**

DEPARTMENT APPLICATION

Silver Award

Aston University

School of Engineering and Applied Science

November 2016

Glossary

AU	Aston University
ARMS	Activity Reporting Management System
A&R	Academic and Research (staff)
ASEC	Aston STEM Education Centre
AS	Athena SWAN
BAME	Black, Asian and Minority Ethnic
CEAC	Chemical Engineering & Applied Chemistry Subject-Group
CDIO	Conceive Design Implement Operate
CROS	Careers in Research Online Survey (Vitae)
CSAM	Computer Science and Mathematics Subject-Group
EAS	Engineering and Applied Science (School)
EBRI	European Bioenergy Research Institute
ECR	Early-Career Researcher
EDWG	Engineering Diversity Working Group (SAT Team)
EEPE	Electrical, Electronic and Power Engineering Subject-Group
ESMT	Engineering Systems Management Subject-Group
F:M	Female to Male ratio
HEIDI	Higher Education Information Database for Institutions
HR	Human Resources Department
IET	Institution of Engineering and Technology
OFFA	Office For Fair Access
PIRLS	Principal Investigator and Research Leaders Survey
PST	Professional Support and Technical Staff
PS	Professional Support staff (excluding technical staff)
M	Maths

MED	Mechanical Engineering & Design Subject-Group
M:F	Male to Female ratio
PDR	Performance and Development Review
REO	Research and Enterprise Office (Officer)
SG	Subject-Group
SMT	School Management Team

Reading this document:
References to the Action plan (Section 8) are indicated with square brackets, so **[A1.2]** is a reference to Action 1.2.

Where possible, we present consistent graph types. In most cases graphs show data for 2013, 2014, 2015, 2016, with each set of bars detailing the Female:Male percentage split, with absolute numbers included. In general, female percentages are shown in green, with male in yellow.

TOTAL WORD COUNT = 11059

Name of institution	Aston University
Department	School of Engineering and Applied Science
Focus of department	**STEMM**
Date of application	30 November 2016
Award Level	**Silver**
Institution Athena SWAN award	**Date: April 2015** **Level: Bronze**
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1. LETTER OF ENDORSEMENT FROM THE HEAD OF DEPARTMENT

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25th November 2016

Athena Swan Award submission for School of Engineering and Applied Science

The School has worked for many years to identify and address barriers to the progression of women in engineering and applied science. We earned the Athena SWAN Silver Award in 2014, and have continued to identify and implement initiatives to support these principles. I was particularly pleased to see the recent broadening of the Athena SWAN mission to include a wider view of diversity and a recognition of our responsibilities for the support and development of all staff in the organisation.

In 2014 we established the Engineering Diversity Working Group, charged with raising awareness of diversity issues, initiating innovative projects to identify and remove barriers to individual achievement. Initiatives within subject groups and professional teams are developed to experiment with new policies, tools and approaches; they are locally evaluated before School-wide implementation. The Dean's support includes a standing agenda item for the monthly School Management Team to discuss overall progress, and ensure our management team benefits from best practice identified in other parts of the School and the University.

The School engages broadly in outreach activities to enhance the diversity of its population, and to support that diversity when students join us. These include the Aston Progression Pathway, a 2-day residential workshop for local A-level students to explore engineering subjects; the EDT Headstart course in Computer Science; local non-residential courses in Computer Science and Mathematics; Master classes for A-level students in Engineering disciplines. We consider diversity when enrolling students on these activities. I am delighted that once again EAS will be hosting the Women's Engineering Society (WES) conference in November 2016; and we are sponsoring 12 female student attendees.

I am particularly proud of our School's leadership role in diversity for the University, with many initiatives and policies being adopted in other Schools and at University level. These include: standards for central service data provision, enabling management decision support around diversity; a new University-level policy guaranteeing maternity cover for all positions; a new University policy mandating reflection and action to ensure diverse committee and leadership team compositions; the development of an Activity Reporting System recognising and valuing the work of all staff, with a focus on ensuring fairness. Our submission provides more detail.

Speaking more personally, I have led change in diversity ever since holding a position of responsibility, indeed before the School's Athena Swan engagement. When I became Head of Computer Science, in 2006, there were no female academic staff. Under my leadership, CS pioneered (future) School policies and practices including diversity on appointment and shortlist panels, as well as flexible working. The CS group composition is now very close to 50:50. Later, I became Head of Mathematics, where, in 2012, there was a single female academic. Applying the same policies and practices has resulted in the appointment of two female lecturers. I have mentored women to encourage them to apply (successfully) for promotion: five are now Senior Lecturers or Readers.

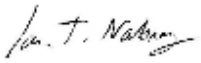
Since becoming Dean in August 2016, I have appointed women into leadership roles: the Associate Dean Enterprise, Head of CS, and Director of the Systems Analytics Research Institute. I have also championed the new School-driven diversity initiatives through University Executive adoption.

My future plans are to increase the School's diversity activities, funded by annual budget initiatives. These include ensuring best practice in staffing recruitment across all academic groups; embedding diversity action plans in career development (particularly to increase the number of women professors, and to develop more career opportunities for professional staff); and to increase student intake gender diversity, which has not changed as much as we would like over the past five years.

In our School we recognise and celebrate the power of diversity; our goal is to realise that power to enhance the learning, working and development environments of all of our staff and our students. This is all about culture change, and we are excited to lead this change within Aston University, and to celebrate the benefits of this to our entire community.

I confirm that the Athena Swan submission is an honest, accurate and true representation of the School.

Yours sincerely



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[Section 1. WORD COUNT = 675]

2. DESCRIPTION OF THE DEPARTMENT

The School of Engineering and Applied Science (EAS) delivers high quality teaching programmes, innovation in research and education, maintains strong external links and engagement, and has a history of cultivating good citizenship. The NSS 2016 survey showed great improvements in Mechanical Engineering (+13%) and Mathematics (+ 10%), with overall student satisfaction at 83%. The proportion of students in graduate level destinations also improved by 5%, and is above the Aston University average. Computer Science, Electrical Engineering, and Chemistry have more than 90% of their graduates in graduate level destinations.

Five academic subject-groups (SGs) are supported centrally by the School Office (Fig. 2.0.1). Five Research Institutes, sit alongside the SGs and operate across disciplines.

Figure 2.0.1: EAS structure

The EAS Strategy 2025 states:

"EAS offers and supports equal opportunities for all staff and students, and we encourage a diverse mix of experiences, backgrounds and interests, all of which contribute to the richness of the learning and teaching

experience. Efforts to increase the number of women in EAS will continue, supplemented by some new measures, namely bringing the number of female staff and students closer to 50%. This will establish a culture in EAS where gender balance is the norm. EAS will further explore the mechanisms that contribute to the current gender imbalance in order to identify and remove obstacles."

Two strategic aims are to create equal opportunities and a diverse working environment for all staff and students, aligning well with Athena SWAN's Principles.

Research

Three key societal challenges drive EAS research: (1) Our Health & Society, (2) Future Cities, (3) Society beyond Fossil Fuel (Sustainable Energy). To support the multidisciplinary nature of these challenges, five research institutes: Photonics, Materials, System Analytics, Logistics & Systems, and Bioenergy bring together diverse expertise for more effective use of resources and greater impact (Fig. 2.0.2). EAS has also introduced centralised funding for allocation of studentships to fulfil research activity more effectively.

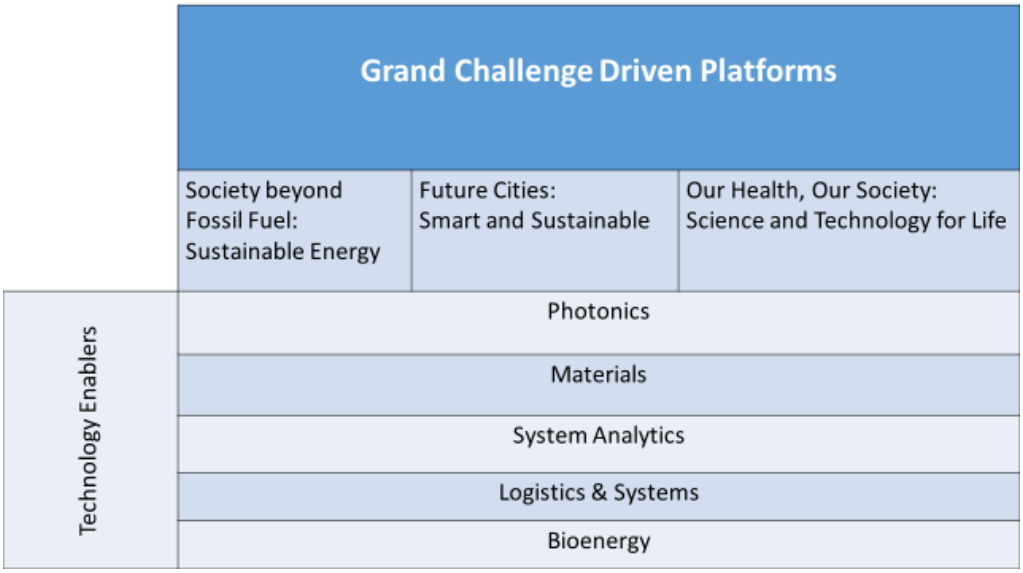


Figure 2.0.2: Research and Innovation Structure (EAS Strategy)

Teaching and Learning

EAS is one of the most inclusive Schools in the country with cohorts of students from diverse backgrounds, including low income; BAME; international and EU students; mature; DTUS (Defence Technical Undergraduate Scheme); Degree Apprenticeship and Erasmus schemes. The diversity of our students continues to increase (see 4.1) and demonstrates our wider appeal to students of different cultural, social and economic backgrounds. This in turn makes our learning environments unique in addressing the challenges faced in an increasingly global workforce and economy.

Our teaching and learning environment is driven by *active learning* and *action research* because this leads to more employable graduates. For example, the CDIO teaching framework in MED which was introduced in

2011 and resulted in sustained improvements in the NSS; bringing an almost 50% increase in student population by 2016-17.

The Aston STEM Education Centre (ASEC), launched June 2016, provides an environment for research active teaching across engineering, science and maths disciplines, sharing best practice and engaging with local schools to build a more balanced engineering student pipeline.

Gender Equality and Diversity

Progress towards increasing the number of women in EAS since 2013 includes:

- female academic staff increased from 48 to 58
- female technical service staff increased from 2 to 5
- female students increased from 506 to 746
- BAME students increased from 1438 to 2076
- strong BAME F:M of 1:3 and growing through OFFA access and other widening participation schemes.

The EAS target is 40% female staff across all levels and 35% female students by 2025. There will be a particular focus on gender imbalance in senior and management positions, promoting women in decision-making positions, and offering opportunities to participate in female-specific leadership programmes such as Aurora.

Table 2.0.1. Overall data for Academic, Research, Professional Support and Technical Staff, and Student numbers

	Male	Female	Total	% Female
Academic Staff	118	38	156	32%
Research Staff	73	20	93	22%
Total Academic & Research Staff	**191**	**58**	**249**	**23%**
Professional Support Staff	12	46	58	79%
Technical Staff	15	5	20	25%
Total PST Staff	**27**	**51**	**78**	**65%**
Students	**2668**	**746**	**3415**	**22%**

[Section 2. WORD COUNT = 599]

3. THE SELF-ASSESSMENT PROCESS

(i) The Self-Assessment Team and (ii) Process

The Athena SWAN SAT was established to support the previous award application and expanded into the Engineering Diversity Working Group (EDWG) in 2014, with the objective of creating an inclusive and fair working environment for students and staff. Members all volunteered and their contributions are fully recognised by their managers.

Through 2014 the aim was to build on the successful award. We worked on a programme to embed diversity awareness and actions into EAS. EDWG meets monthly and reports directly to the School Management Team (SMT), as well as the University Gender Equality Management Group.

Specific initiatives included:

- funding by the Executive Dean for team-building activities;
- workshops on:
  - reviewing existing processes
  - improving diversity within EAS
  - introduction of unconscious bias training
  - capturing workload fairly
  - embedding diversity in EAS literature
- a major project (Activity Reporting Management System, ARMS), established in January 2016, captures contribution fairly and accurately, and enhances EAS's ability to deliver fairness and equality.

Team Composition

Table 3.1 shows the team composition including students, professional support staff, technical staff and academics. Team sessions (with a professional coach) helped establish identity, our goals and most importantly our approach. The value of seeing our team as a mirror, a model, of EAS became quickly apparent. We later translated that sense of identity, and that sense of team to the wider School when launching ARMS.

Table 3.1: EDWG Composition, roles and motivation

Name	University role	EDWG role	Motivation
Mina Abedi - Varnosfaderani	Research student, Lab demonstrator,	Student data working group	A cohesive group that strives to educate will bring success for individuals and communities to make a better social environment.
* Professor Sahar Al-Malaika	Professor, CEAC	Academic staff data subgroup	Our work could be the catalyst to a tangible shift toward achieving its mission that equality becomes the norm.
Dr Nelly Bencomo	Lecturer CS, Final Year Tutor of Computing for Business	Form compilation and review	I strongly believe that Science is for everyone, women and men, people with family and without family independently of their gender.

* Professor Robert Berry	Professor in CS	Engineering Diversity Working Group Leader (Lead for 2013 AS Submission.)	I want a University that reflects the diversity of our society, and which acts to remove barriers to individual achievement.
Vicky Bond	Taught Programme Team Leader	Professional Service staff data team. Activity Reporting Working Group.	Chaos Theory tells me that that one person making a small change can end with drastic change
Sumandeep Chhokar	Digital Marketing Assistant (Student placement)	Professional Service staff data team.	As a student I am delighted to contribute to creating a culture of equal opportunity for students and staff alike.
Sarah Craney	Laboratory Technician in Undergraduate Chemistry Labs	Academic staff data subgroup.	Encouraging everyone to challenge stereotypes will hopefully demonstrate that talent supersedes what you look like or where you came from.
Dr Val Franklin	Research Fellow (and Projects Coordinator Biomaterials Research Unit)	Leading Academic Data Subgroup	Creating supportive, culturally diverse and cohesive working environments that maximise everyone's opportunities requires the right person in the right role.
Aman Gill-Knobbs	Head of Business, Strategy and Administration	Professional Service staff team and overall review	Diversity should be embraced seriously and not become a tick box exercise. I want to actively contribute to that goal.
* Professor Alison Hodge MBE	Professor of Engineering Leadership	University Athena SWAN SAT Lead	I am sharing long experience from government and industry research environments and as Aston's University level SAT Lead.
Dr Sarah Junaid	Lecturer, MED	Team training and development	Developing an environment which is pleasant, fair and accessible to anyone at Aston regardless of their circumstances.
John Leigh	Research Projects Administrator	Administrative support Professional Services Staff data team	It is essential to embed an environment and culture which ensures that everyone has the opportunity to achieve their full potential.
Dr Laura Leslie	Lecturer MED	Leading the student data subgroup. Activity reporting working group	An opportunity to learn how diversity can contribute to making our School an even better place to work and study
Swaroopa Mucheli-Sudhakar	Technician, AIPT	Professional Service staff data team.	An opportunity to learn about diversity, and to contribute to making our School a better place to work and study
Rumana Raman	Student studying 2nd year chemical engineering	Student data working group	As a female student, I want to encourage more women to progress academically and remove the barriers of gender inequality

Samantha Searle	Digital Marketing Assistant (Student placement)	Professional Service staff data team.	Diversity is important and I wanted to learn more about how Aston approaches the subject now and in the future
Dr Kate Sugden	Reader, EEPE Associate Dean for Enterprise	Student data subgroup	Small collective actions can make a big impact. We have an obligation to work together to create a fairer society.
Hafsa Tahira	2nd year undergraduate studying chemistry	Student data team	It is important that society tackles all barriers to equal opportunity and I am pleased to play a part
* Jane Tyrrell	Associate Director, HR	HR representative and interface to staff data.	As an HR practitioner, I am passionate about reducing barriers to inclusion throughout the University
Dr Gayan Wedawatta	Lecturer in Construction, ESMT	Academic data subgroup	As the places that shape tomorrow's leaders, professionals and citizens, universities should harbour the values of equality and diversity.
Andrew Wilson	Head of Business, Strategy and Administration (maternity cover)	Project manager Professional Support and Technical staff lead.	The diversity spotlight has mostly focussed on academic staff. I hope to make a positive difference for professional/technical staff too.
* Dr Shun Ha Sylvia Wong	Lecturer, CS; Programme-year tutor for Stage 2 CS students; Postgraduate Programme Deputy Director	Student data team	I strongly believe that Science is for everyone, not just for males only. I'd like to see a better gender balance in the field.

** Indicates previous SAT member*

Team Activities and Impact

What's in a name?

We immediately embraced and represented the wider remit of the new AS charter. This was reflected in something relatively simple, but communicating a great deal: names. A new classification for our staff was agreed: academic, PS staff, technical staff; strictly avoiding use of the adjective "administrative or clerical". This was a very important step, and immediately brought focus on the professional capabilities and development needs of all our staff.

Data drives everything

A key lesson from the 2013 submission was the need to establish more rigorous, more automated mechanisms for obtaining this data. This need was magnified by the added focus on our Professional Support and Technical (PST) staff, and intersectionality. Detailed specifications for the data were developed and negotiated. We shared this data requirement to support other Schools' AS submissions. Progress has been made, but much more is required to operationalise this for management decision making. **[A5.1, A1.4]**

Staff Consultation

The EDWG made use of EAS data from the spring 2015 biennial Aston staff survey. In addition, some data has been available in the Vitae CROS and PIRLS surveys, but response rates from EAS needed to be higher to make the data more meaningful. Focus Groups were led by Aston market research team, with small groups of staff to elicit specific views on career support from recruitment to leaving, particularly exploring training and opportunities for flexible working.

We secured commitment to appoint additional staff; and established data sub-groups:

- Students,
- A&R
- Professional

These sub-groups met regularly to analyse data.

Team Activities and Embedding

A workshop was organised including experts on unconscious bias, the marketing team and others to consider the Undergraduate student prospectus. The workshop identified potential barriers, actions, and process changes to address these. Unconscious bias training is now mandated for all university staff, with over 60% of EAS staff completing.

Workshop actions included:

- sourcing photographs for future publications,
- processes to support formulating and reviewing content of programme specifications, .
- awareness raising: university-wide guidelines on "tone of voice" has been prepared for use throughout Aston (Fig 3.1), with EAS input on unconscious bias. These cover all materials produced: web pages, videos, official emails, etc.

Produce *Engaging* material demonstrating interest in audience thinking and feeling.

Use Inclusive language:

Make sure the language you choose does not constitute any form of harassment or discrimination. Be sensitive to the following characteristics (as in Equality Act 2010):

- Age, Disability, Gender reassignment, Marriage and civil partnerships, Pregnancy and maternity, Race, Religion and belief, Sex, Sexual orientation and transgender

Use Inclusive images:

We aim to show ethnic, gender, race and cultural diversity in our photography, and ask that staff consider diversity and inclusivity of the subject matter when briefing a photographer.

Figure 3.1. Extract from new University Tone of Voice Guidelines

Other related outcomes include:

- working with marketing to assess and improve School publications with respect to bias and diversity. [A2.1]

- reviewing A-level entry criteria that potentially discourage some female applicants; suggesting and implementing changes to remove barriers without diminishing quality levels. [A2.3]

Activity Reporting Management System (ARMS)

EDWG developed the new ARMS to replace the existing workload model. It differs from most load models as it is designed by and for staff, both A&R and PST, with a co-designed vision of a system and process to embrace the diversity of activity and contribution in a complex organisation. (See 5.6.v). EDWG secured funding from the Dean for software development and then took responsibility for socialising and launching the programme. A School-wide workshop formulated requirements and scoped what an activity reporting system should and should not be. Attended by 40 staff, the event was an incredibly positive experience, the concept being well received by most participants as an opportunity to shape a system that would support fairness. This significant innovation was appreciated particularly by PST staff. [A1.1, A1.2, A1.3]

School Management Team (SMT)

The work of EDWG is supported and empowered by SMT. Diversity is on the agenda of every monthly SMT meeting; topics include discussions of appropriate policies, reflection on diversity data, initiatives such as activity reporting, career development, training and outreach. SMT members are also participating in ARMS's definition, launch and evaluation.

External advice

EDWG has taken advice from SAT members in other institutions nationally, through Athena SWAN Midlands Regional Network and participants in ECU Panels. The draft application has been reviewed by members of the University, at all levels.

