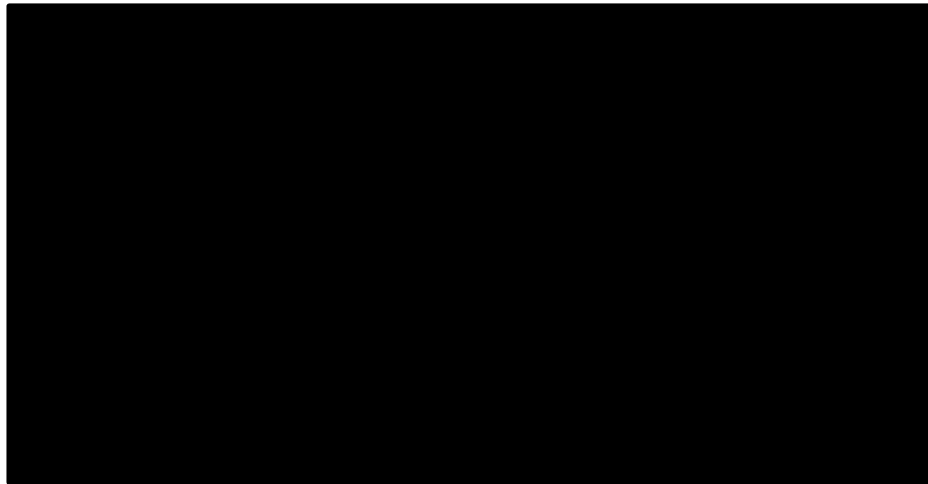
## 5.6. Organisation and culture

### (i) Culture

A small focus group was held in February 2017 with 5 members of the WiEMS committee to represent female undergraduate students (2 Maths, 3 Engineering). One thing that emerged was the difference in culture between the two subject areas with Maths appearing to have a better sense of community providing a more supportive environment for students. Maths is more gender-balanced than Engineering both in terms of staff and students but there was also a significant difference in the physical layout: Maths have staff offices and teaching spaces grouped together around an open plan seating area providing a sense of community and the physical presence and availability of staff whereas, until 2016, Engineering was spread out over several buildings with no obvious centre. One of the main "Engineering" buildings shared space with Art and Design. Since the focus group was held, Art and Design have moved to their own building, and Electrical, Electronic and Control Engineering are now housed in the same building as the rest of the engineering academics, and the new Hertha Ayrton STEM centre linking the two main Engineering buildings was completed in April 2017. (In a conscious attempt to highlight female pioneers of engineering and technology, the new STEM building was named after British Engineer, Mathematician and Physicist, Phoebe 'Hertha' Ayrton). The renovation work also created a new open plan Engineering exhibition space. This has provided space to display student projects such as the Formula Student car and the UAS aircraft and also presents opportunities to increase the visibility of both female and male Engineering staff and students (see section 5.4 vii) and develop a sense of community and identity for Engineering. One of the other points raised in the focus group was that the Maths students know who the academic staff are by looking at a staff photo board.

It would therefore help raise awareness of female staff and help students know who their lecturers are by curating a similar board in the Engineering exhibition space.

As well as supporting the continuation of the Student-run WiEMS (Women in Engineering and Maths Society) aimed at improving female student community between the two subject areas, a small group of female engineering students together with the AS Champion have started a WES (Women's Engineering Society) Student Group. The Chair and vice-chair, [REDACTED] (Figure 34), are already planning various activities including a peer-peer support programme and industrial visits, and attended the national WES student conference in Birmingham in November 2017.



**Figure 34: Chair and vice-chair of WES-SHU student group**

The department has recently appointed a BME champion (F) with 0.1 FTE allowance for the role to further support the Equality, Diversity and Inclusivity agenda within the department. She is working with course leaders to reduce the attainment gap and with the Careers and Employability team to increase the proportion of BME UG students undertaking a year in industry.

**ACTION:** Support start-up of new Women's Engineering Society (WES) Student Group and supporting existing Women in Engineering and Maths Society (WiEMS) to engender better sense of community amongst female students (and encourage student involvement in outreach). Continue to support student run Women in Engineering and Maths society to aid sense of community between female maths and engineering students. **(AP 2.1)**

**ACTION:** Collect suggestions from staff and students on the use of the STEM centre and other spaces to foster better sense of community and inclusivity (via on-line survey and informal chats between SAT members and Students). **(AP 2.2)**

**ACTION:** Use new STEM space to actively develop engineering community through planned activities / meetings and ad-hoc activities according to suggestions in **AP2.2**

**ACTION:** Assess improved sense of community amongst Engineering students and staff through informal feedback and survey / focus group. **(AP 2.3)**

#### (ii) HR policies

All staff are aware of SHU's HR policies and are strongly encouraged to use them. The Head of Department and the Director of MERI meet regularly with a member of the HR directorate to ensure consistency between policy and practice. Updates to HR policies are discussed at the fortnightly

Department/MERI Leadership Team meetings (all staff with management responsibilities are members of the relevant Leadership Team).

(iii) Representation of men and women on committees

The constitution of department and faculty committees that form part of our governance structure, and their terms of reference are summarised in Table 27.

Where committees have been in operation since our previous Athena SWAN application, we have included data for comparison. With the exception of the Industrial Advisory Board, all meetings are scheduled within core business hours (10 am – 4 pm).

**Table 27: Male and female representation on committees**

Committee	Staff type	Female HC	Male HC	% Fem (2016)	% Fem (2012)	Function
<b>Department Level</b>						
Assessment Board	A, PS, CD	11	24	31%		Standing
Department Board	A, PS, TS, CD	15	27	36%		Standing
Leadership Team	A, PS, TS	6	19	24%	9%	Executive
Quality & Enhancement Meeting	A	4	17	19%	27%	Standing
Department Meeting	A, PS, TS	17	87	17%	16%	Collegiate
Engineering Industrial Advisory Board	A, PS, Ex	7	31	18%	0%	Strategic
Department of Engineering & Maths SAT	A, PS, TS, student	6	6	50%	50%	Sub Committee
IOM <sup>3</sup> accreditation Working Group	A	2	2	50%		Task & Finish
Mechanical, Materials & Design Engineering Subject Group Meeting	A	7	24	23%		Deliberative
Industrial & Collaborative Eng. Subject Group Meeting	A	2	21	9%		Deliberative
Electrical & Electronic Engineering Subject Group Meeting	A	2	21	9%		Deliberative
Maths Subject Group Meeting	A	11	15	42%		Deliberative
<b>Faculty Level</b>						
Portfolio and Partnerships Group	A, PS, TS	6	12	50%	22%	Sub Committee
Leadership Team	A, PS, TS	5	9	36%		Executive
Health, Safety and Welfare	A, PS, TS	6	12	33%	5%	Sub

Committee						Committee
Research and Innovation Committee	A, PS, TS	10	15	40%		Sub-Committee
Student Experience Board	A, PS, TS, CD	3	8	27%		Sub-Committee
Academic Board	A, PS, CD	10	17	37%	29%	Standing

(A = academic, PS= professional services, TS = technical services, CD = central directorate, Ex = external)

Membership of the Subject Group Meetings corresponds to the gender balance of academic staff within that group. Both ICE and EEC have lower numbers of female staff, but have had low staff turnover since 2010. Female representation is strongest on standing (decision making) committees, and on those committees whose membership is open to all. Female membership on committees has tended to increase, with the exception of the Quality and Enhancement Meeting whose membership has reduced. The department will develop further opportunities for task-and-finish or working groups to lead on particular themes.

**ACTION:** Athena SWAN to be standing item on agenda in all E&M and MERI executive meetings. **(AP 15.1)**

#### (iv) Participation on influential external committees

Membership of decision-making committees within the department and faculty is role-specific and therefore increasing the proportion of women on such committees depends upon colleagues taking up leadership roles. The department has a policy of asking for expressions of interest to fill roles, and a selection panel will then allocate the role based on the skills and experience of the applicants. In order to provide career development opportunities, the professional leads are encouraged to identify deputies (by EoI) who can represent the department in faculty committees.

All academic staff are encouraged to join a professional body and participate in its activities including standing for election. The department and MERI sponsor tables at the annual branch dinners of the IMechE and IOM3 to which student representatives and ECR staff are invited as networking opportunities.

#### (v) Workload model

The Academic Work Planning model is applied transparently and consistently across the university and is gender-neutral. It covers all teaching, teaching-related duties, research and administration/management duties. Roles such as course leader, which have a sizeable administrative burden, have an allocation based on the number of students on the course. All work plans are reviewed by the Deputy Head of Department and at Faculty level to ensure that they are fair and unbiased, and that no member of staff has too many duties. Work plans are not taken into account at appraisal or when promotion is being considered. Responsibilities such as being course leader are not formally rotated, but it is unusual for one member of staff to continue being course leader for more than 5 years.

(vi) Timing of departmental meetings and social gatherings

Subject group meetings are usually held every week and attendance is expected by all teaching staff. The time and day of meetings may change from week to week which can help to avoid regular timetable clashes but one group has held some meetings at 9 am which may have excluded parents with school drop-off responsibilities. The subject groups are currently going through a re-organisation which provides an opportunity to re-establish guidelines such as holding meetings within core hours (10am-4pm) and provide more consistency across subject groups.

**ACTION:** All future subject group meetings to be held between 10am and 4pm. **(AP 5.5)**

(vii) Visibility of role models

E&M endeavours to use gender-balanced images in all its publicity materials. Female role models are selected where possible (for example, a female engineer employed by JCB was selected as an apprenticeship case study).

The MERI seminar series is scheduled during lunch breaks to maximise staff attendance. The breakdown by gender of speakers at the MERI seminars, Table 28, is influenced by a number of factors outside the control of SHU such as gender representation in appropriate research fields and availability of external speakers. A concerted effort by the organiser in 2013/14 significantly increased the proportion of female speakers to nearly 38% but this used her own female contacts and could not be sustained. A target of 25% female speakers in 2017/18, increasing to 30% in subsequent years has been set, and all staff in the department and MERI will be requested to nominate female speakers.

**Table 28: Speakers presenting at MERI seminars**

Year	Female	Male
2011/12	7	25
2012/13	3	26
2013/14	11	18
2014/15	3	26
2015/16	6	24

**ACTION:** Use exhibition space to promote Engineering and female engineers in particular using large plasma screens, display boards and physical displays **(AP 3.1)**

**ACTION:** Permanent information boards on the two main Engineering building namesakes: Hertha Ayrton (F) and Eric Mensforth (M) **(AP 3.2)**

**ACTION:** Create and maintain Engineering academic staff photo boards similar to that used by Maths, also photo boards for Technical Services and Professional Services. **(AP 3.3)**

**ACTION:** Produce case-study posters of female engineering alumnae or students currently on placement for display around STEM centre and Engineering exhibition space. **(AP 3.4)**

**ACTION:** Identify female students with positive stories and create 'talking head' videos for displaying on large plasma screen / online **(AP 3.5)**

**ACTION:** Explicitly encourage the nomination of female speakers (internal and external) for weekly MERI seminars through direct invitation of external known contacts and internal research active lecturers, post-docs and PGRs. **(AP 10.2)**

(viii) Outreach activities

During 2015/16 E&M participated in 51 outreach events and engaged with 4972 students ageing from 5 to 18 years old. An annual female-only event (part of International Women in Engineering Day) had 200 girls in attendance in 2016.

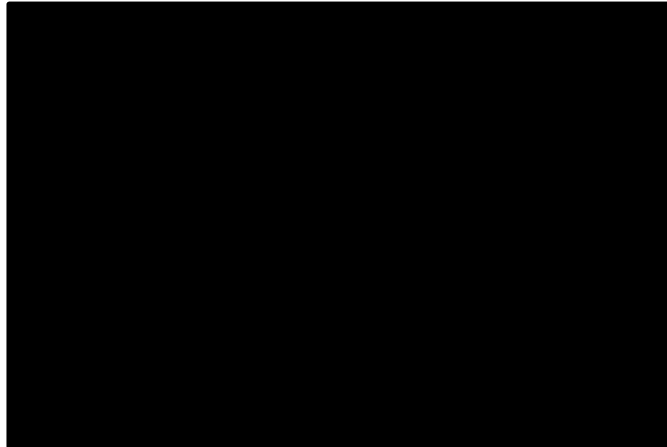


Figure 35: Mind-controlled racing cars at Explore! 2017

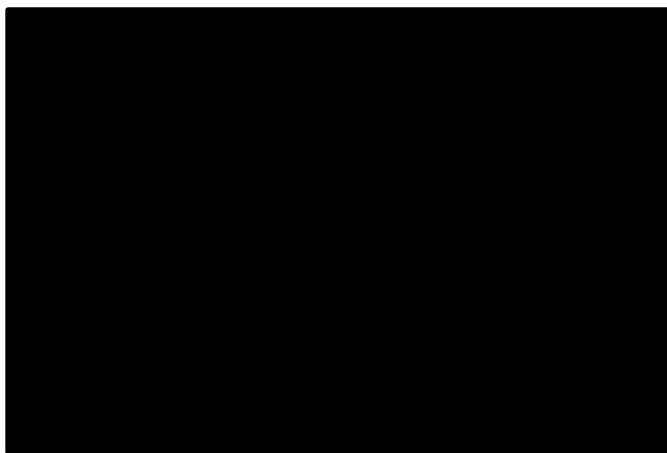


Figure 36: Lightweight body armour at Explore! 2017

The maths subject group run an annual 'Pop Maths' schools event involving 9 Maths academics (7M and 2F) and around 1000 school pupils in four age groups (Y6 - Y13). In 2016/17 attendance by age group was: Y6 (276 pupils); Y7 - Y9 (312 pupils); Y10 - Y11 (272 pupils); Y12 - Y13 (204 pupils). For many of these events, schools select the students who attend and the participants are usually gender balanced. Although outreach activities aimed at younger children will not have a visible impact on applications from women for several years, previous work by WES and others has shown that the key age for outreach work to retain girls' interest in STEM is Y7 and Y8 and consequently, outreach activities will continue to target these age groups as well younger and older age groups.