(iii) The Future of the Self-Assessment Team:

EDWG will continue as the focus for diversity activities, meeting monthly. Supporting ARMS is critical; this system will be delivered incrementally and respond to staff feedback. It is a multi-year project impacting planning, staff assessments, workload management, and on ensuring balance in what we do and how we progress as an organisation.

Culture change is happening in EAS. It is evident in the passion of the working group – but also the wider School - new members will join and succeed members standing down. Team members are invited regularly to support activities in different subject-groups, and in turn these activities serve as models for wider adoption across the University.

EDWG will also contribute to Aston's work to simplify data collection and use of a wider set of diversity data as a management tool.

[Section 3. WORD COUNT = 1008]

4. A PICTURE OF THE DEPARTMENT

4.1. Student Data

EAS has made significant progress since 2014:

- Increasing student numbers whilst retaining a good female:male ratio
- Increasing ethnic, and prior qualification, diversity
- Increased outreach activities and staff engagement
- Highlighted areas for improvement such as marketing and prospectus wording
- Female ratios in line with comparator Universities in most subject areas

Graphs show percentages (as the bar) and actual numbers (the number inside the bar). Data is analysed from 2011/12-2015/16 intakes to show:

- numbers of applications
- offers and acceptances for first year students by subject group
- enrolment students in all year groups.

A rationale and a list of suitable comparator Universities was created (Table 4.1.1), and data was analysed using relevant JACS codes (Table 4.1.2).

In general we show data for full-time students as part-time numbers are very low.

Table 4.1.1: Comparison universities and selection rationale

University	**Abbreviation used**	**Rationale for selection**
Aston University	Aston	Comparator institutions are based on criteria including geographical relevance (i.e. same region as Aston), track record of successful Athena SWAN achievements, delivering programmes in the same/similar subject areas as Aston, and either in the same category or different for comparison e.g. post-1992 or Russell Group University.
Birmingham City University	BCU	
The Queen's University of Belfast	Queens	
The University of Bath	Bath	
The University of Birmingham	B'ham	
The University of Keele	Keele	
The University of Wolverhampton	W'hampton	
University of Nottingham	N'ham	

Table 4.1.2: The codes used to determine comparator groups for the different subject areas (in brackets is the subject-group which they are part of), showing the UG Programmes covered in each code used. Note: some of these Programmes are no longer active, however, they were historically and are therefore included in our statistics.

Subject Area	**Programmes at Aston**
F1 Chemistry (CEAC)	BEng Chemistry BSc Chemistry BSc Chemistry with Science (Chemistry) Education BSc Applied Chemistry BSc Chemistry (Biotechnology) BSc Chemistry (Environmental Management) BSc Chemistry (Management Studies)
G1 Mathematics (CSAM)	BSc Business & Mathematics BSc Mathematics with Economics BSc Information Mathematics BSc Mathematics BSc Mathematics with Computing BSc Mathematics with Mathematics Education
G3 Statistics (CSAM)	BSc Information Mathematics BSc Mathematics BSc Mathematics with Computing
H1 General Engineering (EEPE) (MED)	Foundation Degree in Electrical Power Engineering (Scottish Power) International Access to Engineering and Science Foundation Degree in Electrical Power Engineering (National Grid) Foundation Degree in Electrical Power (EON) Foundation Degree in Electronic and Control Engine Foundation Degree in Manufacturing Engineering Foundation Degree in Software Development Foundation Degree in Electronics & Control Engineering (Worcester Bosch) Foundation Degree in Manufacturing Engineering (Worcester Bosch) Foundation Degree in Mechanical Engineering (Worcester Bosch) Foundation Degree in Electrical Installation (Worcester Bosch) Foundation Degree in Electrical Power Generation Foundation Degree in Power Systems Management Foundation Degree in Electrical Power (EON Loughborough) Foundation Degree in Gas Transmission Engineering Foundation Degree in Logistics FD in Electrical Power Engineering (Generation) FD in Electrical Power Engineering (Power System)

	FD in Electrical Power Engineering (Transmission) FD in Electrical Power Engineering (Distribution) Engineering & Applied Science Foundation Programme Engineering & Applied Science International Foundation Programme FD Electrical Power Engineering (Construction Management) BEng Professional Engineering Engineering Undergraduate Exchange Students Foundation Degree in Engineering BEng Design Engineering Science Foundation Programme
H3 Mechanical Engineering (MED)	BEng/MEng Mechanical Engineering BEng Mechanical Engineering Systems BEng Professional Engineering (Power Systems) BEng/MEng Electromechanical Engineering
H6 Electronic and Electrical Engineering (EEPE)	MEng Electronic Systems Engineering with Management Studies BEng Electronic Engineering with Management Studies BEng Electrical & Electronic Engineering MEng Electronic Systems Engineering MEng Electronic Systems Engineering with Management Studies BEng Electronic Engineering with Management Studies BEng Electrical Engineering Systems MEng Electrical and Electronic Engineering FD Electrical Power Engineering (Renewable Energy) BEng Communications Engineering BSc Internet Systems BEng Internet Engineering BEng Electronic Engineering & Computer Science MEng Electronic Engineering and Computer Science BEng Electronic Engineering & Computer Science BEng Electrical Power Engineering
H7 Production & Manufacturing (MED)	BSc Technology and Enterprise Management 3/4 Year BSc Engineering Product Design BSc Industrial Product Design BSc Product Design & Management BSc Medical Product Design BSc Sustainable Product Design BSc Automotive Product Design BSc Electronic Product Design BSc Transport Product Design
H8 Chemical, Process and Energy Engineering (CEAC)	BEng Chemistry Technology and Design BEng/MEng Chemical Engineering MEng/BEng Chemical Engineering & Applied Chemistry BEng Chemical Engineering (Computer Simulation) BSc Bioscience Technology BEng Chemical Engineering (Energy and Environment) BEng Chemical Engineering (Management Studies) BSc Bioscience Processes (Environmental) BSc Bioscience Processes (Medical)

	BSc Bioscience Processes (Management)
I1 Computer Science (CSAM)	BSc Business Information Systems BSc Computing for Business BSc Computing Science with European Studies BSc Computing Science BSc Information Technology for Business BEng Internet Systems BSc Software Engineering BSc Computing Science and Mathematics MEng Software Engineering BSc Computing Science with Computing Science Education BSc Multimedia Technology 3/4 Year BSc Multimedia Digital Systems 3/4 Year BSc Multimedia Computing 3/4 Year
J9 Others in Technology (ESMT)	BSc Technology 3/4 Year BSc Logistics with French/German BSc Transport Management BSc Logistics BSc e-logistics BSc Development of Transport Systems BSc Construction and Transport Planning BSc Logistics Management BSc Logistics and Operations Management BSc Logistics with Purchasing Management BSc Logistics with Supply Chain Management BSc Logistics with Transport Management
K2 Building (ESMT)	BEng/MEng Civil Engineering BEng Civil and Environmental Engineering BSc Construction Management BSc Construction Economics BSc Transport and Environmental Planning BSc Construction and Environmental Management BSc Transport Planning & GIS BSc Geographical Information & Environmental Sys BSc Construction and Health and Safety Management BSc Transport Planning BSc Health, Safety and Environmental Management BSc Construction Project Management

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

The foundation year provides a path for students to the honours UG programme.

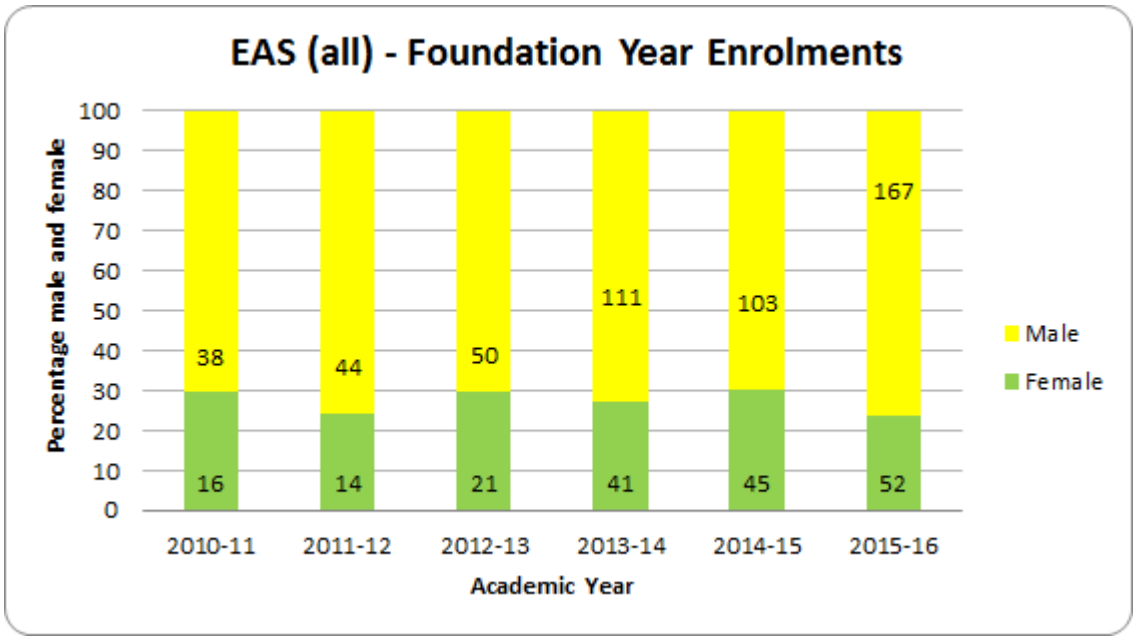
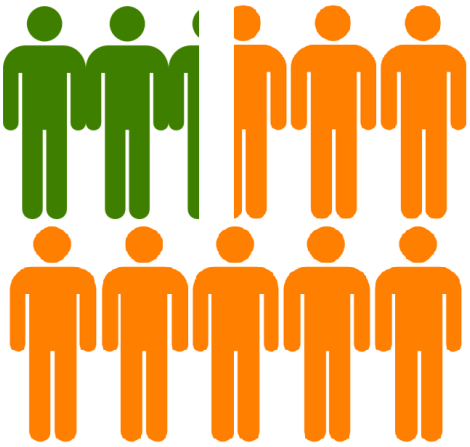


Figure 4.1.1: EAS Foundation Year Enrolment figures. The bar graphs represent the percentages whilst the actual numbers are displayed over the top. Foundation year enrolments have increased annually and are likely to continue to rise. The number of female students has increased steadily.

(ii) Numbers of undergraduate students by gender.

Subject-Group data covers 2010/11 to 2015/16; with one year (2013/14) comparator data (Fig 4.1.10).

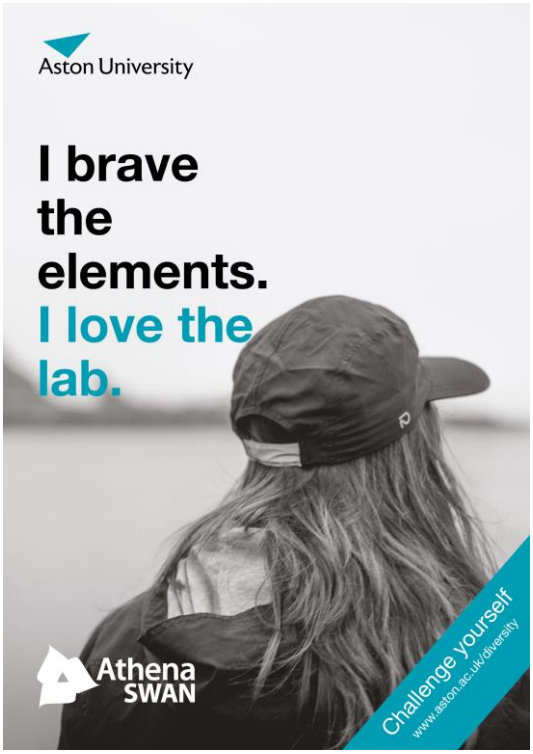


22.6% Female vs. 77.4% Male

UG students in EAS

Observations and challenges:

- EAS (all) UG FT applications are fairly constant in terms of the M:F ratio
- Good overall conversion of female student applications into enrolments (female enrolments are typically 2-4% higher than applications)
- Steady increase in number of female students (506 in 2010/11 to 746 in 2015/16) but overall percentage of females dropped (26% to 22.6% in same period)
- We are successful in recruiting more females BUT we were even more successful at recruiting more males especially from BAME backgrounds
- Percentage of females studying A-level maths, physics and chemistry is 40%, 22.5% and 50% respectively - results in a limited pool of females
- Our success in meeting challenging and important widening participation targets has resulted in an increase of BTEC students - *in 2013 at BTEC Level Three, the proportion of female engineers was just 4% which means the pool of female BTEC students is very low therefore worsening the overall M:F ratio*
- The growth of Degree Apprenticeships brings a different student mix to the University; lower in female representation, and lower in ethnic diversity. More work with employer sponsors is needed here. (Fig 4.1.29-4.1.30) [A2.4]



Actions to improve female ratio

We started recording the gender ratio for participants at outreach activities. Publicity is evaluated for bias and now includes the sentence *"Girls in particular are encouraged to apply"*. For several STEM events, invitations were sent to girls schools before being widely distributed to increase the number of female participants.

Other actions include:

- **building a portfolio of photographs highlighting activities, of particular interest to girls, such as biomedical engineering, sustainability and photonics**
- **comparing open day formats across EAS for the most appealing ideas [A2.1]**

In the prospectus, MED and EEPE explicitly required maths and physics A-level. Substitutes such as electronics and CS, were mentioned, but the implication that physics A-level was the preferred may have deterred more reticent students and countered our policy of accepting BTEC engineering students. Comparator universities were not overtly specific about physics and therefore may appeal to a wider group of students. **EDWG discussed this with programme directors, changes will be made in the 2017/18 prospectus and website. Changes to more inclusive wording were implemented immediately by EEPE prior to the 2016 Clearing period. [A2.3]**

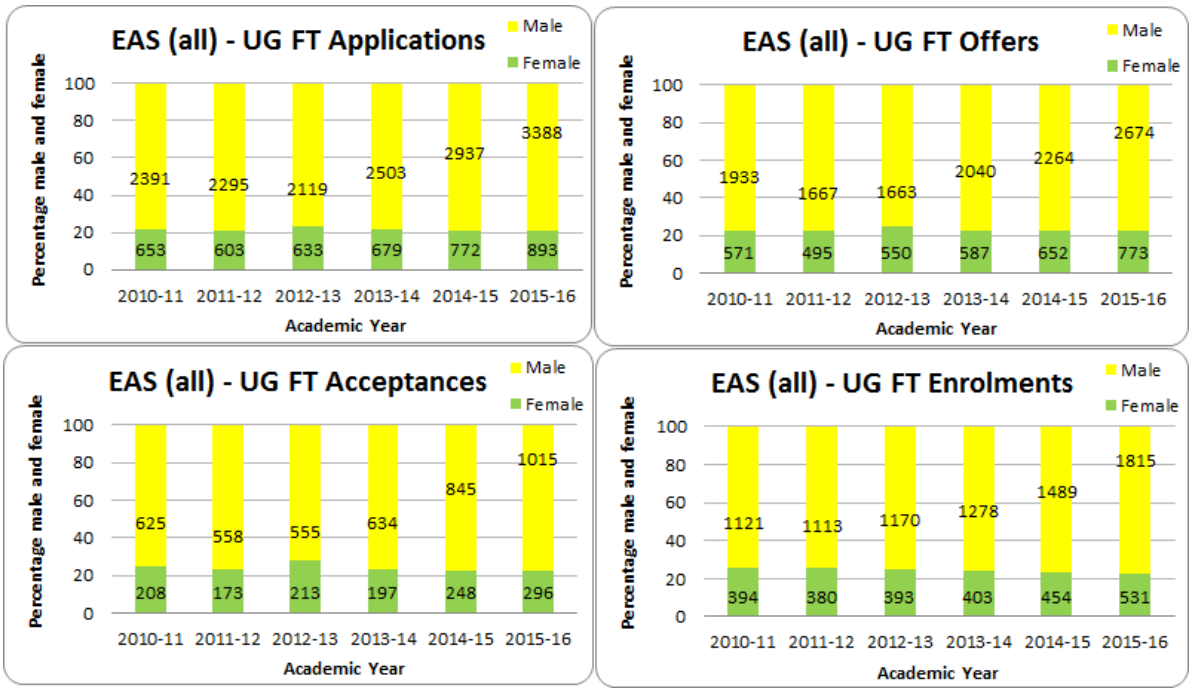


Figure 4.1.2: EAS (all subject groups combined) UG FT process numbers from application to enrolment. The data shows increasing overall numbers from 2012 onwards.

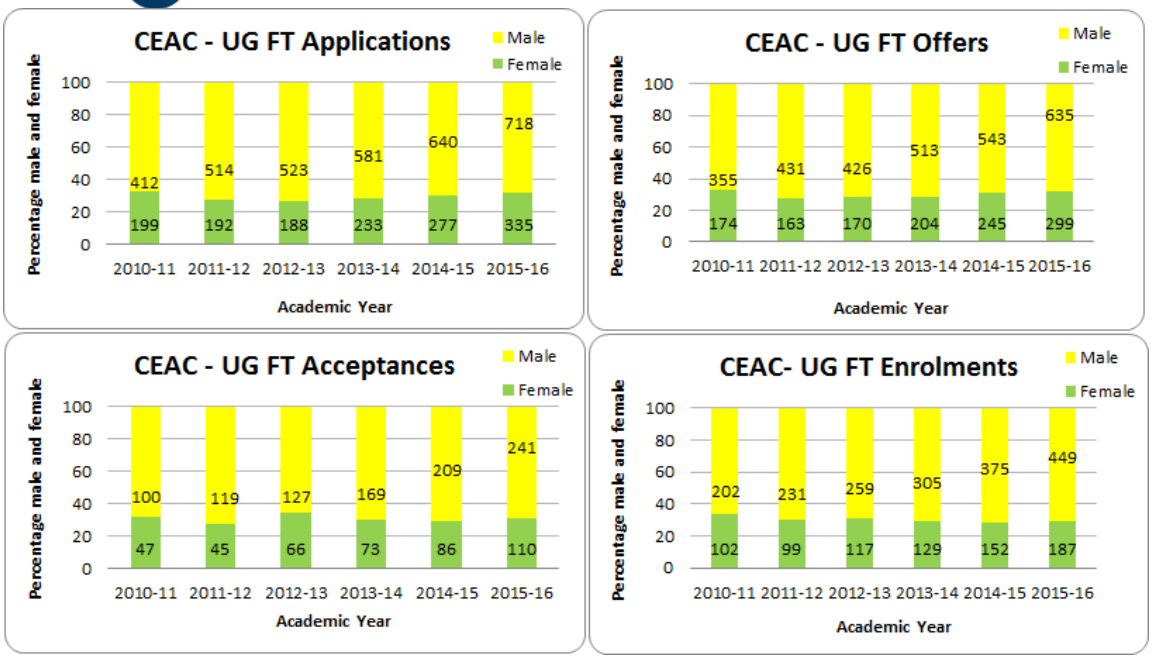


Figure 4.1.3: CEAC UG process numbers from application to enrolment. Good consistency is observed from application to acceptances for female students. There is an increase in overall numbers with the F:M ratio consistent. If we were to split the department into the Chemical Engineering courses and the Chemistry courses separately, we would see a 29% and a 44% Female population respectively, for 2015/16.

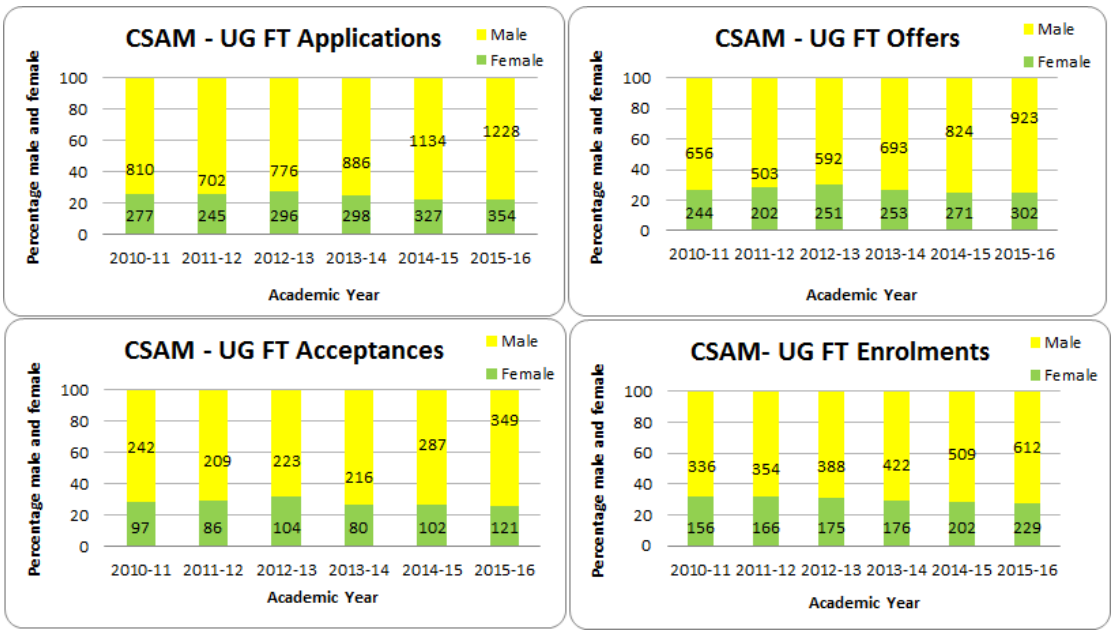


Figure 4.1.4: CSAM UG process numbers from application to enrolment. There is a good conversion of female applicants to enrolments. Overall numbers are increasing. Open days for this group includes taster session and videos from students and graduates. If we were to split the department into the Computer Science courses and the Maths courses separately, we would see a 23 % and a 32 % Female population respectively, for 2015/16.

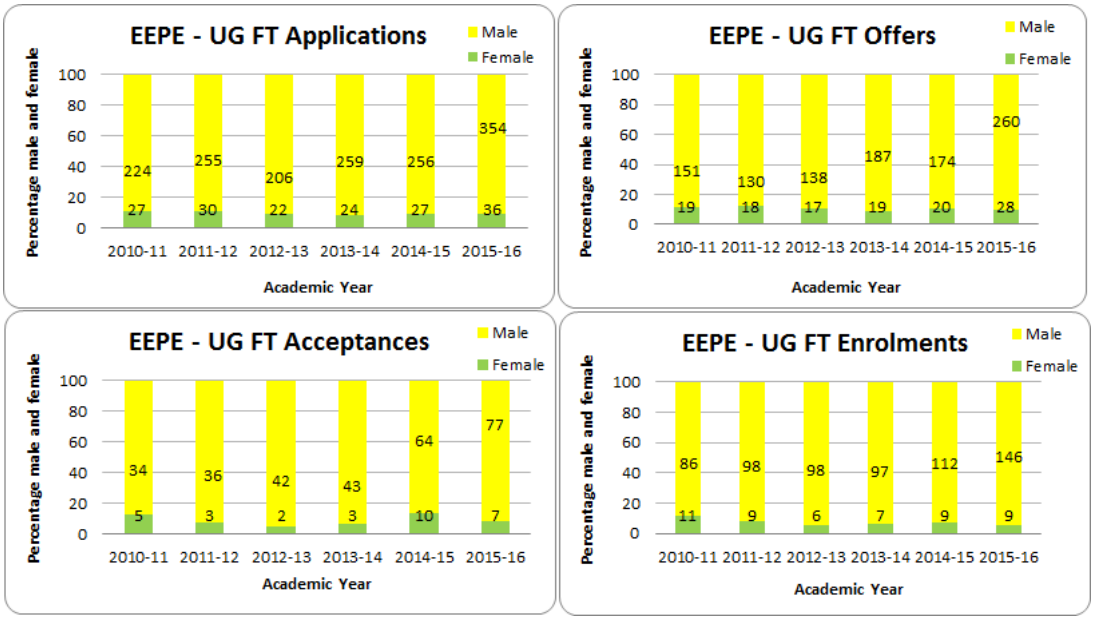


Figure 4.1.5: EEPE UG process numbers from application to enrolment. The overall numbers are very small and the percentages therefore are slightly ambiguous. However, there have been some improvements in conversion of applications to acceptances but these are still low compared to the benchmark. Overall numbers are increasing resulting in slow growth in female student numbers from 2012.

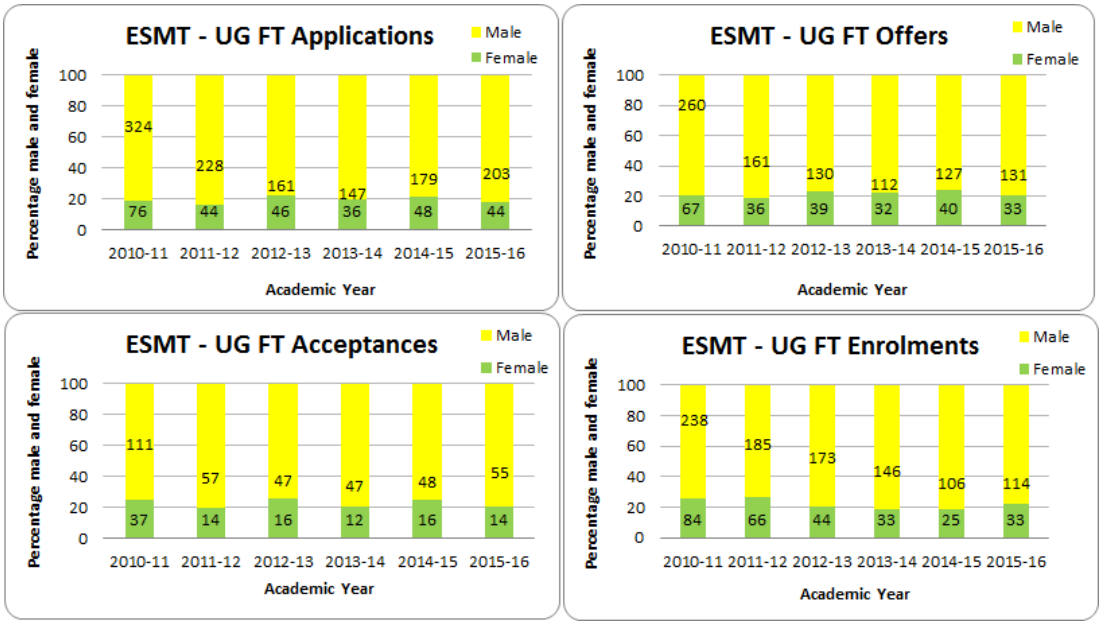


Figure 4.1.6: process numbers from application to enrolment. There is a good conversion from application to acceptances. The small numbers make it difficult to confirm trends however.

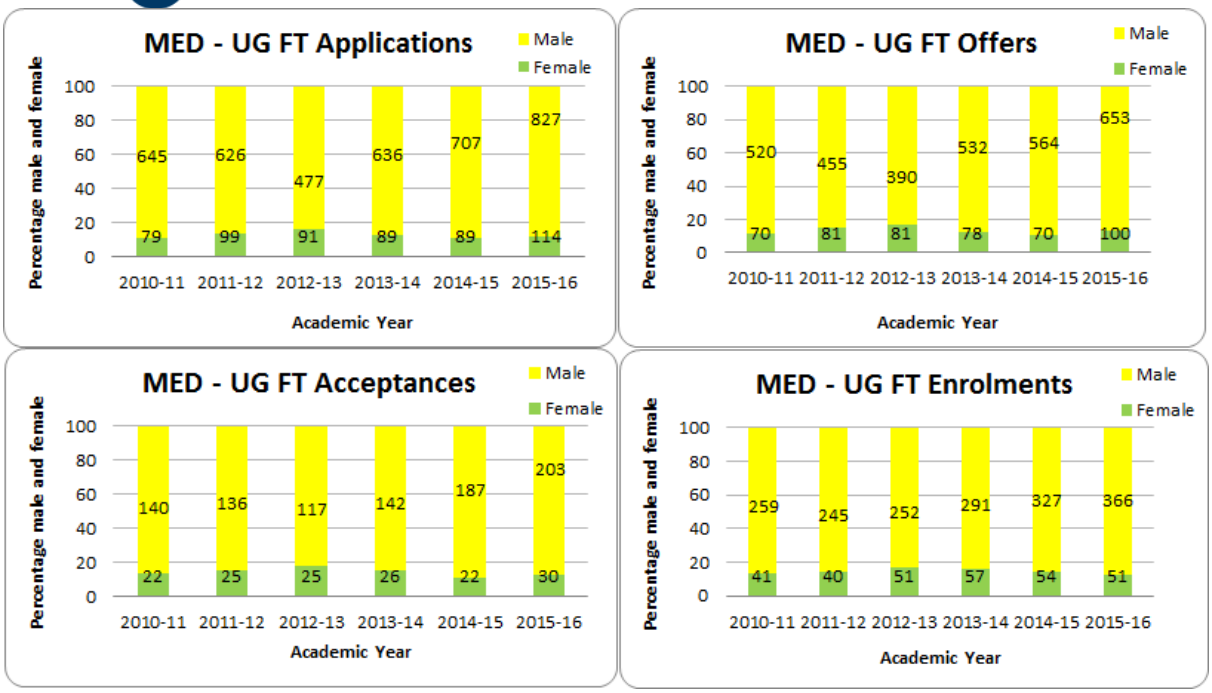


Figure 4.1.7: MED UG process numbers from application to enrolment. There is good consistency from application to acceptances, a good increase in overall numbers with the F:M ratio consistent (but low compared to the benchmark). One possible explanation is overexposure of the more traditional (and male-oriented) aspects of mechanical engineering, such as Formula Student. Marketing has now built up a wider stock of photos.

MED students involved in project-based learning (CDIO). Group projects range from the design-build of an electric racing car to an electronic medical device.

Electronic Engineering outreach activities - students have been involved in developing visually appealing demonstrators to encourage interest in the subject and are encouraged to take part in community activities to promote engineering

Degree completion and attainment

Data for all students beginning their programmes in 2011/12 and the percentage of those completing versus those either withdrawing or not completing is shown in Figure 4.1.8. **Female students tend to complete at a higher rate than males.** Note that the statistics for all students is slightly inflated because of imprecision in registry accounting; e.g., students changing degree programmes will in some cases show as non-completions. [A1.4]

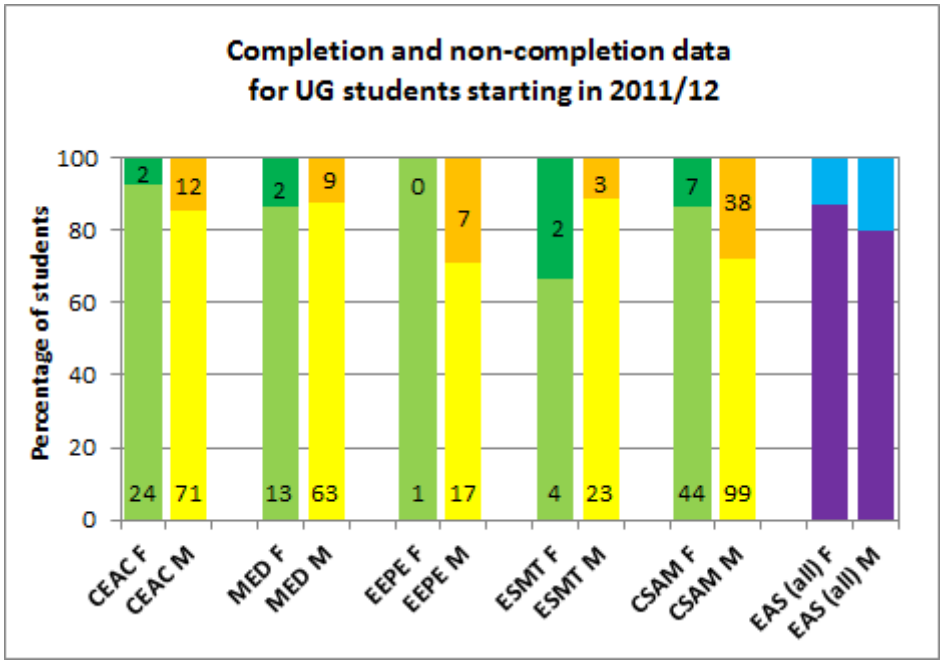


Figure 4.1.8: Completion and non-completion data for female (green) and male (yellow) students. The lighter shade shows completion numbers and the darker shade shows non-completion numbers. The graphs represent percentages, the numbers inside are actual student numbers. The right-hand purple and blue bars show aggregate completion and non-completion rates respectively.

Degree classifications are shown for those graduating in 2014/15 by subject-group (Figure 4.1.9).

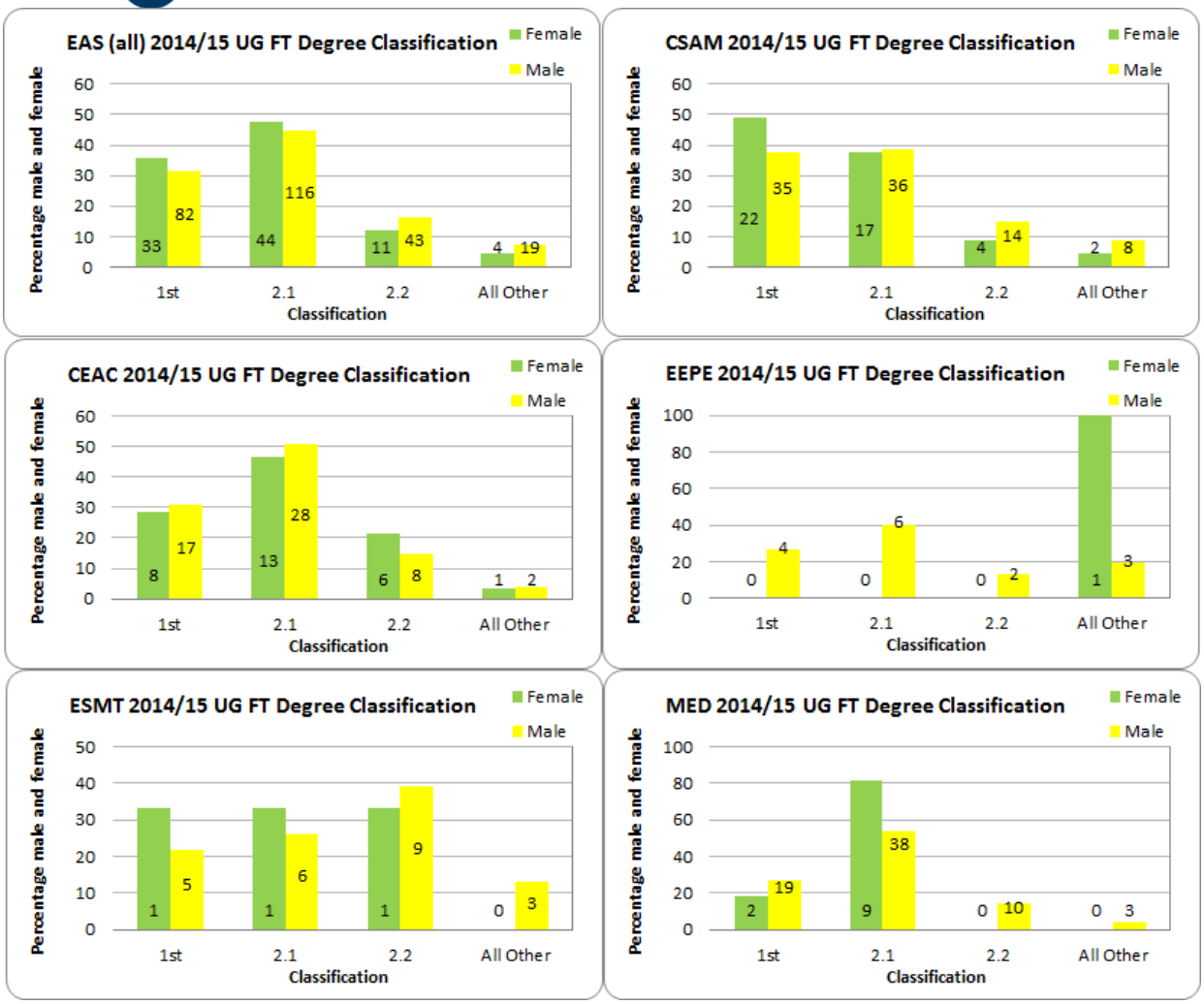


Figure 4.1.9: 2014-15 data showing percentages (and numbers) of each gender group achieving each classification within the academic groups. For both EEPE and ESMT, the numbers are very small and therefore the percentages may not be truly representative. In EAS (All), CSAM, ESMT and MED, female students achieve higher degree classifications than male counterparts. The proportion of females achieving 2.2 and below is lower overall.

Comparator gender assessment (Figure 4.1.10):

- Chemistry - we are a little lower, though could be explained by our lower numbers.
- Maths, statistics, general engineering and chemical engineering -we are in line.
- CS - we lead the group. This is also the case for production and manufacturing but this may be due to the inclusion of product design here which tends to a greater percentage of females vs. manufacturing engineering.
- Technology and Building (ESMT) - here we are falling behind.
- MED and EEPE - we are behind. The gap in electronic engineering is particularly significant. This led us to look more carefully at comparator entry criteria. See 4.1.ii. [A2.3]

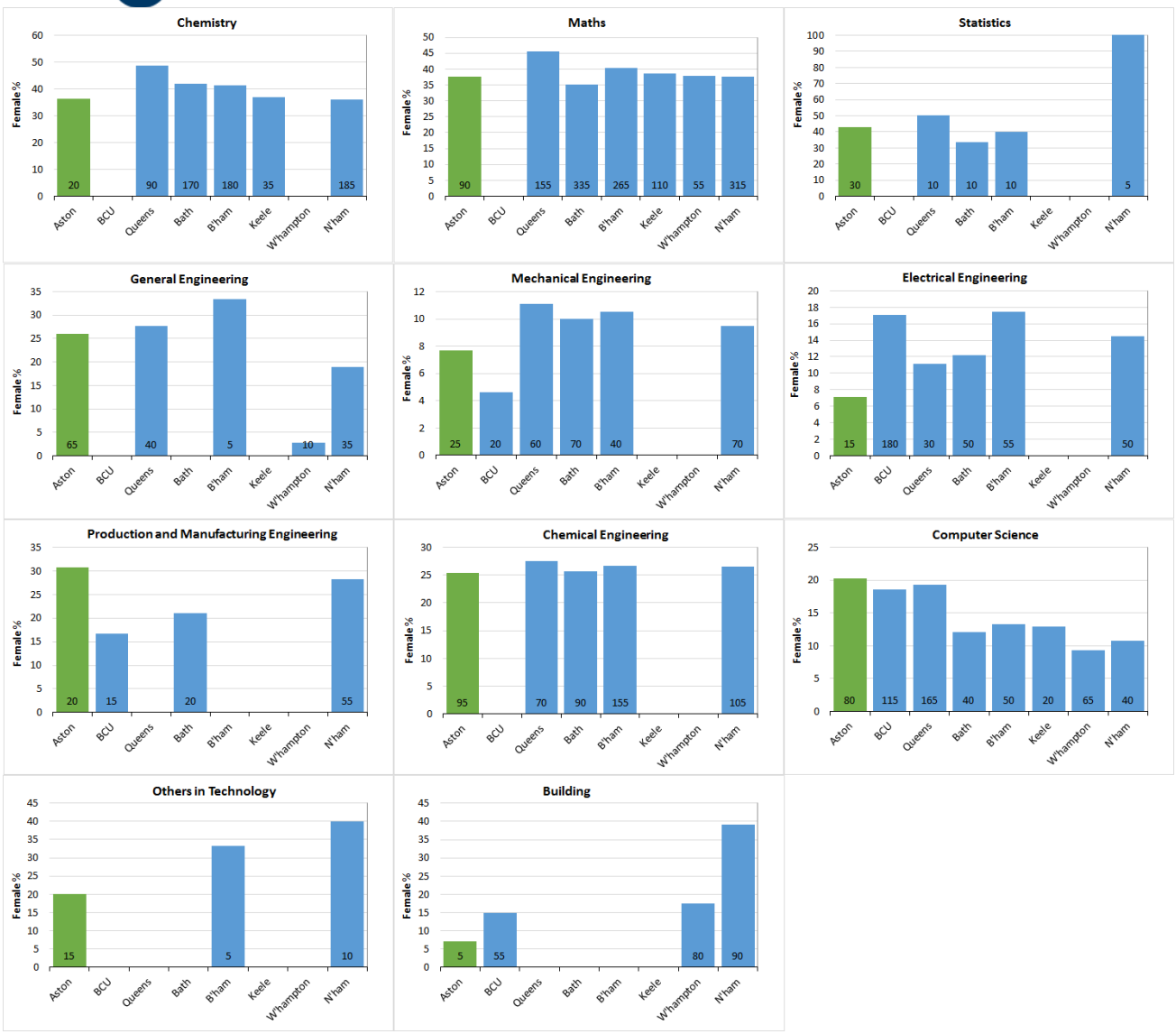


Figure 4.1.10: These graphs use JACS code data to compare the percentage of females in different subject areas for 2013/14. The percentage is shown by the y-axis, and the number of female students is shown inside each column.