The WiEMS students have supported the Schools team in delivering outreach activities, and several staff (F and M from L to PL) are STEM ambassadors but there is room for more staff and student



involvement. Although female engineering role models are crucial, it is important to not over-burden female staff or students. Mixed gender outreach teams are also important to demonstrate teamwork and develop male student employability.

In the past, data have not been collected on staff and students delivering outreach but the appointment of an E&M outreach champion will enable closer gender monitoring, wider, gender-balanced involvement from staff and students and improved activities to appeal to both girls and boys.

**ACTION:** Identify L or SL for supportive role in Engineering & Maths outreach (12 month role) to build links between 'schools team', E&M and MERI and professional bodies to develop new STEM outreach activities, encourage more staff and student involvement and monitor events by gender. **(AP 4.1)**

**ACTION:** Hold focus groups with UG female students to identify reasons they chose Engineering at SHU and ideas for more effective outreach activities **(AP 4.2)**

**ACTION:** Introduce Public Engagement training for PhD students in MERI (followed by outreach opportunities either through SHU events or STEM ambassador scheme) **(AP 4.3)**

**ACTION:** Monitor and encourage gender-balanced staff participation in outreach activities **(AP 4.4)**

**ACTION:** Increase number of outreach activities for Y7 to Y8 students through SHU-organised events and STEM ambassador scheme opportunities to promote engineering as a career option for women (e.g. Identify target schools and run STEM club with Lego challenge etc.). Develop more effective schools outreach activities that are of equal interest to girls as well as female-only activities. **(AP 4.5)**

**ACTION:** Effectiveness of all outreach activities measured by qualitative and quantitative (inc. gender monitoring) evaluation of each event. **(AP 4.6)**

**ACTION:** Organise a stand at both 'Engineering my Future' (June 2018) and 'Get up to speed with STEM' (April 2018) events in Sheffield. DLT to support and encourage both staff and student involvement at these events. **(AP 4.7)**

**ACTION:** New WES-SHU group and WiEMS student groups to participate in outreach events in schools (or participate in schools events on campus); encourage male students to participate in outreach events to demonstrate that engineering is for everyone and to avoid excessive use of female students to the detriment of their studies. **(AP 4.8)**

[5781 / 6000 words]

## 7. FURTHER INFORMATION

Comments from the engineering student focus group included a request for a society with a specific remit to support them in developing their professional careers. Accordingly a student group for female engineering students through the national Women's Engineering Society (WES) has been set up to provide opportunities for training, development, mentoring, networking and outreach. The AS champion is the academic sponsor for the group and there are currently four female engineering students on the committee from Levels 5 & 6, representing three different courses. E&M funded both the chair and vice-chair to attend the National WES Student Conference in November 2017. The

Women in Engineering and Maths Society continues in parallel with WES-SHU, with a focus on building a sense of community within the department.

The Hertha Ayrton STEM centre was officially opened in October 2017 (Figure 37). This includes a public exhibition space for Engineering and Maths and MERI which is now being used to promote engineering as a career option for both female and male students as well as celebrating the success of our students, alumni and staff such as a project led by electrical engineering student Rhiannon Jones (Figure 38).

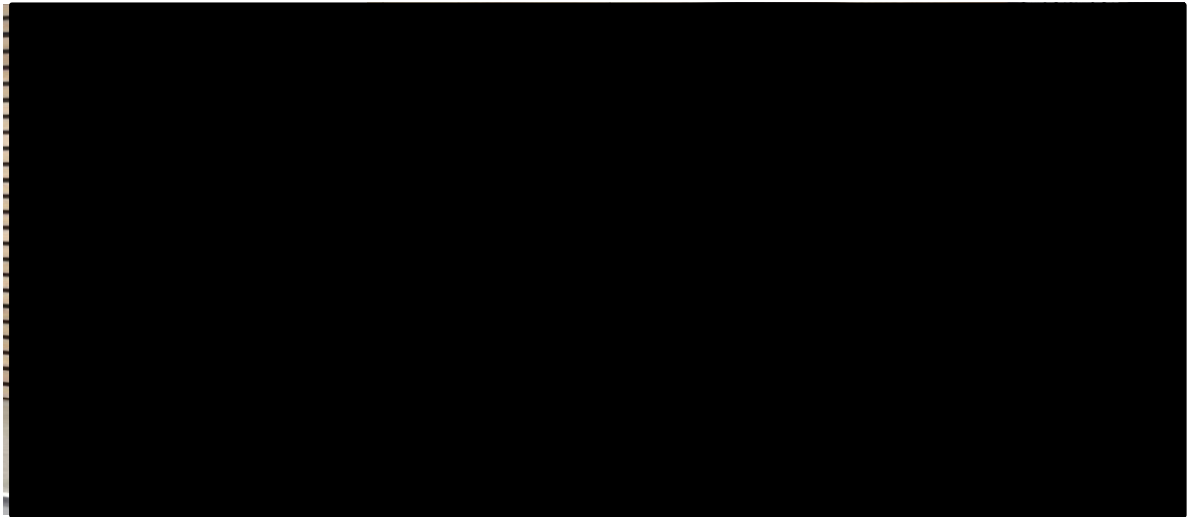


Figure 37: Katrina Love (materials engineering student) and Carolyn Griffiths (president of IMechE) at the Hertha Ayrton STEM Centre opening ceremony on 12<sup>th</sup> Oct 2017.