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

PGT taught level conversion of female applicants to enrolments is not strong. This could be due to female students applying to more universities but we cannot support this with data. We do not hold PG open days in EAS (only at University level), despite knowing that students visiting the campus is one of the biggest factors in conversion. **The analysis has contributed to an overall review of the PGT portfolio begun in late 2015; and the development of a new conversion MSc programme in CS (2015/16) targeting female graduates from non-STEM backgrounds interested in pursuing an IT/Consulting career.** [A2.7]

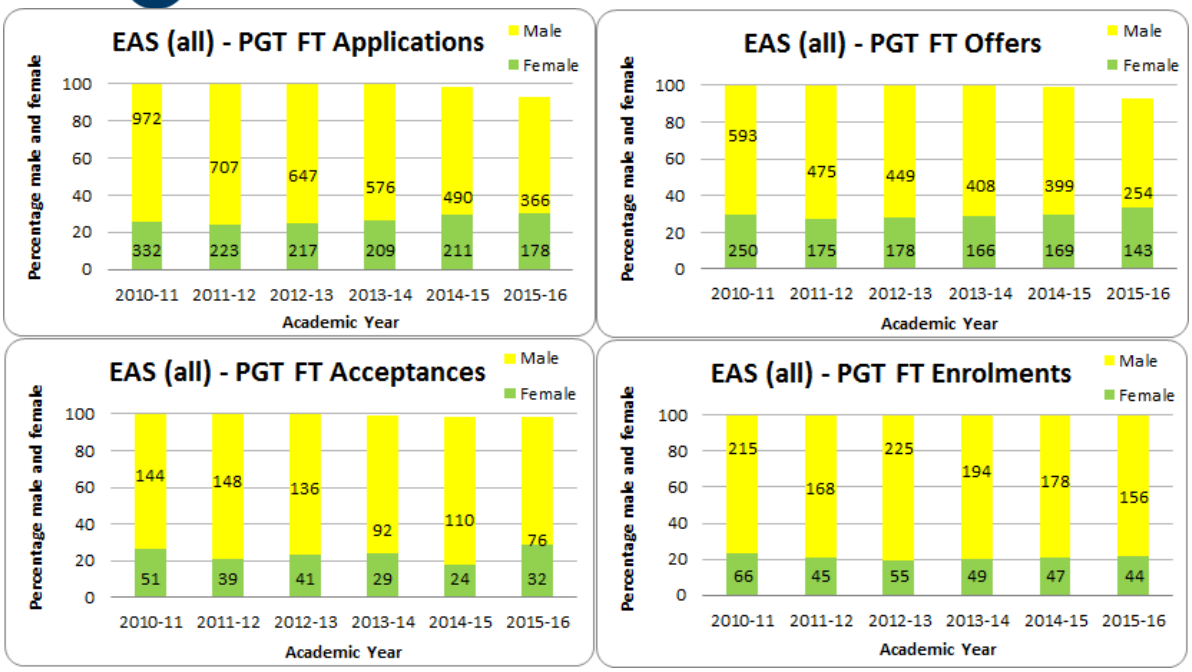


Figure 4.1.11: EAS (all subject-groups combined) PGT process numbers from application to enrolment. Since 2012/13, numbers have gradually reduced, however the percentage of female enrolments has remained fairly consistent.

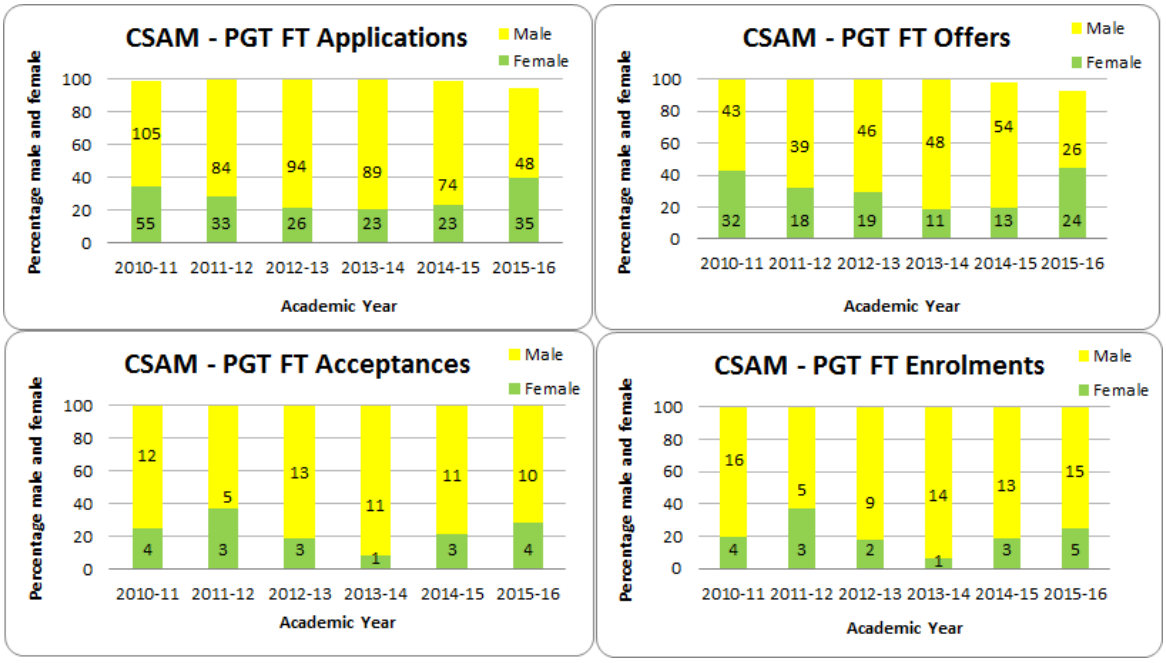


Figure 4.1.12: CSAM PGT process numbers from application to enrolment. Conversion of female applicants to enrolments is poor. However, with such small numbers, the percentages may not be fully representative.

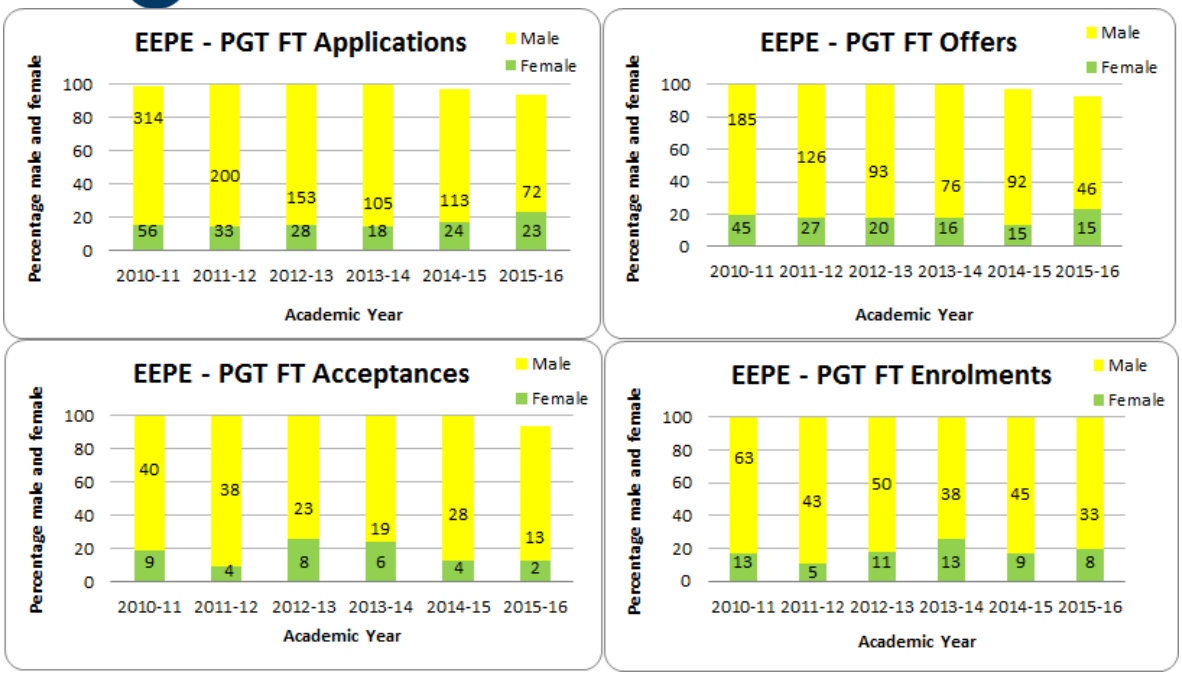


Figure 4.1.13: EEPE PGT process numbers from application to enrolment. The percentage of female applicants has risen in the last few years. However, the conversion rate to enrolment is poor. Overall the numbers are dropping, possibly due to issues around international visas.

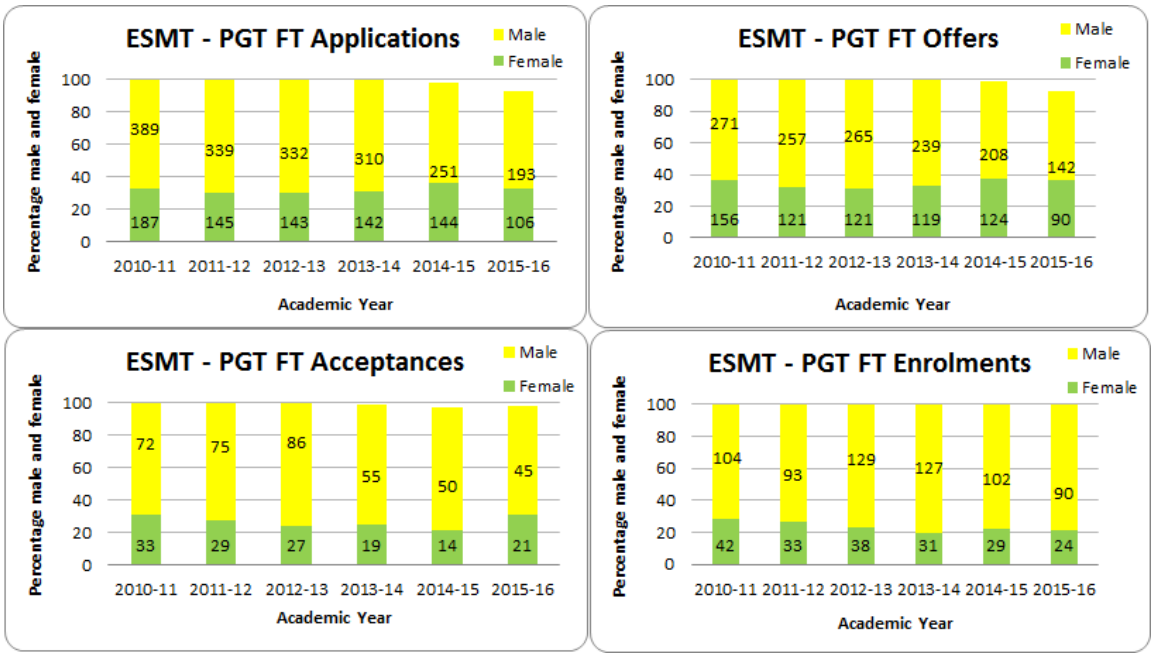


Figure 4.1.14: ESMT PGT process numbers from application to enrolment. There are decreasing numbers of applications overall and a decrease in female percentages from application to acceptance, however, there is an improvement in 2015-16.

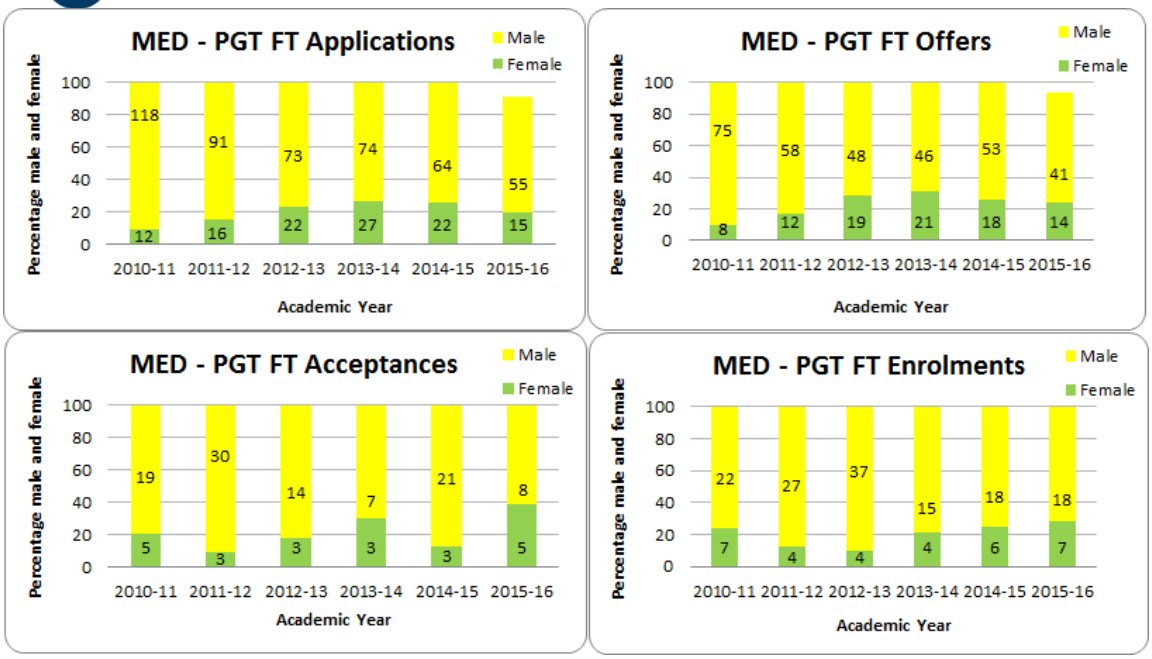


Figure 4.1.15: MED PGT process numbers from application to enrolment. Good conversion is seen from application to acceptance. The numbers are particularly small, so may not be representative.

Degree completion rates

Figure 4.1.16 shows the gender ratios for PGT degree completion rates.

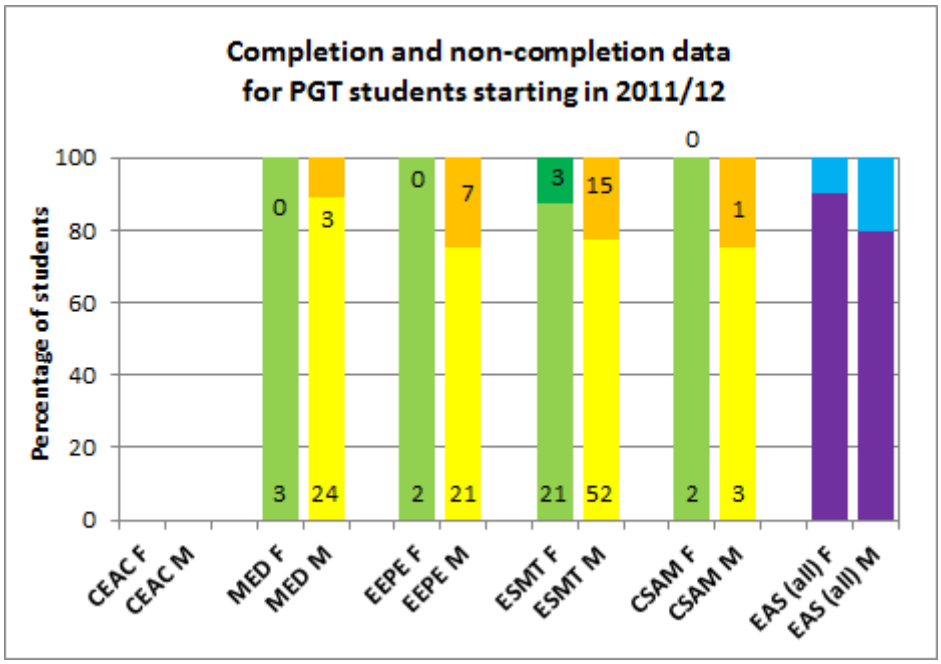


Figure 4.1.16: Completion and non-completion data for female (green) and male (yellow) students. The bottom, lighter section shows completion numbers and the top, darker section shows non-completion

numbers. The graphs represent percentages, whilst the numbers inside are actual student numbers. Numbers are very small here. The purple and blue bars on the right show completion and non-completion rates respectively for EAS as a whole. Overall School numbers indicate that females have a higher completion rate than males.

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

The postgraduate research (PGR) data deals with a relatively small cohort of students. The overall trend is slightly downward although typically our conversion from application to acceptance is good for female students.

Recent increases in funding and new initiative(s) trialled in some subject areas have resulted in more funded studentships advertised. For example, since 2014, CS subject group introduced 10+ studentships for students employed as graduate Teaching Assistants (TAs) for distance learning programmes, hence offering both teaching and research training. Recent adverts for PhD studentships have explicitly noted that women returners are encouraged to apply. Links to the adverts were also posted on the IET's very active Women's MyCommunity discussion board.

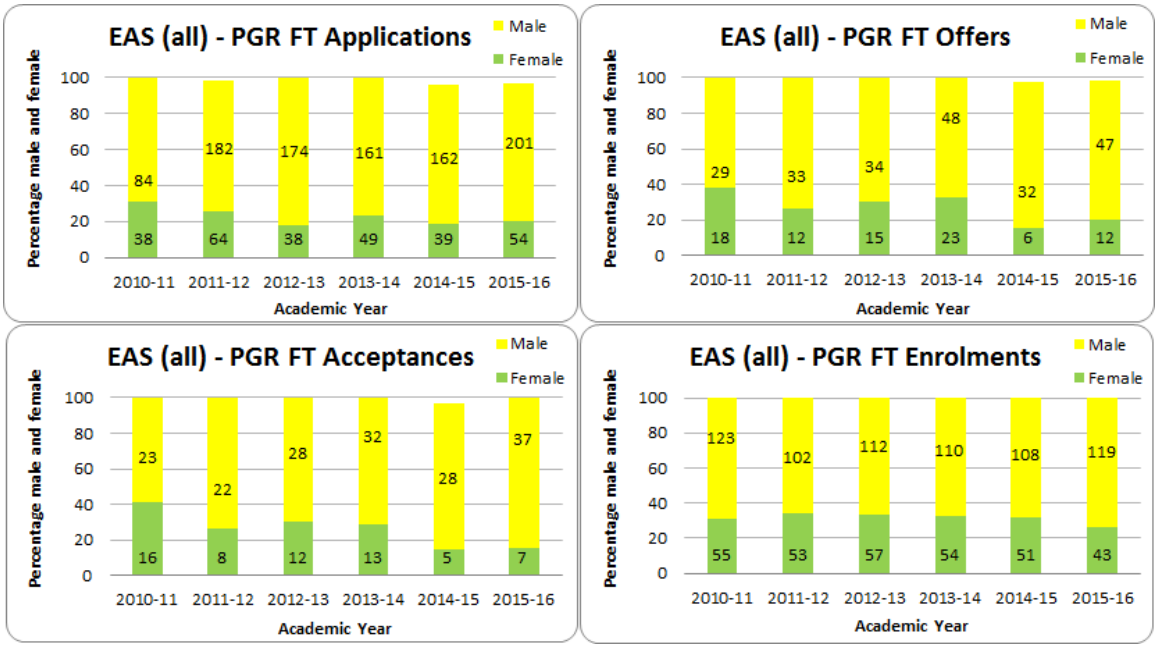


Figure 4.1.17: EAS (all subject-groups combined) PGR process numbers from application to enrolment. The percentage of female PGR students has fallen over the last few years, with overall numbers remaining fairly constant.