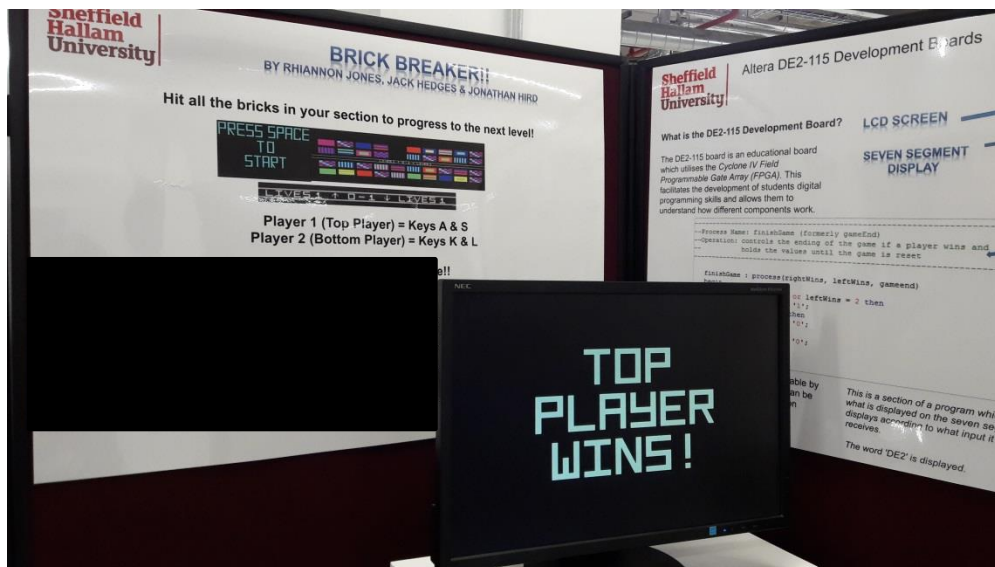


Figure 38: Exhibition space - Electrical Engineering project exhibit

We actively celebrate our students' successes in national competitions, particularly those that are female, such as: [redacted] awarded a Royal Academy of Engineering Leaders Scholarship and named as one of the Telegraph's 'Top 50 Women in Engineering under 35' 2017; [redacted] Higher or Degree Apprentice of the Year 2017; and [redacted] Apprentice of the Year 2017 and featured in the government's Get In, Go Far campaign.

We encourage the professional development of our Technical Services staff by sponsoring them through PT degree and PhD programmes. Currently 1F technician is studying for a PhD in MERI, and an

Electrical Engineering alumna (F) that was an E&M technician in 2016/17 has resigned to take up a GTA PhD studentship in MERI.

[318 / 500 words]

## 8. ACTION PLAN

### GENERAL DEPARTMENTAL ACTIONS (AS AWARENESS, FEMALE ROLE-MODEL VISIBILITY, COMMUNITY AND ORGANISATIONAL CULTURE)

**Issue identified:** Low visibility and awareness of Athena SWAN and E&D issues within the department amongst staff at all levels including academic, professional and technical.

**Measurable objective (success criteria):** Every member of staff knows the general Athena SWAN principles, the current level of award at Department and Institutional level and how this applies to them by June 2018. Measured by Athena SWAN survey in June 2018.

AP Ref.	Planned specific action	Timescale	Responsibility	Specific output / measure
1.1	Athena SWAN event: Food and drink reception. Presentation to launch Athena SWAN action plan, promote AS ideals, panel discussion and Q&A. Promote using standard screen saver, e-mail invites	Feb 2018	SAT	Measure attendance by gender. Gather informal post-it note feedback. Record discussion and Q&A.
1.2	Produce a printed leaflet (and electronic version) to distribute to staff & students (e.g. give out at events) - include history and principles of AS, SAT members, current status of award, benefits of a gender-balanced workplace etc.	Feb 2018	SAT (with help from central E&D)	Increased awareness of Athena SWAN
1.3	End of semester update e-mail on AS progress to all staff including successes, challenges and future actions to focus on during next semester. Invite staff to feedback on whether their priorities are reflected in the action plan.	April 2018 (and end of each semester ongoing)	AS champion	Ongoing increase of awareness and ownership of gender equality issues
1.4	Standing item on agenda of all staff meetings to highlight any progress and discuss any relevant actions as necessary. Chairs to feed back any suggestions or comments to AS champion.	From Feb 2018 (review in August 2018)	HoD, DoRI, HoTS, HoPS	AS champion to gather feedback and report summary and necessary actions to DLT (E&M), SLG (MERI) and Ops Group (institutional level)

<b>1.5</b>	AS information and celebration display board including an infographic poster summarising content from 1.2 in the STEM building exhibition space to maintain visibility. Highlight where suggestions have been acted upon: ("You said ....; changes made ....")	Feb 2018	SAT	AS champion to record staff responses and report same to SAT/DLT
<b>1.6</b>	Large plasma screen displays to be utilised in the new STEM exhibition space and MERI reception to convey latest AS information from and maintain AS visibility.	Feb 2018 (ongoing)	SAT / Dept. administrators	
<b>1.7</b>	Carry out and analyse annual staff survey (E&M and MERI) on Athena SWAN issues.	1st done in March 2017 (repeat annually every May)	SAT	Present results to DLT and SLG (use to measure success of some AS actions).
<b>1.8</b>	Introduce a physical Athena SWAN suggestions box for gathering ideas and feedback and maintaining visibility.	Introduce April 2018 - ongoing	SAT	Increased visibility - ongoing consultation exercise for AS feedback and ideas.
<b>1.9</b>	SAT meetings to be held at lunchtime (lunch provided) every 2 months.	From Dec 2017 - ongoing	SAT administrator	Progress on action plan will be monitored and reported to DLT and SLG.
<b>1.10</b>	Minutes of SAT meetings made available to all staff and students in E&M and MERI.	From Dec 2017 - ongoing	SAT administrator	Open accountability for all Athena SWAN actions. Increased visibility and ownership for all staff and students.

**Issue identified:** Poor sense of community amongst Engineering students according to focus group. The new Mathematics area has been very successful in generating a welcoming area where Maths students can study and socialise (raised at recent WiEMS focus group). The challenge is to replicate this sense of physical community for Engineering students and staff using the new Hertha Ayrton STEM building.

**Measurable objective (success criteria):** Improved sense of community and inclusivity amongst staff and students according to surveys and focus groups

AP Ref.	Planned specific action	Timescale	Responsibility	Specific output / measure
2.1	Support start-up of new Women's Engineering Society (WES) Student Group and supporting existing Women in Engineering and Maths Society (WiEMS) to engender better sense of community amongst female students (and encourage student involvement in outreach).	Oct 2017	AS Champion	Extra networking and peer support and CV-boosting opportunities for female students.
2.2	Collect suggestions from staff and students on the use of the STEM centre and other spaces to foster better sense of community and inclusivity via on-line survey and informal chats & suggestions box <b>(AP 1.8)</b> .	May - Sept 2018	SAT and student groups (WES-SHU and WiEMS)	Ideas for uses of STEM centre and other Engineering spaces
2.3	Implement ideas from <b>AP2.2</b> to use new STEM space to actively develop engineering community through planned activities / meetings and ad-hoc activities.	from Sept 2018 (ongoing)	Course leaders (students), SGL (staff)	Improved sense of community and inclusivity for staff and students (assessed through <b>AP 2.4</b> )
2.4	Assess improved sense of community amongst Engineering students and staff through informal feedback, 'happiness' survey and focus groups.	Jan 2019	SAT, student groups (WES-SHU and WiEMS)	Quantify improved sense of community - identify causes, adjust actions accordingly.

**Issue identified:** Low visibility of staff and lack of obvious role models, particularly female SHU academics and prominent engineers. The new Hertha Ayrton STEM centre will provide opportunities to address this. Some students have not yet been taught by a female lecturer and are therefore unaware that there are any in the department.

**Measurable objective (success criteria):** Academic staff will know who their departmental colleagues are and be aware of their research specialisms. All staff and students will know who Eric Mensforth and Hertha Ayrton are and students will be aware of the proportion of female lecturers in the department.

AP Ref.	Planned specific action	Timescale	Responsibility	Specific output / measure
3.1	Use exhibition space to promote Engineering and female engineers in particular using large plasma screens, display boards and physical displays. Publicise research of female academics in display area of Hertha Ayrton STEM centre to raise profile of women academics to other staff and students.	Jan 2018 (ongoing)	SAT, Exhibition space curator	Increased awareness of staff profiles including all female staff. People using STEM centre for conference or just as main entrance will see Female Engineering role models. Prospective students will see presence of female engineering academics.
3.2	Permanent information boards on the two main Engineering building namesakes: Hertha Ayrton (F) and Eric Mensforth (M)	Feb 2018	Estates / marketing,	Display boards in STEM exhibition space to provide role models and increase sense of departmental identity.
3.3	Create and maintain Engineering academic staff photo boards similar to that used by Maths, also photo boards for Technical Services and Professional Services.	April 2018	Dept. administrator	Students will be able to see who's who more quickly, improving sense of community and inclusivity.
3.4	Identify female engineering alumnae and placement students for: case-study posters for display around Engineering exhibition space and MERI reception; 'talking head' videos for displaying on large plasma screens and online prospectus.	June / July 2018 (posters), Oct 2019 (videos)	SAT / Student employability adviser	Current staff and students and prospective students attending open days will see female engineering success stories.

## ACTIONS RELATED TO STUDENTS

**Issue identified:** Low numbers of UG female students on all engineering courses both within department and nationally. Low no. of applications from women and also potential for slight increase in proportion of offers made to female applicants and offers being converted into new enrolments. Decreasing UG female maths students.

**Measurable objective (success criteria):** More staff and students involved in outreach, better monitoring by gender (staff and students delivering and pupils receiving). Proportion of female engineering students enrolled for 2018/19 academic year to exceed sector average (currently 13%).

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
4.1	Identify L or SL for supportive role in Engineering & Maths outreach (12 month role) to build links between 'schools team', E&M and MERI and professional bodies to develop new STEM outreach activities ( <b>AP 4.5</b> ), encourage more staff and student involvement and monitor events by gender. Review at the end of the year.	July 2018 - July 2019 (annual appointment)	Recruitment lead	Improved, harmonized approach to engineering outreach making the most of staff and students as well as dedicated schools team.
4.2	Hold focus groups with UG female students to identify reasons they chose Engineering at SHU and ideas for more effective outreach activities	May -Sept 2018	WES-SHU and WiEMS	Useful research for E&M outreach champion and 'schools team'. Increased awareness and participation in outreach activities for female students.
4.3	Introduce Public Engagement training for PhD students in MERI (followed by outreach opportunities either through SHU events or STEM ambassador scheme)	2018/19	Head of Doctoral School	PGR students trained in public engagement, increased participation of female Engineering PRG students as role models in schools outreach
4.4	Monitor and encourage gender-balanced staff participation in outreach activities	From July 2018 - ongoing	E&M outreach champion	Increased gender-balanced involvement from staff



4.5	Increase number of outreach activities for Y5 to Y8 students through SHU-organised events and STEM ambassador scheme opportunities to promote engineering as a career option for women (e.g. Identify target schools and run STEM club with Lego challenge etc.). Develop more effective schools outreach activities that are of equal interest to girls as well as female-only activities.	July - Sept 2018 for development of new STEM outreach activities.	'Schools team' / E&M Outreach champion	New improved STEM outreach activities ('effectiveness' measured through <b>AP 4.6</b> )
4.6	Effectiveness of all Engineering or Maths outreach activities measured by qualitative and quantitative (inc. gender monitoring) evaluation of each event.	Annual report (end of school year) starting July / Aug 2018	'Schools team' / E&M Outreach champion	Measure at each event, report annually to E&M outreach champion to use to improve future outreach events.
4.7	Organise a stand at both 'Engineering my Future' (June 2018) and 'Get up to speed with STEM' (April 2018) events in Sheffield. WES_SHU to encourage female student involvement, DLT and SLG to support and encourage female staff involvement at these events.	April 2018 and June 2018	WES-SHU (2018), E&M Outreach champion (2019)	Involvement in new outreach event providing experience for staff and students and female Engineering role models to school children.
4.8	New WES-SHU group and WiEMS student groups to participate in outreach events (going into schools or participating in schools events on campus); encourage male students to participate in outreach events to demonstrate that engineering is for everyone and to avoid excessive use of female students to the detriment of their studies.	WiEMS already involved, WES-SHU and male students from Jan 2018	'Schools team' / E&M Outreach champion	Local schools will benefit from direct contact with mixed-gender teams of Engineering students from SHU as inspirational role models.

4.9	Produce an information leaflet to send out to all female prospective engineering students with offers (including clearing), emphasising: the success of our female engineering students; the number of female academic teaching staff; the Women's Engineering Society Student Group; any peer or staff mentoring for women etc.	March 2018	Recruitment lead (SAT to help)	All female students with offers will have information about why SHU Engineering & Maths is a female-friendly place to study.
4.10	Work with Engineering professional bodies and women's engineering societies to develop targeted career development and networking opportunities for female students and female-oriented outreach activities etc.	Oct 2018 - June 2019	SAT	Improved female recruitment and female student retention and employability.

**Issue identified:** Low numbers of female students on part-time courses (typically employer sponsored provision) including Foundation Degrees and PGT

**Measurable objective (success criteria):** Increase female applications and number of female students on PT degrees (inc. Foundation Degrees and PGT) to > 10% female in 2018/19. Positive qualitative feedback from employers regarding female participation.