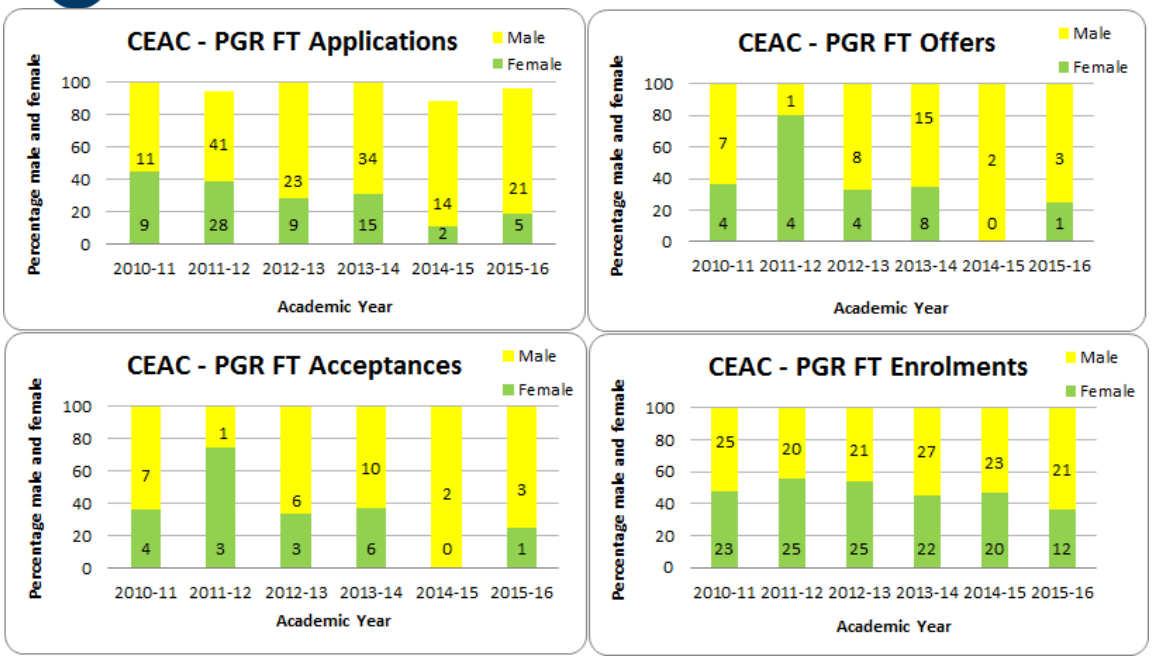


Figure 4.1.18: CEAC PGR process numbers from application to enrolment. In a transition period (lots of new staff), overall numbers are small and decreasing, however, it is hoped that this will turn around in the next few years as the new staff establish their research. The percentage of females is decreasing at present.

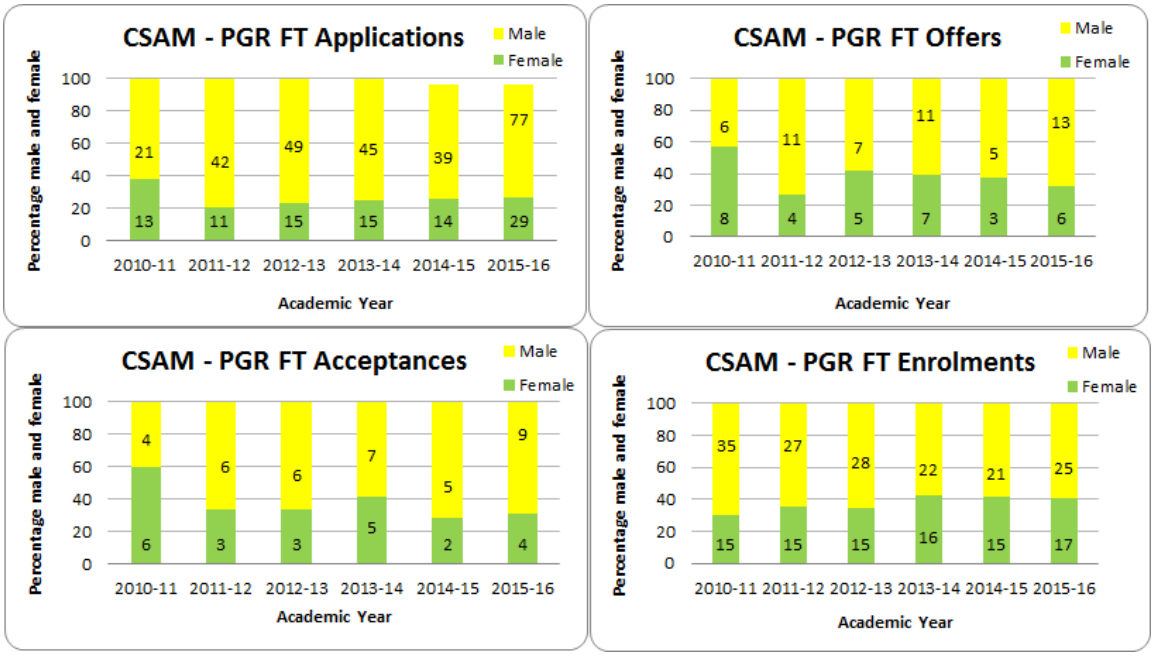


Figure 4.1.19: CSAM PGR process numbers from application to enrolment. Though the numbers are small, there is a good conversion from applicant to acceptance for females, and a steady increase in the F:M ratio of PGR enrolments.

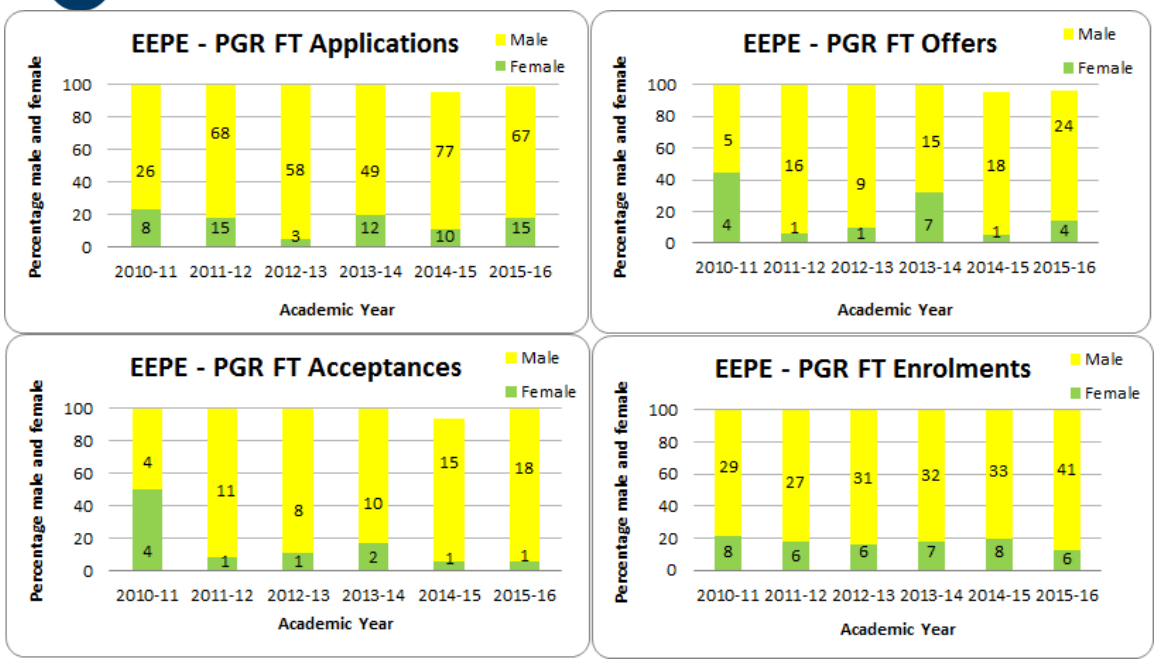


Figure 4.1.20: EEPE PGR process numbers from application to enrolment. There appears to be a poor conversion from application to offer for female applicants. The numbers in general are very small and percentages may not be helpful here.

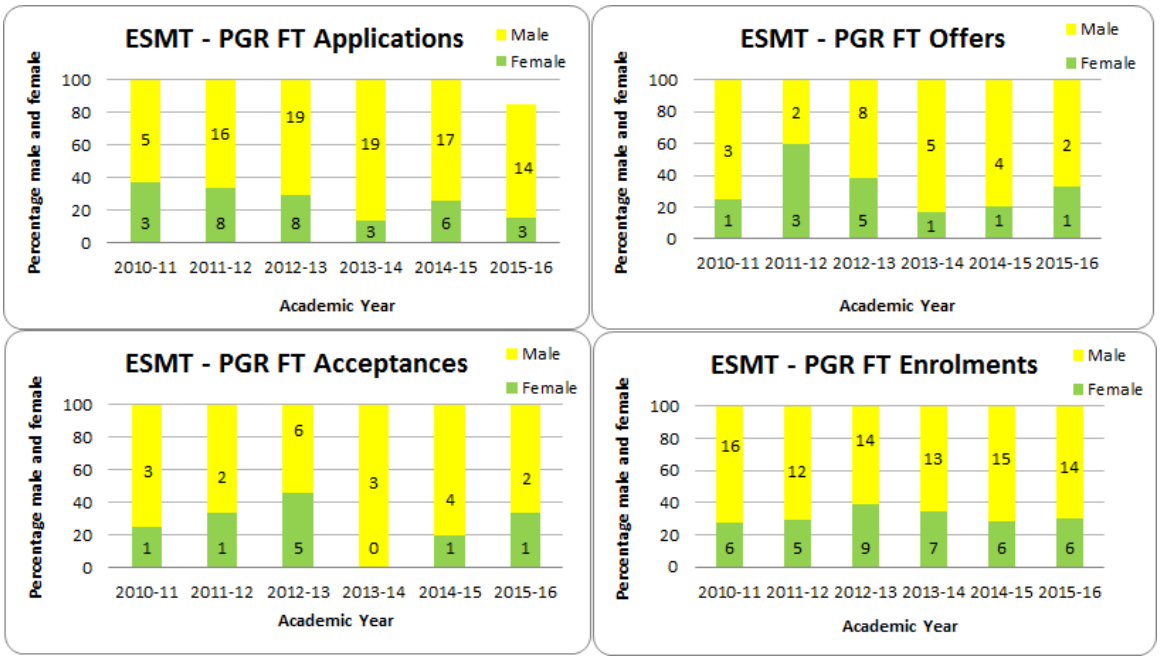


Figure 4.1.21: ESMT PGR process numbers from application to enrolment. The numbers are very low, however, there is a good split of females and males within these figures.

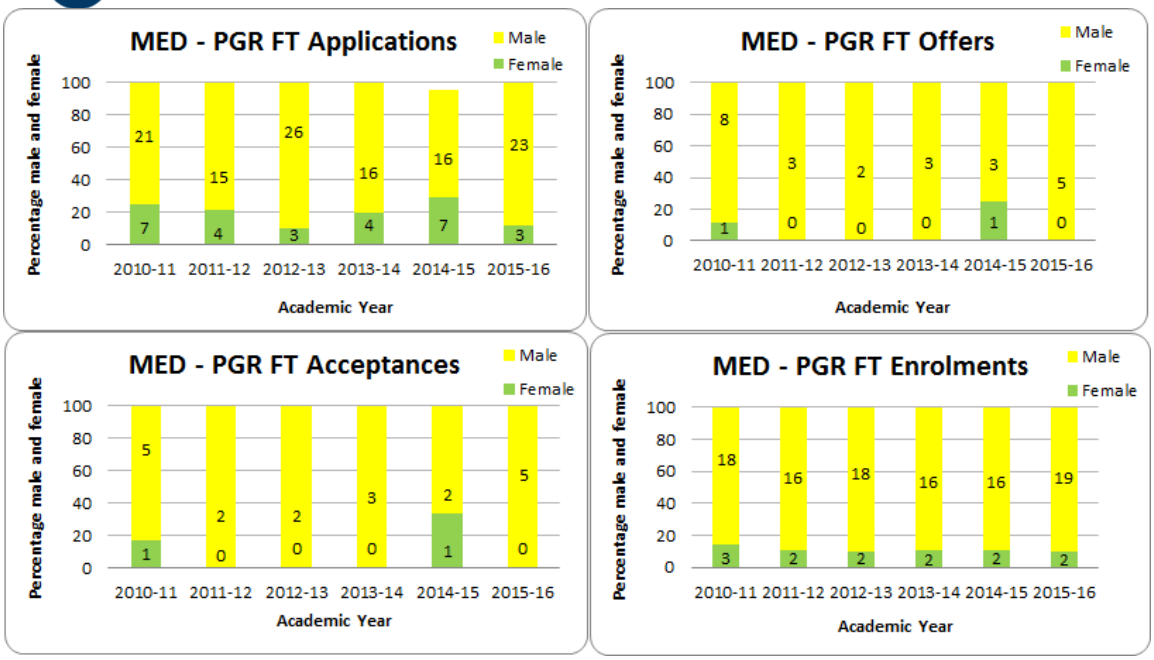


Figure 4.1.22: MED PGR process numbers from application to enrolment. The numbers here are very small and there is a low takeup from female applicants.

Degree completion rates

Low numbers for PGR students makes it impossible to draw conclusions on completion data. (Non-completion data includes students still writing up, or who took a break but who are still studying. This is more common in PGR than UG and PGT.) The classification data for all PG students is shown in Figure 4.1.23.

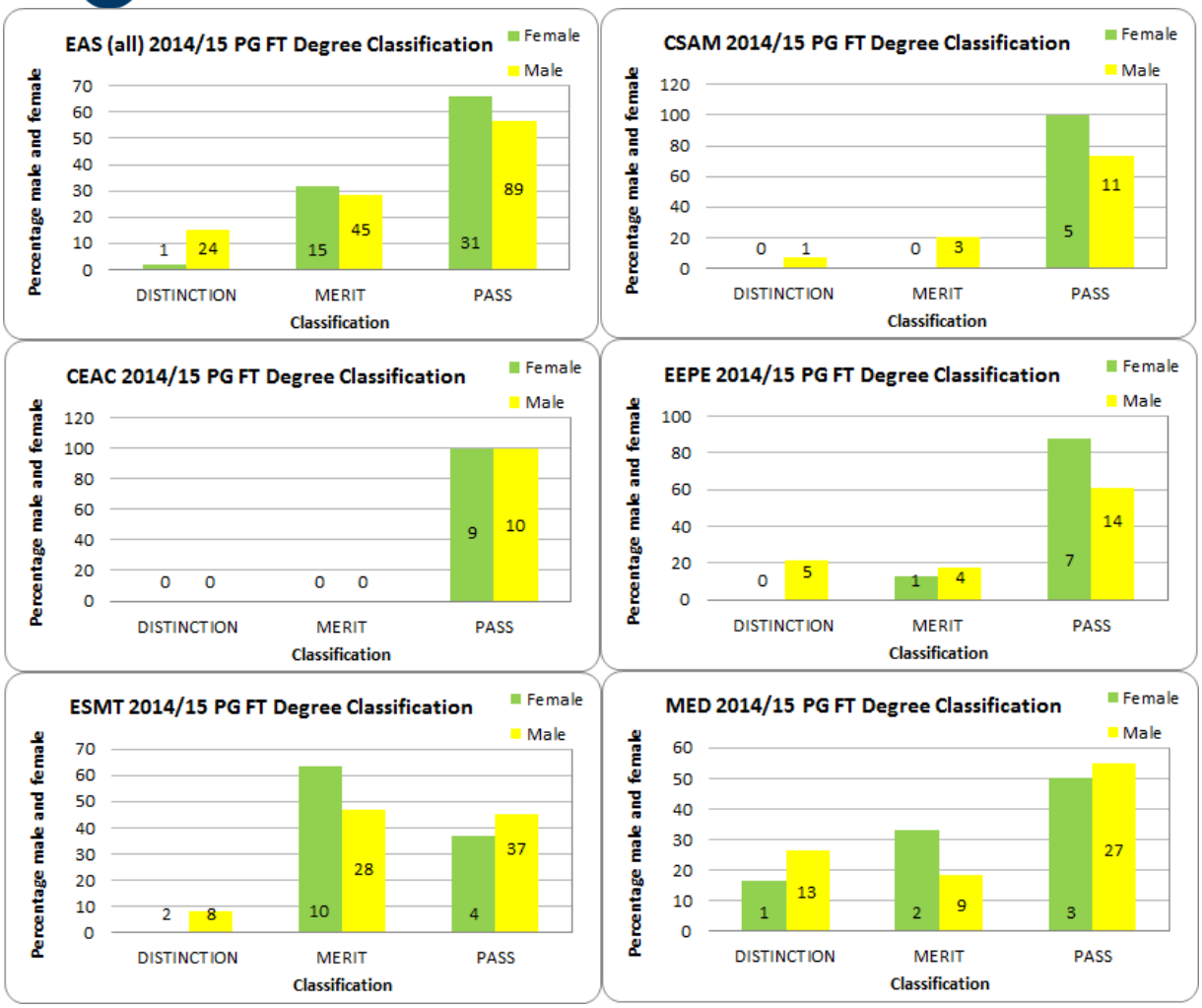


Figure 4.1.23: 2014-15 data showing percentages from each gender group achieving each classification within the academic groups. This shows all PG students, including both taught and research modes. In PGR the highest classification possible is PASS and so this data gives an overview only.

(v) Progression pipeline between undergraduate and postgraduate student levels

Progression between different classifications of degree level for academic years 2011/12-2015/16 is shown in Fig. 4.1.24-4.1.25.

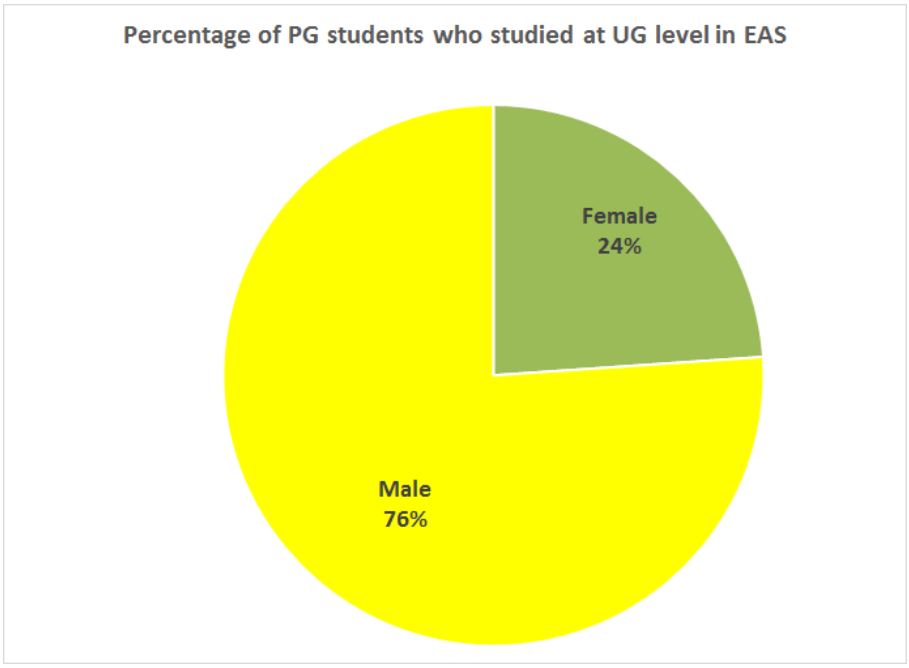


Figure 4.1.24: Chart to show the gender split of students who progressed from UG to PG at Aston University within EAS (46 students in total) taken from 2015/16 data as described above. If we split this down between PGT and PGR, we would see a small change with the female percentage being 25% and 23% respectively.

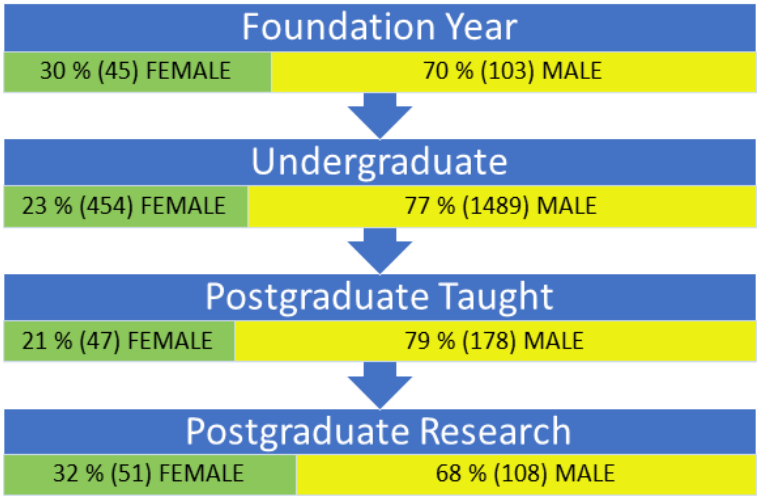


Figure 4.1.25: The progression pipeline shows the percentage of females of EAS (all) for 2014-15 enrolment period. The numbers show a promising increase from the UG percentage of females to the PGR numbers. This number includes students who previously studied at UG level at Aston, as well as students who have joined the pipeline later on from other institutions.

Additional Diversity Analysis

Ethnic diversity - Analysing data from students who answered "White" or in one of the BAME categories (Figures 4.1.26 and 4.1.27).

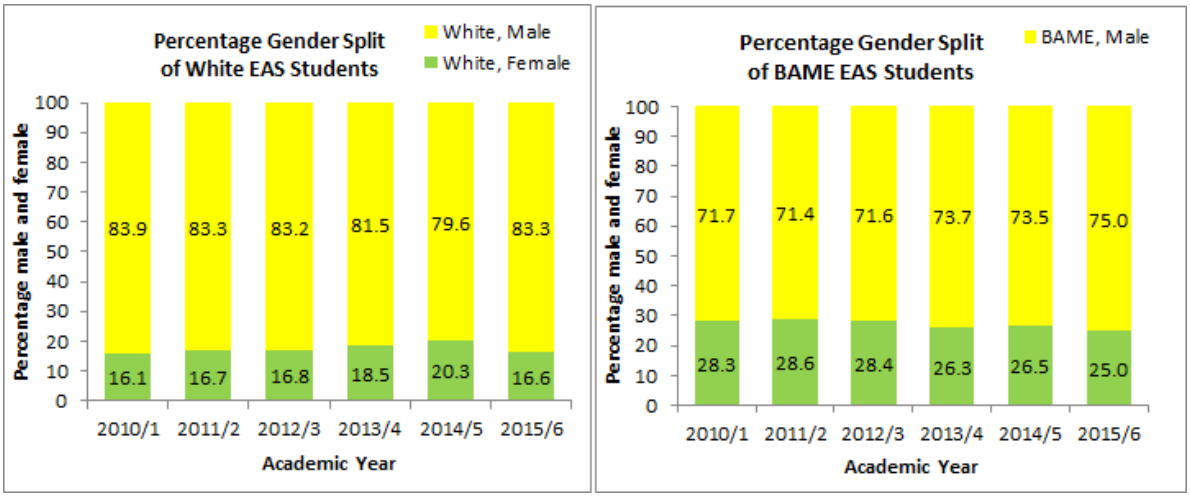


Figure 4.1.26: The charts show the percentage split between genders, with both the bar chart and number being the percentage for easy reading. If we split our ethnicity groups by gender, we have a smaller percentage of females in the white population, than we do in the BAME student population.

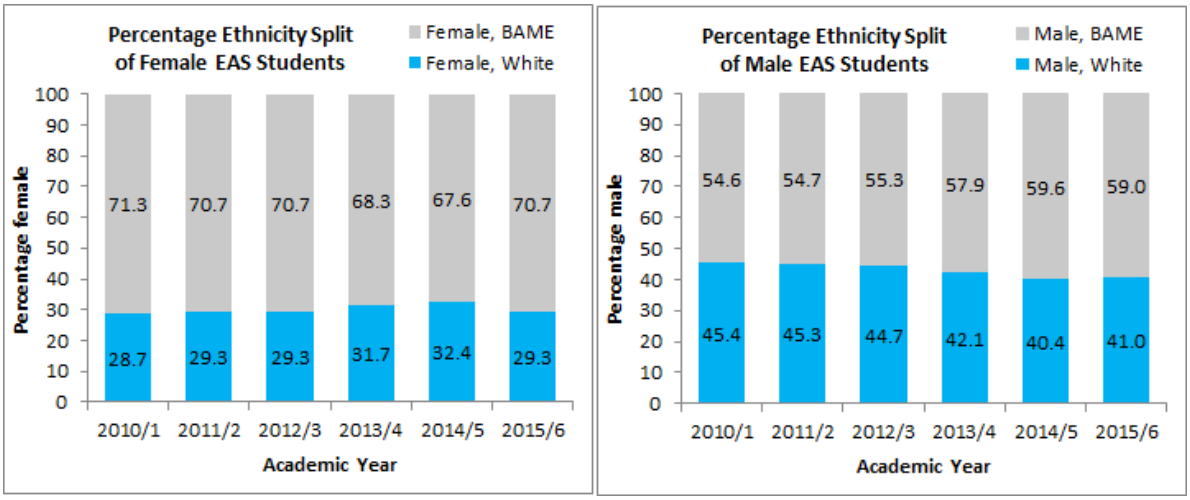


Figure 4.1.27: Ethnic diversity at Aston - There is a higher percentage of BAME students than white, in both the male and female populations. White male percentages have fallen over the last few years. (The charts show the percentage split between genders, with both the bar chart and number being the percentage).

Our large BAME student population may be due to the ethnic diversity of our local population where 42% of Birmingham residents describe their ethnicity as not White. Compared to other local Universities we are more diverse (Figure 4.1.28).

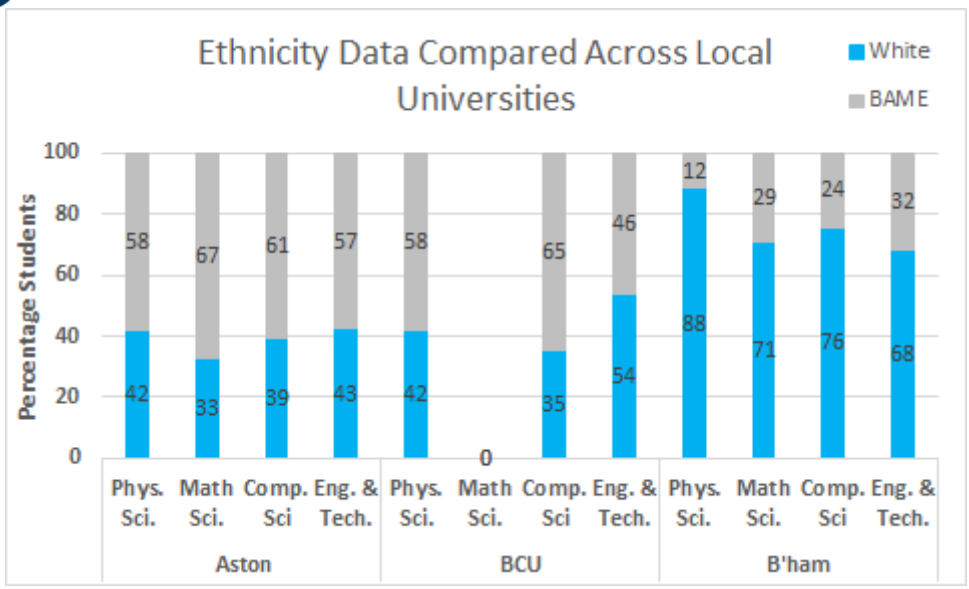


Figure 4.1.28: This comparator graph shows percentages of White and BAME students (both as the bar and the data label) across four major subject codes (which may cover many programmes) for Aston, BCU and the University of Birmingham. Our ratios are similar to those of BCU, but are very different from B'ham, with B'ham having majority White students.

Degree Apprenticeship (DA) programme

EAS is pioneering a part-time, work-based, computing DA programme with Industry partners. Fig 4.1.29-4.1.30 show the diversity characteristics of these participants against the 2 on-campus variants. This population of students - from backgrounds not historically familiar to University entry - is composed predominantly of white males. This data is newly available (Nov 2016). We will be working with Industry sponsors to analyse and identify future actions. **[A2.4]**

4.1.29 highlights the rich diversity in composition of the two well-established on-campus programmes, echoing the high-level view in 4.1.28.

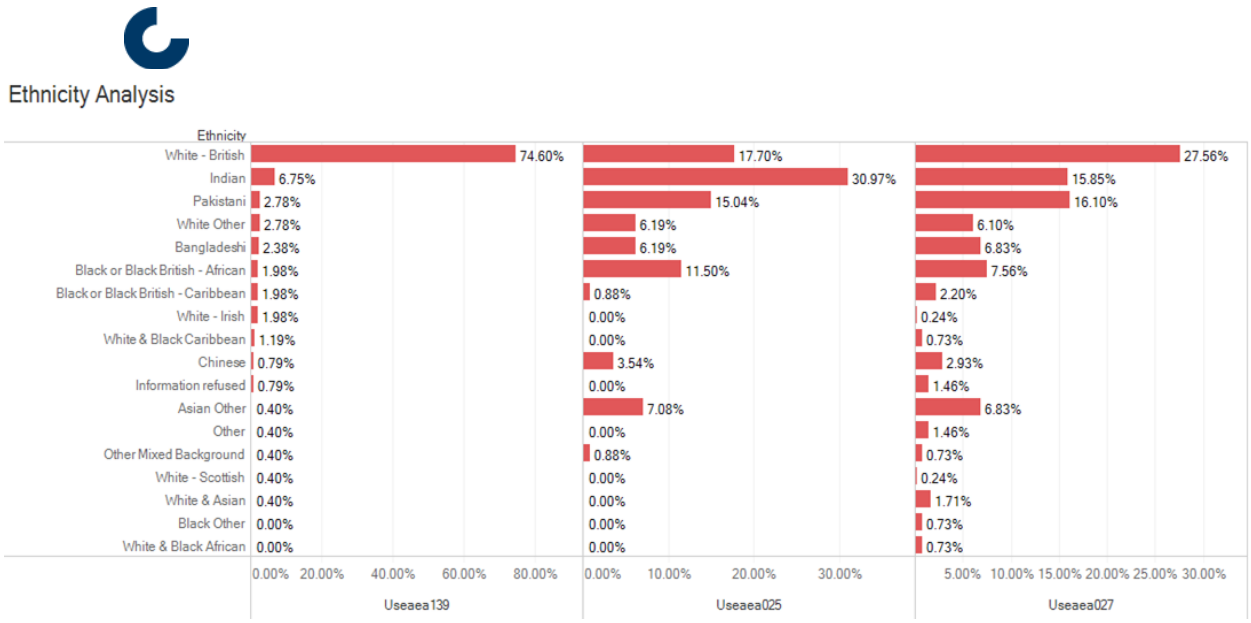


Figure 4.1.29: Ethnicity of DA programme BSc Digital and Technology Solutions (USEAEA139) versus on-campus BSc Computing for Business (USEAEA025) and BSc Computer Science (USEAEA027) programmes

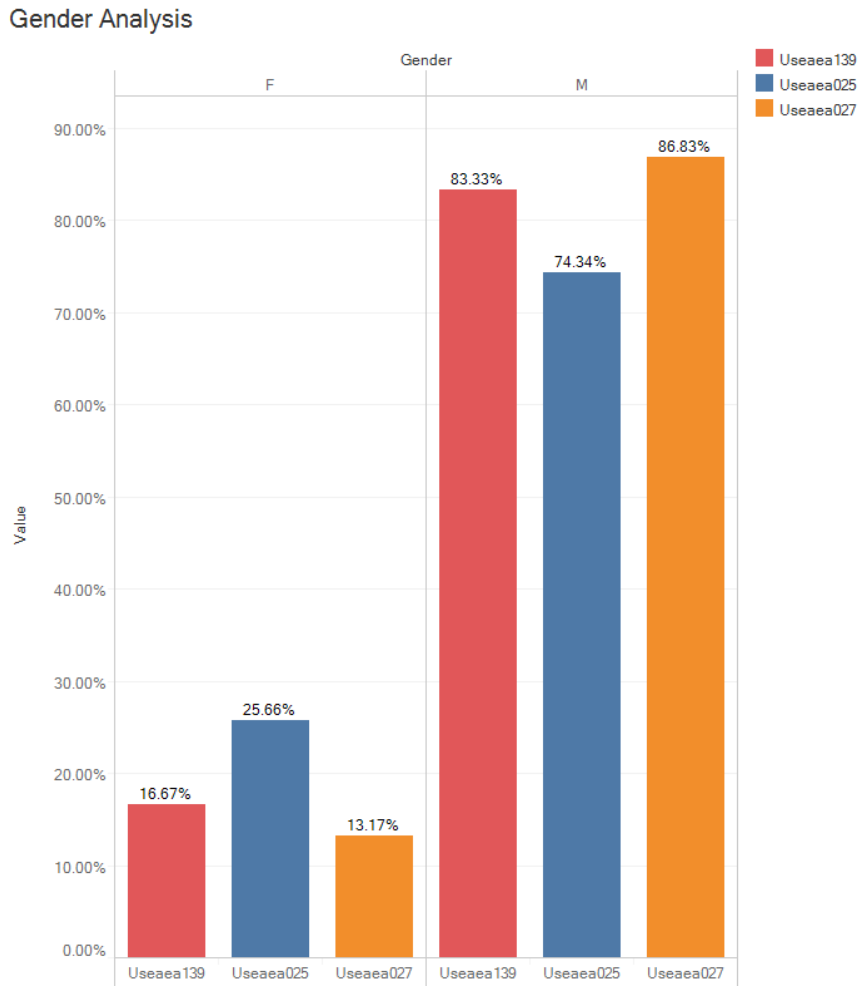


Figure 4.1.30: Gender Analysis for DA programme BSc Digital and Technology Solutions (USEAEA139) versus on-campus BSc Computing for Business (USEAEA025) and BSc Computer Science (USEAEA027) programmes

Further Analysis

EAS has a diverse population. A deeper understanding of that diversity would help us identify and address attraction and entry barriers related to gender, ethnicity, socio-economic background, previous study, entry points etc. This study is being commissioned but the existing data is complex, and much data is not readily available. **[A2.4]**

4.2. Academic and research staff data

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

While both male and female A&R staff numbers have increased, the overall proportions have remained relatively constant in the past three years.

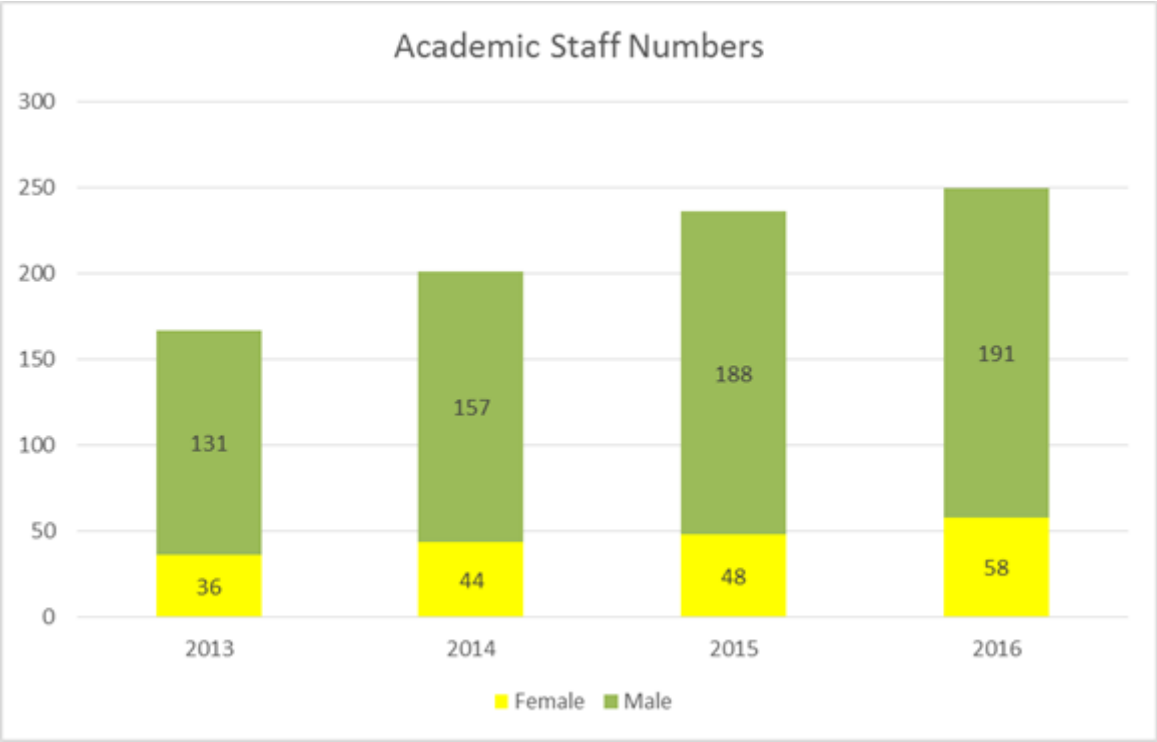


Figure 4.2.1 Staff Numbers in the Last 4 Years

Figure 4.2.2 shows female staff by job role, highlighting the increases in different types of female A&R staff. This increase is due in part to female academics valuing the work life balance and working environment available to them at Aston. For the research staff this reflects the number of appointees who come on fixed-term contracts to do Research Fellowships before moving on to other institutions as part of their career development or by taking advantage of opportunities for career progression within Aston.

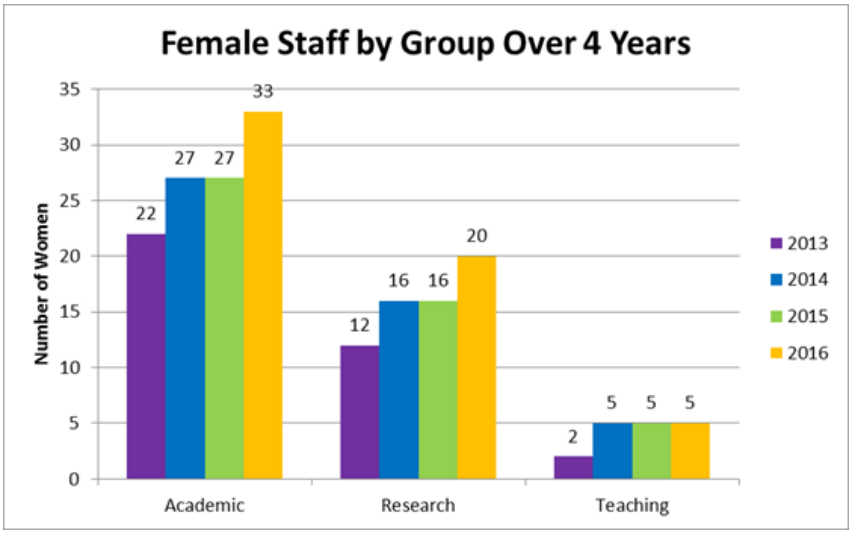


Figure 4.2.2 Female Staff Numbers in the Last 4 Years

Figure 4.2.3 highlights the different areas of job role available to academic and research staff and the fact that the M:F staff by job role shows similar relative percentages over the four year period.