AP Ref.	Planned specific action	Timescale	Responsibility	Specific output / measure
5.1	Produce list of employers where PT students come from to aid targeted communications.	April 2018	Business lead	Up to date targeted contact list
5.2	Liaise with employers and college partners to actively promote female participation	from May 2018 (ongoing)	Business lead	Set of actions for general increase in female PT student numbers and actions specific to individual college or company
5.3	Monitor total PT student applications, numbers and bursary recipients and attainment by gender and ethnicity	Annually	Department Manager	Report at Department Annual Review.
5.4	Business lead to report to DLT quarterly and at Department Annual Review re. PT Engineering recruitment and attainment progress by gender.	Quarterly from March 2018	Business lead	
5.5	Run focus group with female PT students to identify reasons for lower numbers and potential actions to increase them.	Dec 2017	AS champion, Department Manager	Present findings to DLT, relevant leads and Marketing.
5.6	Investigate why so many female PT students do not enrol on the course they have accepted a place on. (Follow-up phone calls/ e-mails to prospective students by Recruitment team)	Sept - Oct 2018	Recruitment team	Set of reasons for non-enrolment of female PT students. Report at Department Annual Review.

<b>5.7</b>	Survey employers to establish their perception of PT study including potential barriers, numbers of and attitudes to female employees etc.	April 2018	Employability advisor	Present results to DLT and marketing and recruitment
<b>5.8</b>	Update online and printed marketing and recruitment material (PT courses) for image gender balance and gender neutral wording.	April 2018	Marketing and recruitment	Gender balanced images presented in all printed and online marketing material
<b>5.9</b>	Produce specific communications about PT study targeted at employers and female students including case-studies, Q&A, funding opportunities.	April 2019	Marketing and recruitment	Uptake of places by female students reviewed and reported annually

**Issue identified:** Recent dip in overall female UG student attainment of 'good honours' degrees in both Engineering and Mathematics: from 77% to 71% for Engineering (still above male figure of 70%) and from 94% to 83% in Maths, (recently dropped below male % for the first time in the past 5 years).

**Measurable objective (success criteria):** Stabilise both female and male attainment figures aiming for between 70-80% good honours degrees with no gender (or BME) attainment gap by August 2019. Non-continuation rates to be <2% for female students and <5% for male students.

AP	Planned specific action	Timescale	Responsibility	Specific output / measure
6.1	All teaching staff to complete training in unconscious bias (UB) and inclusive practice in teaching	Feb 2018	SGLs	Unbiased marking and inclusive teaching practices.
6.2	Carry out more detailed study into female UG attainment (specific to courses and modules). Carry out separate female and male UG student focus groups to explore and identify attainment issues and potential solutions.	April - July 2018	Course leaders	Suggested actions to bring to SAT and DLT
6.3	Set up task group to review all assessment with regard to opportunities for unconscious bias and gender-biased assessment styles.	July 2018	LTA Lead	Report to DLT and SAT (disseminate to staff via AS e-mail update) on completion.
6.4	Use results from focus groups and study to design 2 – 3 training sessions or events for UG students to address specific issues (e.g. presentation skills, writing, CAD)	Sept 2018	LTA lead	Training session material
6.5	Task group to produce guidance on unconscious bias and gender neutral assessment (and good assessment practice) and training workshops for teaching staff	June 2019	LTA lead	Training session material
6.6	Introduce peer mentoring pilot scheme for female engineering students	2018-19	Course leaders	Improved retention and attainment for female engineering students (Non-continuation rates to be <2%)
6.7	Roll out peer-mentoring for all engineering students.	2019-20	Course leaders	Improved retention and attainment for all engineering students. (Non-continuation rates goal above)

<b>Issue identified:</b> Low number of female PG students (PGT in particular) and low progression from UG to PG.				
<b>Measurable objective (success criteria):</b> Increase proportion of female PGT students to sector average (15%) by 2020				
<b>AP Ref.</b>	<b>Planned specific action</b>	<b>Timescale</b>	<b>Responsibility</b>	<b>Specific output / measure</b>
7.1	Evaluate HEFCE MSc conversion course Pilot scheme (designed to increase female enrolment on PGT engineering courses) with respect to numbers of female applicants, and the effect of offering scholarships to female students.	Jan 2018	MSc conversion course leader	Report to HEFCE on pilot study. Report as part of Department Annual Review (Jan each year)
7.2	Promote PGR opportunities to UG and PGT students, including Assistant Dean Research to give annual talk to final year students, and opportunities for female final year students to talk to female PGR students.	March 2018	Course Leaders, Assistant Dean Research, female PGR students	Increase in number of UG and PGT students progressing to PGR study.
7.3	Encourage increased attendance of female students (UG and PG) to MERI seminars. e.g. promote when female engineers are presenting through female engineering student e-mail list	From Jan 2018	MERI seminar coordinator, AS Champion	Monitor student attendance by gender against both speaker topic and gender (to see if certain topics or female speaker attracts more female students). Report increase (or decrease) of female student attendance.
7.4	Review proportion of females obtaining GTA (Graduate Teaching Assistant) and SHU studentships. Report to SHU E&D committee and to SHU Research degrees committee	From Jan 2018	Head of Doctoral School	GTA and SHU scholarship application and success rates by gender reported to committees.
7.5	Display name, photo and abstract for each winning student (typically high proportion of female winners) from MERI Research Symposium in Engineering exhibition space.	After annual symposium (next one in May 2018)	Head of Doctoral School	Increase visibility of female PGR role models

<b>7.6</b>	Be more proactive in converting the offer to acceptance and ultimately enrolment of female PGR students. This could involve follow-up phone calls/emails by recruitment / PGRT / Admin to females offered places, highlighting the success rate of our female PhD students.	2019	Head of Doctoral School	Monitor PGR students by gender.
<b>7.7</b>	Develop CPD offer with local employers to encourage sponsorship of female PT PGT students	Sept 2018	Business Lead	New CPD/PGT courses recruiting >15% female students
<b>7.8</b>	Work with international office to understand why fewer female international students with an offer enrol on PGT Engineering compared with male. (Follow-up phone calls/e-mails to prospective students)	2019	Recruitment Lead	Increase in proportion of female PGT students with an offer enrolling on course.

**Issue identified:** Maths undergraduate female admissions declining in recent years

**Measurable objective (success criteria):** 50% female students enrolled on UG Mathematics BSc programme by academic year 2019/20

<b>AP Ref.</b>	<b>Planned specific action</b>	<b>Timescale</b>	<b>Responsibility</b>	<b>Specific output / measure</b>
<b>8.1</b>	Review Maths open day (monitor attendance by gender and qualitatively assess style and content in relation to engagement with prospective female students) and make recommendations for future events.	Feb 2018 - April 2018	DHoD (student experience)	Report to recruitment lead on attendance by gender and make specific recommendations based on review.
<b>8.2</b>	Carry out analysis of Applications /Offers / Acceptances and Enrolments by gender including data on 1 <sup>st</sup> choice and conditional offers. Find out reasons for declining applications from women who reject offers for BSc Mathematics.	Jan 2018 - Sept 2018	Recruitment team	Specific actions developed for addressing declining numbers of female maths students
<b>8.3</b>	Implement changes to open day and other recruitment activities based on findings from 8.1 and 8.2 including training for course leaders on giving open day talks.	Recruitment for academic year 2019/20	Maths recruitment lead, Maths course leader	50% female students enrolled on UG Mathematics BSc programme by 2019/20



## ACTIONS RELATED TO STAFF

**Issue identified:** Female academic staff are less likely to apply for promotion. The new promotions process in its third year and the impact on E&D priorities needs to be assessed.

**Measurable objective (success criteria):** Equal proportion of male and female staff applying for and achieving promotion within the department.

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
9.1	Actively encourage female staff to apply for progression and specific promotions where appropriate. Ensure research supervisor training is promoted to all colleagues.	Nov 2017 onwards	All line managers	Proportion of women applying for progression/promotion in line with/exceeding the % of female staff. % of female academics returned in REF submission with more than 1 paper exceeds that of male E&M staff.
9.2	Improve staff mentoring: Arrange training for both mentor and mentee. Option of female mentors.	Feb-May 2018	DHoD	Satisfaction with mentoring process monitored via annual SDR (reported to SAT).
9.3	Monitor impact of new research promotion process for gender balance.	Sept 2019	Professorial committee	Report trend to DLT and SLG
9.4	Nominate at least one Female academic from the departments per year for the Aurora leadership programme	Yearly ongoing	HoD, HoPs, HoTS, DoRI	All female staff at relevant grades are offered the opportunity to take the Aurora leadership programme or equivalent.
9.5	Line managers to identify and nominate female academics from E&M and MERI for the SHU Aspire mentoring programme	Yearly ongoing	Line managers	Successful applications by women for Readership by Dec 2020 and personal Chair by Dec 2022.
9.6	Ensure funding is made available for female academics to attend conferences in order to present research papers	Feb 2018	HoD, DoRI	Remove a barrier to female staff in particular to publish and present their research

9.7	Provide work shadowing opportunities to support women in developing their applications for Readership/chair/PL roles	March 2018	HoD, DoRI	Successful applications by women for Readership by Dec 2020 and personal Chair by Dec 2022.
9.8	Identify appropriate REF 2021 UoA for staff engaged in engineering/mathematics education research; support staff in preparing high impact papers for inclusion in REF 2021.	as soon as more details released by <a href="http://www.ref.ac.uk">www.ref.ac.uk</a>	HoD	All E&M staff on teaching and research contracts are included in REF 2021

**Issue identified:** Declining number of female speakers at MERI seminars aimed at PGR students and interested staff. This contributes to lack of visible female role models for female PGR students in particular.

**Measurable objective (success criteria):** Achieve 30% female speakers on MERI seminar programme by 2<sup>nd</sup> Spring programme of 2019

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
10.1	Appointment of new MERI seminar coordinator	Sept 2017	DoRI	Remit to increase female speakers and increase attendance
10.2	Explicitly encourage the nomination of female speakers (internal and external) for weekly MERI seminars through direct invitation of external known contacts and internal research active lecturers, post-docs and PGRs.	June 2018 onwards	MERI seminar coordinator , DoRI	Minimum 20% female speakers in 2018/19 and minimum 30% female speakers from 2019/20 onwards. Also measure effect of more female speakers on female student attendance.

**Issues identified:** Some previous adverts have attracted a noticeably higher proportion of good female candidates than others. Number of good female applicants for academic posts dropped when adverts were no longer written by female HoD. Research supports phenomenon of female-friendly job adverts (Gaucher & Friesen 2011). It is also recognised that potential female candidates are less likely to apply for a post than equally qualified male counterparts.

**Measurable objective (success criteria):** Increase proportion of eligible, external female applicants for L and SL posts to 25% by 2020 (from 13%, 18% and 22% in Engineering, Maths and MERI respectively).

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
11.1	Produce a guide to writing academic job adverts for Eng and Maths posts that attract female applicants as well as male.	March 2018	HR, Central E&D, SAT	Best practice guide to writing inclusive academic job descriptors and adverts
11.2	Ensure future job adverts are worded in a way that is attractive to good female candidates as well as male according to guidelines from <b>AP 11.1</b>	March 2018	HoD, HR	Proportion of eligible female applicants increases
11.3	Advertise jobs on female Engineer websites such as WES and WISE and Engineering journals.	Dec 2017	HR	Proportion of eligible female applicants increases
11.4	Directly approach known potential female candidates (current research staff or students or external contacts) to encourage them to apply. Promote the opportunities to female contacts at other universities.	Dec 2017 onwards	HoD, DHoD, SGL	Proportion of eligible female applicants increases
11.5	Carry out focus group with recently appointed female academic staff to discuss why they chose SHU, what was good and bad about the recruitment and induction processes etc.	May 2018	AS champion	Information to guide future job adverts

**Issue identified:** EOS results showed all academic staff are concerned by increasing administrative workload – an issue that tends to affect female staff disproportionately as raised in 2016 ASSET survey.

**Measurable objective (success criteria):**

<b>AP Ref.</b>	<b>Planned specific action</b>	<b>Timescale</b>	<b>Person(s) / responsible</b>	<b>Specific output / measure</b>
<b>12.1</b>	Use data from 2016 ASSET survey to understand effects of changing academic delivery on work-life balance and wellbeing, and any gender-specific issues.	Feb-May 2018	Department Manager	More detailed picture of staff perception of admin workload to inform strategic direction of staffing in departments.
<b>12.2</b>	Discuss administrative workload at individual SDR and identify interventions.	Feb 2018 onwards	SGLs	Report general trends to HoD

**Issues identified:** Many staff are unable to attend regular subject group meetings and specific CPD courses because of timetable clashes. Low attendance of these meetings makes it difficult to develop sense of community and cohesion at the subject group level which may particularly affect women. Training participation has not been accurately monitored due to variety of providers and no central management.

**Measurable objective (success criteria):** Improved sense of subject group identity as measured by staff survey and increased uptake of CPD.

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
13.1	2 hours per week in core hours (10am to 4 pm) is timetabled for whole subject group for operational discussions, social events and training.	Jan 2018	SGLs	Fewer staff missing out on meetings and training sessions due to timetable clashes. Improved culture and staff development at Subject Group level.
13.2	Ensure longer bespoke training events are arranged outside the main teaching weeks to ensure staff with high teaching loads can attend.	Ongoing from Sept 2017	HoD, SGLs, HoTS, HoPS	All staff attend at least two CPD events each year
13.3	Monitoring of staff training to include all types of training (numbers by gender and ethnicity) including research-related training and attendance at conferences and pedagogic training both internal and external. Report a summary of staff development activities for the year in the Department Annual Review.	Dec 2018 onwards	Department administrator	More accurate picture of staff participation in training and development enabling close monitoring of equality of opportunity for female staff.