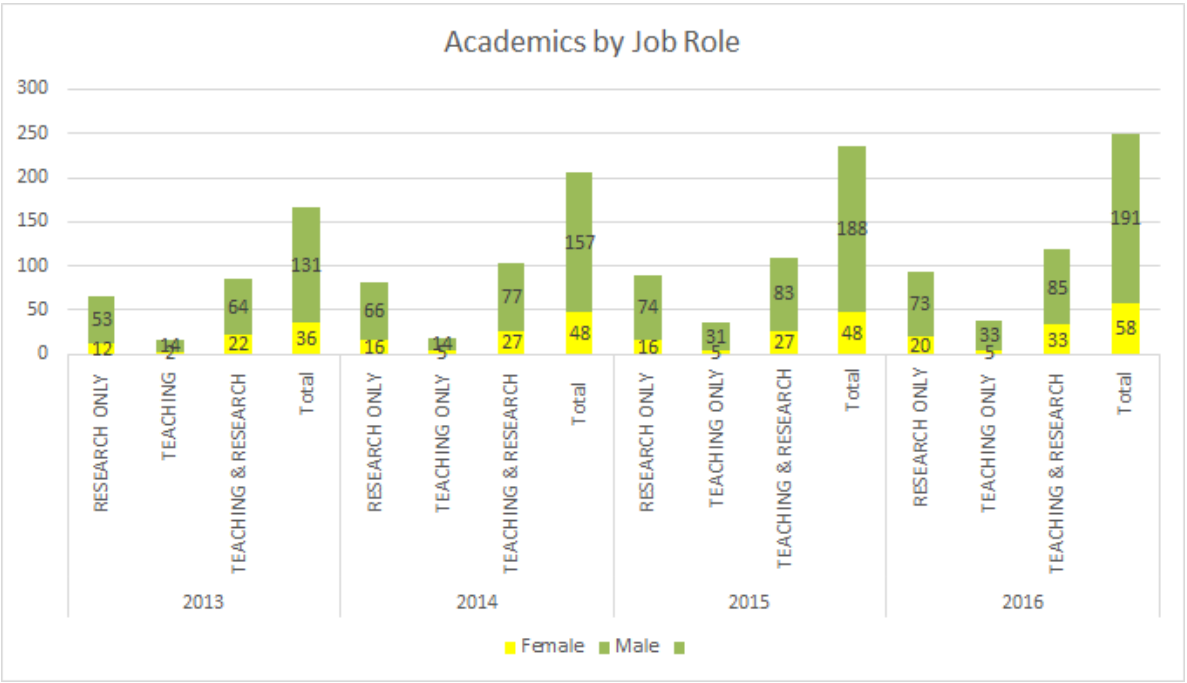


Figure 4.2.3 Academic Staff by Job Role

A similar profile is seen in figure 4.2.4 for both FT versus PT and across job grades even though there has been an increase in both the number of FT and PT female employees and the employee grade which is accounted for by an increase in staff numbers overall. The academic and research staff tend to more FT than PT roles despite the flexible working arrangements due to the nature of the roles. The F:M is reflected by the research areas but more female are becoming involved in more traditionally male dominated areas as the proportion of females doing both undergraduate and postgraduate research increases.

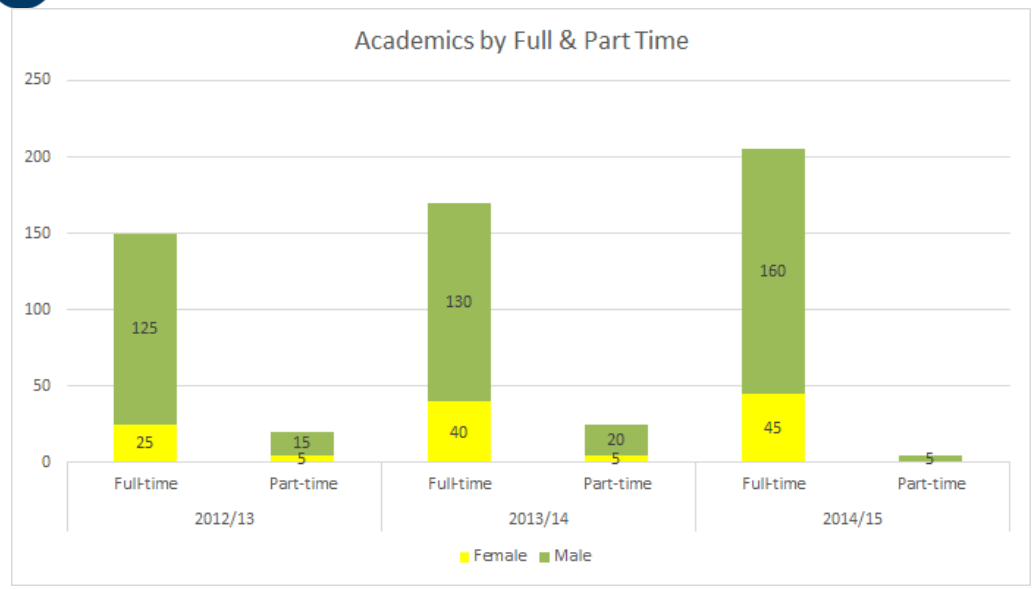


Figure 4.2.4 Academic and Research Staff Full vs Part Time

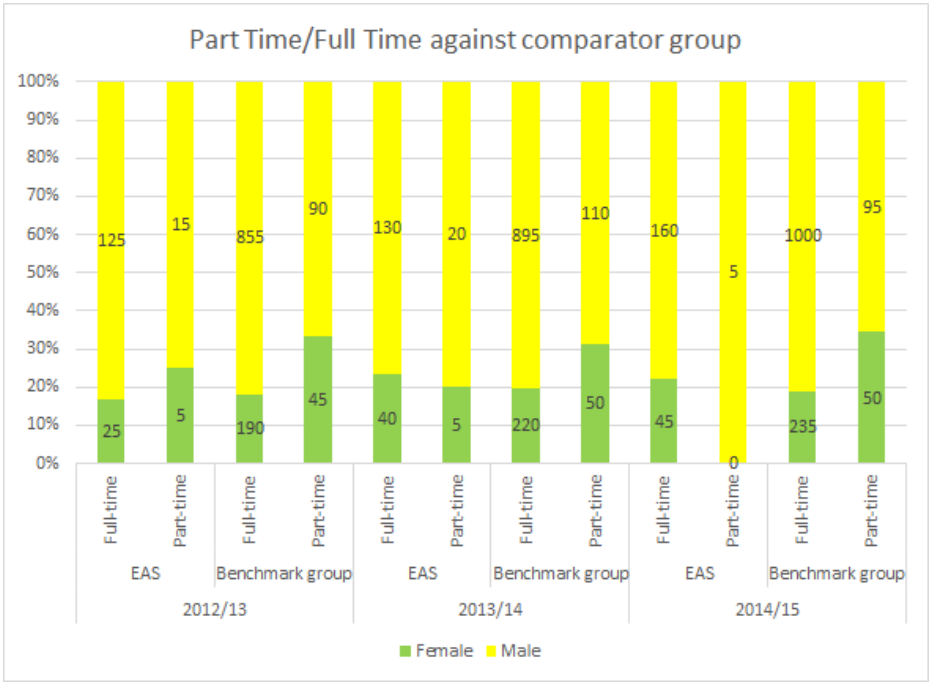


Figure 4.2.5 Academic Staff vs Benchmark Comparator

HEIDI Plus gender data shows (Figure 4.2.5) EAS has fewer PT females than in the comparator group. The overall F:M in full time employment are similar for EAS and the benchmark comparator. We feel this is a reflection of the success of our flexible working arrangements.

Figure 4.2.6. shows a small increase in the numbers of female staff at higher grades during the four year period. The majority of research-only staff are on fixed-term contracts and although career support is provided, promotion between grades is usually limited to the anniversary of appointment scale/grade increases.

Different routes for academic promotion (5.2) are providing opportunities to support career progression (5.1.iii)

The grades of the academics reflect the role and type of fixed-term appointments. The grades are centred around 7-10 with Bands 01/02 for Professors. The proportion of PT staff are small; four in the cohort for 2013 (two female); six in 2014 (one female); five in 2015 (one female) and two in 2016 (one female).

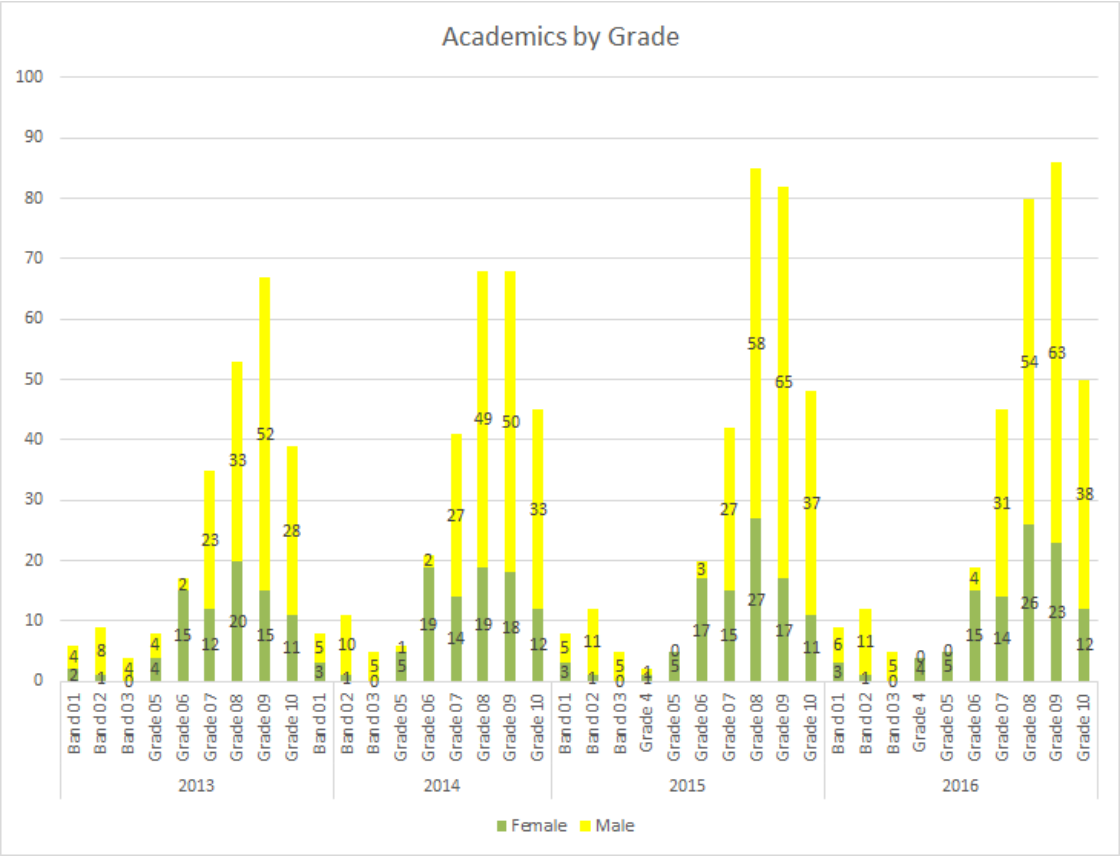


Figure 4.2.6 Academic and Research Staff by Grade

Professional Support and Technical Staff

Across PST staff, gender balance has remained largely unchanged over the last 4 years, with more female than male staff at approximately 60-64% (figure 4.2.7). When subgroups are considered we see large differences. PS staff is predominantly female (77%), remaining constant over the last 4 years. Within technical staff we see the opposite - 75% male. In 2013, EAS had 2 female technical staff, and this has grown to 5 in 2016. We are attracting more females into these roles which is a positive step; EAS policies requiring diversity in shortlisting and interview panels support this growth.

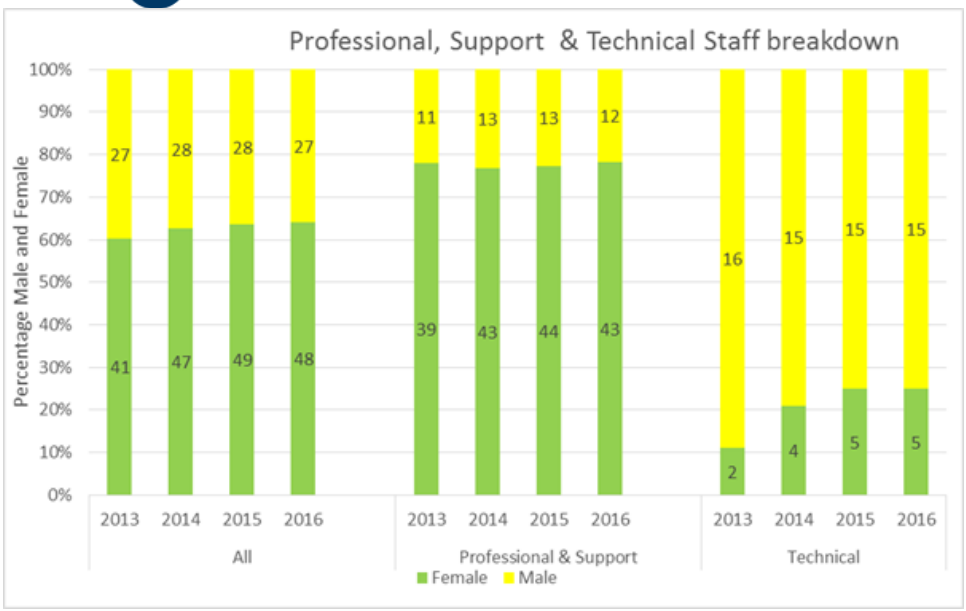


Figure 4.2.7 Gender breakdown for Professional Support and Technical Staff

The HEIDI Plus comparison data (figure 4.2.8) shows that EAS has a higher percentage of female members of staff.

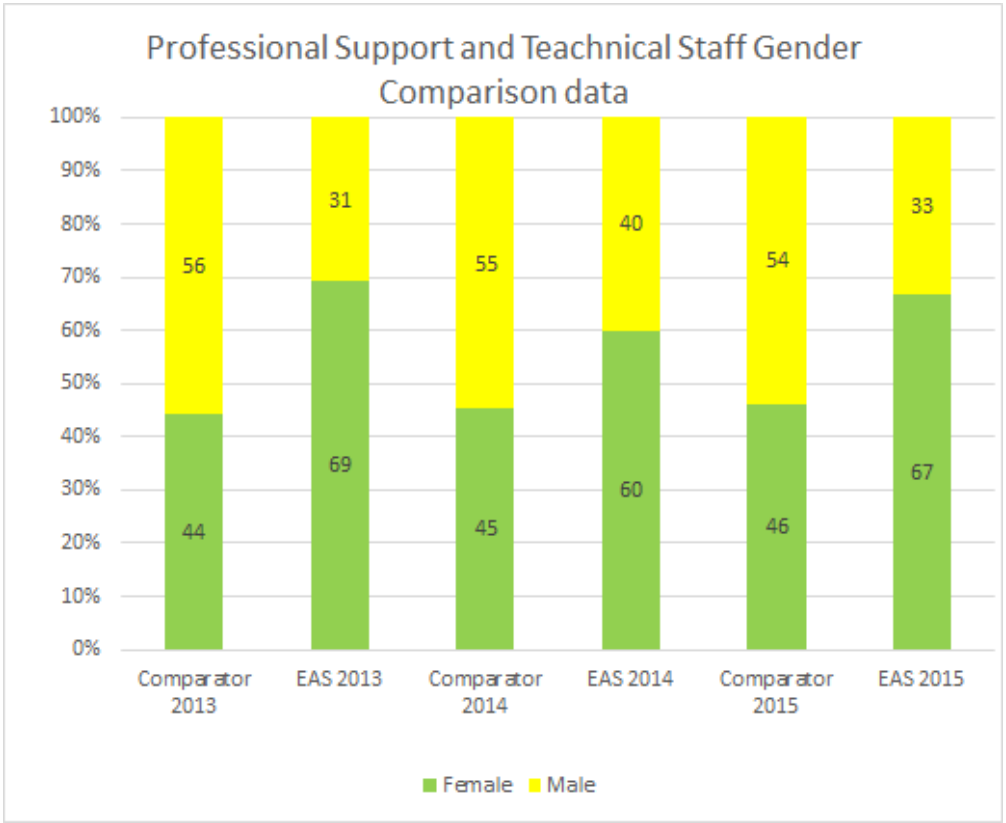


Figure 4.2.8 Comparator Data for PST Staff

PST Staff - Part-time/Full-time Breakdown

Figures 4.2.9-10 show that there are proportionally more females in PT positions than FT. Over the last 4 years this position has remained relatively stable throughout.

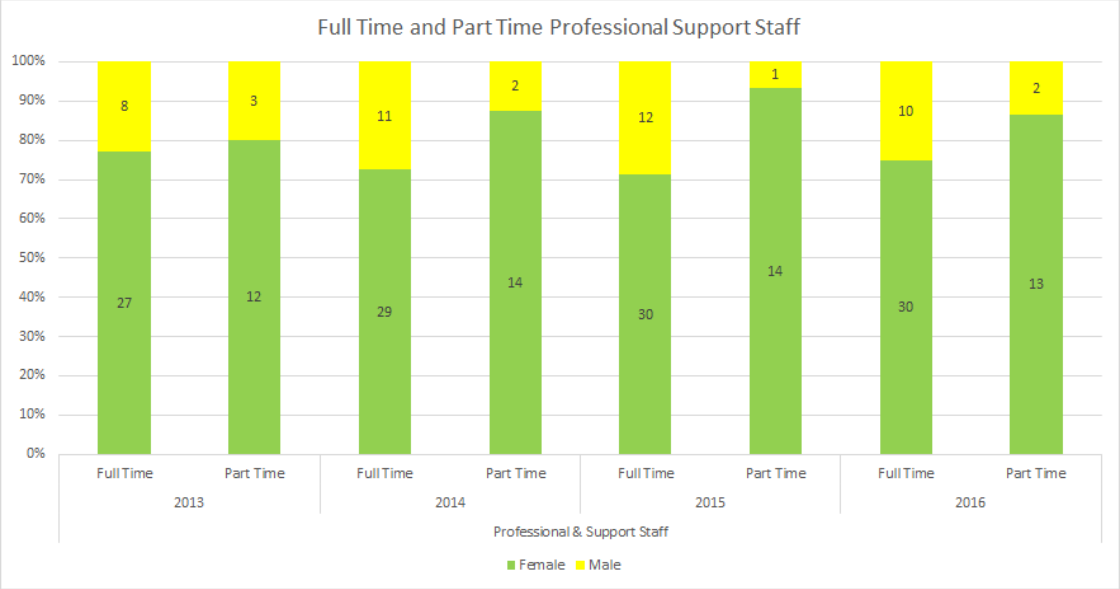


Figure 4.2.9 PS Staff Part-time/Full-time Breakdown

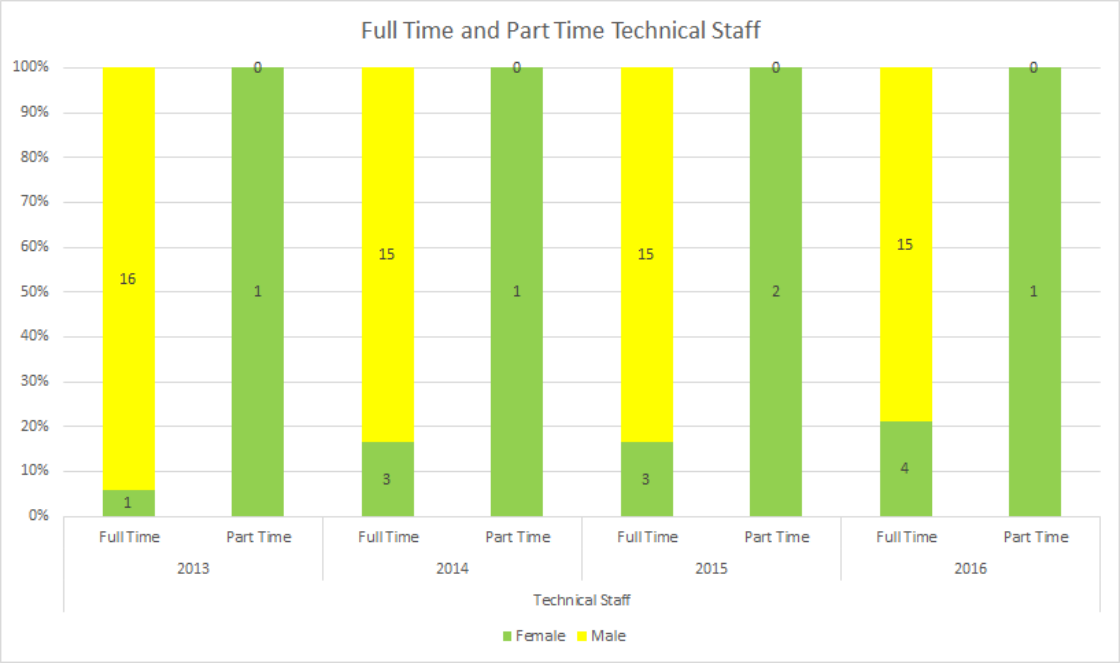


Figure 4.2.10 Technical Staff full-time part-time breakdown

(ii) Transition of technical staff to academic roles.

EAS actively supports the transition of technical staff to academic roles where appropriate and possible.

In March 2014, two members of technical staff transferred onto Teaching Fellow contracts (i.e. A&R) as a consequence of the new regrading process for PS staff, recognising their teaching activities.

Another member of technical staff is studying for a Postgraduate Certificate in Learning & Teaching, to enhance and support their undergraduate teaching.

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

As in most institutions, some research staff hold fixed-term appointments for the duration of a grant from funders (eg EU, Marie Curie, RCUK). They are mentored and supported as ECRs to apply for longer term grants demonstrating their capacity as independent researchers. Some may gain permanent lectureships at Aston. The relative proportions of female and male staff on permanent and fixed-term contracts have remained unchanged in the last four years, figure 4.2.11.