**Issue identified:** Low rate of perceived usefulness of SDR from academic Engineering staff according to recent staff survey. Female staff were more likely to find SDR useful so this should be improved and utilised as a good opportunity to help develop women's careers.

**Measurable objective (success criteria):** SDR satisfaction rating from Engineering academic staff increased to >50% according to department staff survey in June 2019

AP Ref.	Planned specific action	Timescale	Person(s) / responsible	Specific output / measure
14.1	Add points of discussion with regard to encouraging career development, progression and promotion for female academics, equality issues and awareness of Athena SWAN.	Nov 2017 - Feb 2018	HoD	Department-specific SRD form includes Athena SWAN prompts
14.2	Introduce the gathering of anonymous data related to AS from SDR to better quantify the support given for advancement of women's careers.	Nov 2017 - Feb 2018	Line managers	Department Manager collates anonymous data and reports it to DLT
14.3	Provide training for appraisers (direct line manager) to include emphasis on line managers using SDR to encourage staff regardless of gender to apply for progression or promotion as appropriate to their level of experience.	March 2018 - July 2018	HoD	All appraisers are trained in current SDR practice.
14.4	Provide training for all staff to get the most out of their SDR.	March 2018 - July 2018	DHoD	All staff trained in maximising usefulness of SDR.

**Issue identified:** Small number of and lower seniority of female staff in MERI; relatively low proportion of female senior academic staff in Engineering & Maths and MERI.

**Measurable objective (success criteria):** Proportion of female academics in MERI increased to 10% by 2022

<b>AP Ref.</b>	<b>Planned specific action</b>	<b>Timescale</b>	<b>Person(s) / responsible</b>	<b>Specific output / measure</b>
<b>15.1</b>	Athena SWAN to be standing item on agenda in all MERI executive meetings and E&M DLT.	Nov 2017 (ongoing)	SAT, HoD, DoRI	Athena SWAN principles embedded in culture (measured by annual Athena SWAN staff survey)
<b>15.2</b>	AS overview to be part of all new staff inductions	2019 survey	HoD, DoRI	Athena SWAN principles embedded in culture (measured by annual Athena SWAN staff survey)
<b>15.3</b>	All interview panels in MERI to be mixed-gender in future (E&M staff to support when requested). Data on all interview panel gender balance to be gathered by appropriate administrative staff and reported to SAT.	2018-2020	DoRI, HoD	All interview panels are mixed-gender
<b>15.4</b>	Report each recruitment round to DLT by gender at each stage of process (for gender bias accountability).	2018-2020	DoRI, HoD	Confirmation of lack of bias in recruitment and selection processes

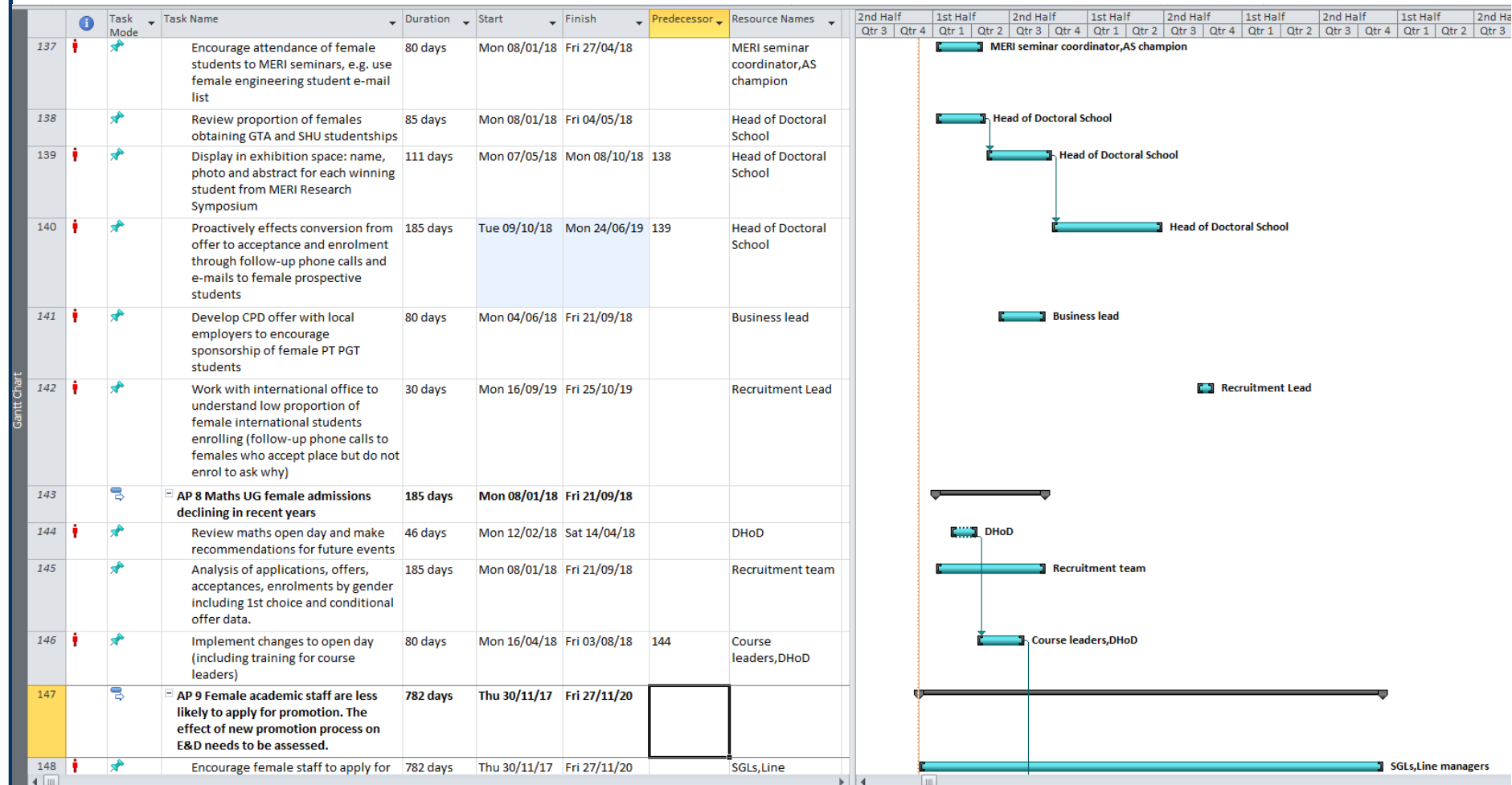


Figure 39: Gantt chart showing subtasks within an Action Point






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