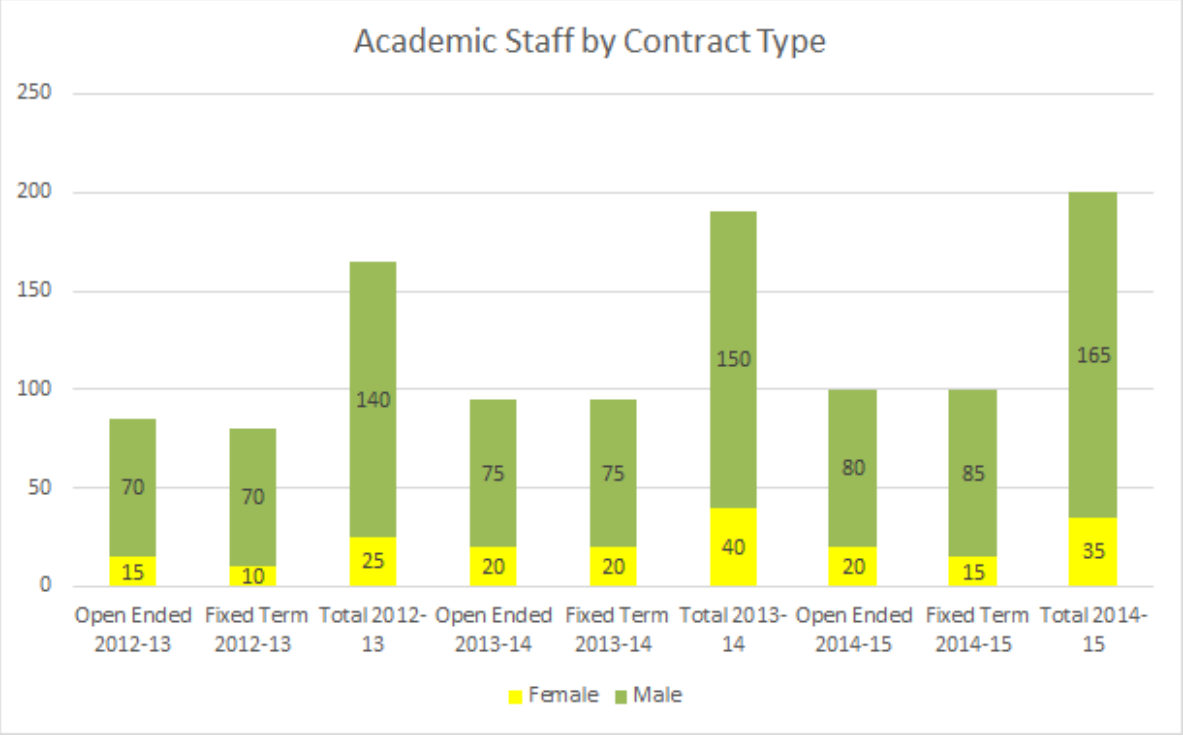
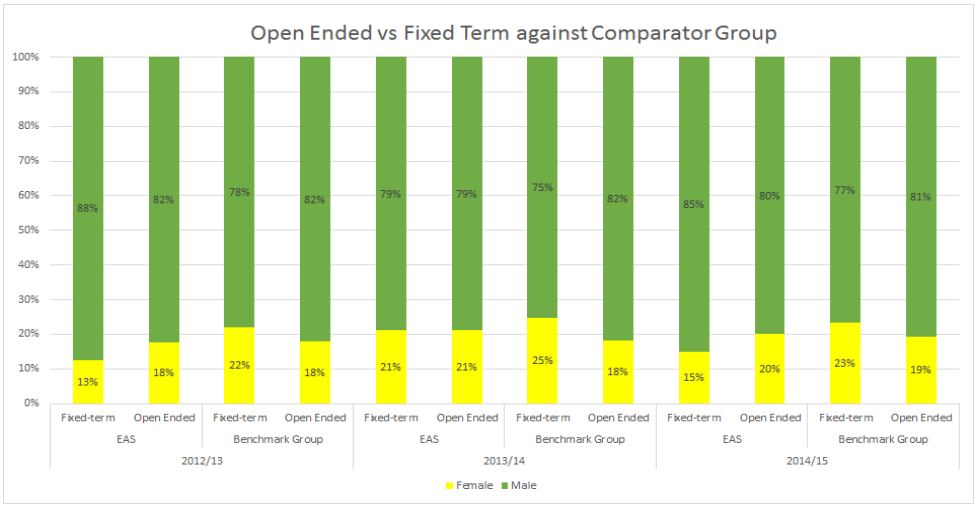


Figure 4.2.11 Academic Staff by Employment Contract

Following probation, academic staff are usually on permanent contracts. When desired, fixed-term contracts can be continued; EAS offers "bridging funding" when contracts do not follow consecutively. A few research staff with specialist expertise (without teaching responsibilities) have been enabled to continue their careers at Aston; e.g., Dr Virginia Saez Martinez and Dr Fiona Lydon in CEAC.



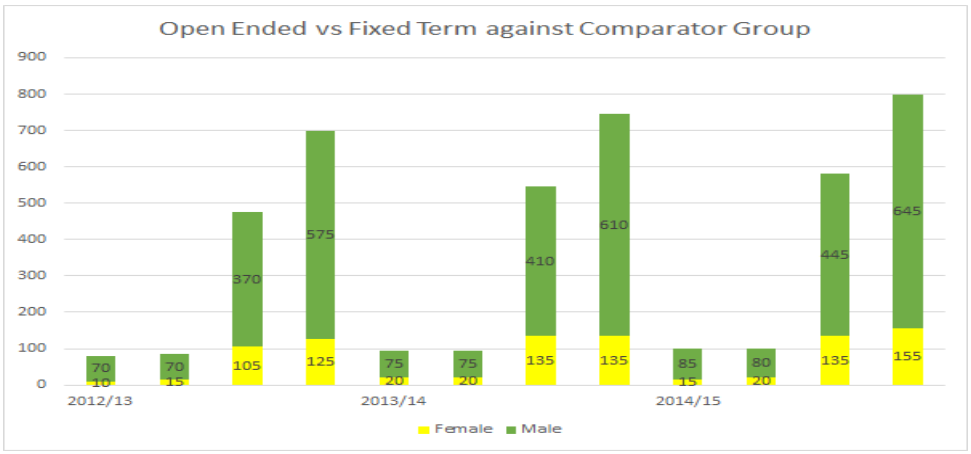


Figure 4.2.12 Open-Ended/Fixed-Term Academic Staff versus Comparator Group

HEIDI Plus gender data (Figure 4.2.12) shows EAS having a lower number of females in fixed-term contract than the competitor group, whereas the open-ended (permanent) shows a similar profile as the FT/PT profiles. The use of open-ended contracts linked to funding to enable continuity of research staff is as described above.

PST Staff

Figure 4.2.13 shows there is a high F:M ratio (over 70%) at grade 5 and 6. This disparity reduces with higher grades; e.g., grades (7,8) where F:M is 55%-65%. At the high managerial/senior grades there are proportionately more males than females in senior positions, with 20% female at grade 9 and 33% female at grade 10. With so few high grade positions, a single individual has a big impact on ratios. To explore this further we have broken down the data into the two sub groups of PS (figure 4.2.14), and Technical staff (figure 4.2.15).

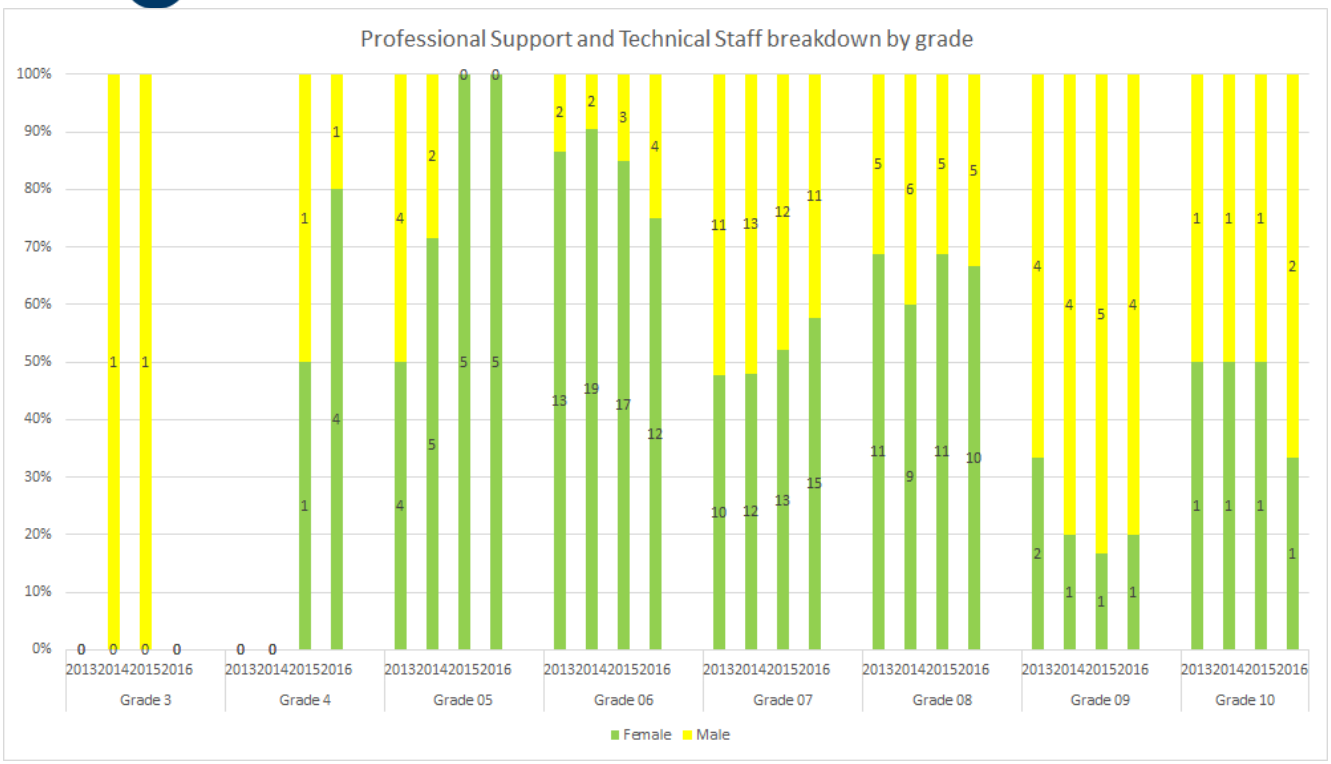


Figure 4.2.13 PST staff breakdown by grade

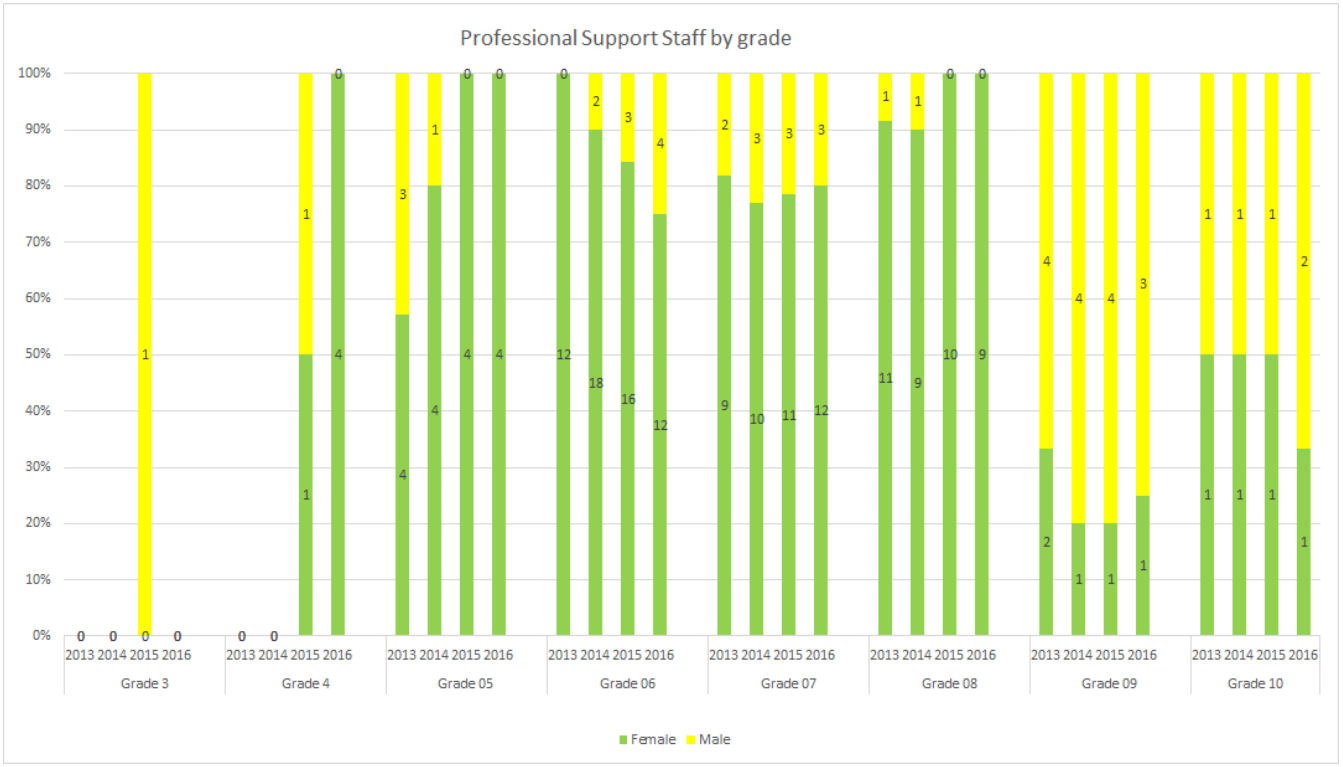


Figure 4.2.14 PS Staff by Grade

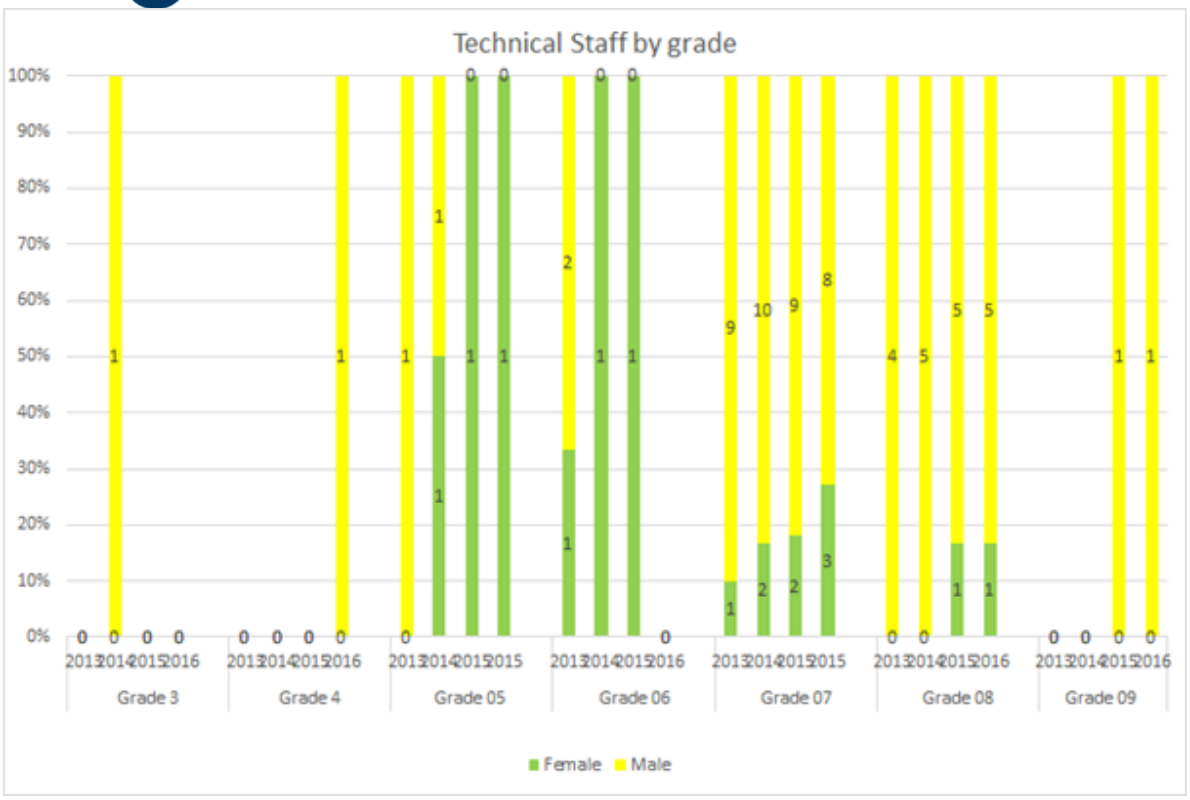


Figure 4.2.15 Technical Staff by Grade

Female PS Staff dominate at grade 6, 7 and 8, reflecting traditional female presence in secretarial, clerical and specialist office support. Steps have been taken to encourage and support female PS staff to progress to more senior positions (grade 9 and 10), e.g. training, development and promotion, see 5.2.ii and 5.3.ii. [A4.6]

There are few Technical staff at grade 6 and below but there has been a marked increase in the number of women - from 1 to 3 at grade 7 and for the first time one female at grade 8. School recruitment policy requiring female interview and shortlist panel membership may have contributed here.

Figure 4.2.16 shows that among PST staff the gender balance for permanent term contracts has remained largely unchanged over the last 4 years at approximately 60% female, 40% male. There is an increase in the number of females in fixed-term contracts from 65% in 2014 to 85% in 2016 but there is an overall reduction on the staff on these contracts.

Figure 4.2.17 splits this data between PS and T. There is an increase in the number of males amongst the PS staff over the last three years, and an increase in the number of female fixed-term staff. For Technical staff there is a slight increase in the number of female permanent technical staff.

For many on fixed-term contracts, there has been a rigorous consultation process in place with both HR and Managers, prior to contract end. These opportunities have been across the University, with any vacant positions being made available to re-deployees in the first instance, as part of the University policy. This has ensured continuity of employment for both male and female members of staff.

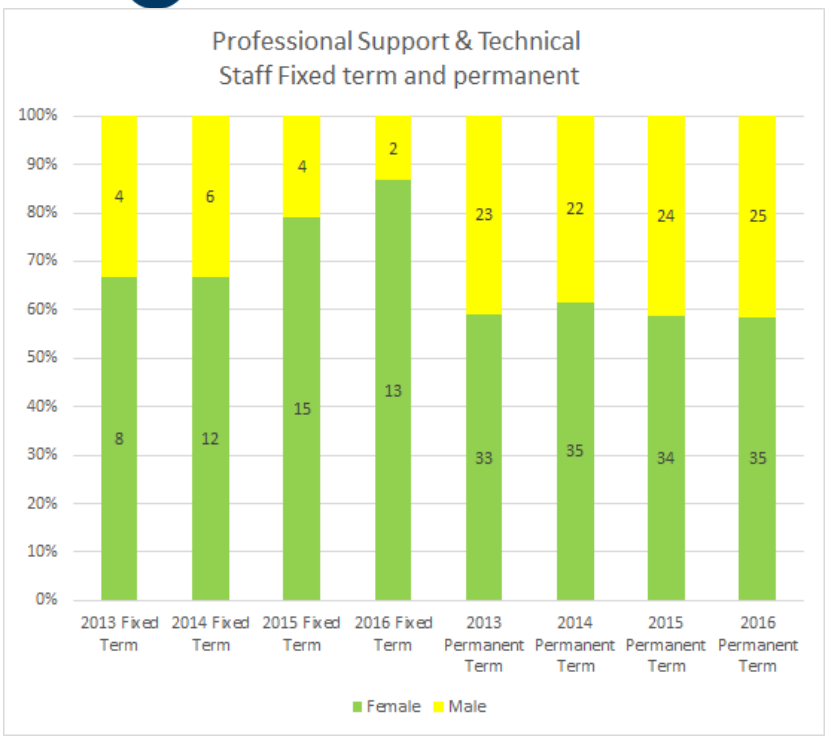


Figure 4.2.16 PST Staff by Fixed-term/Permanent breakdown

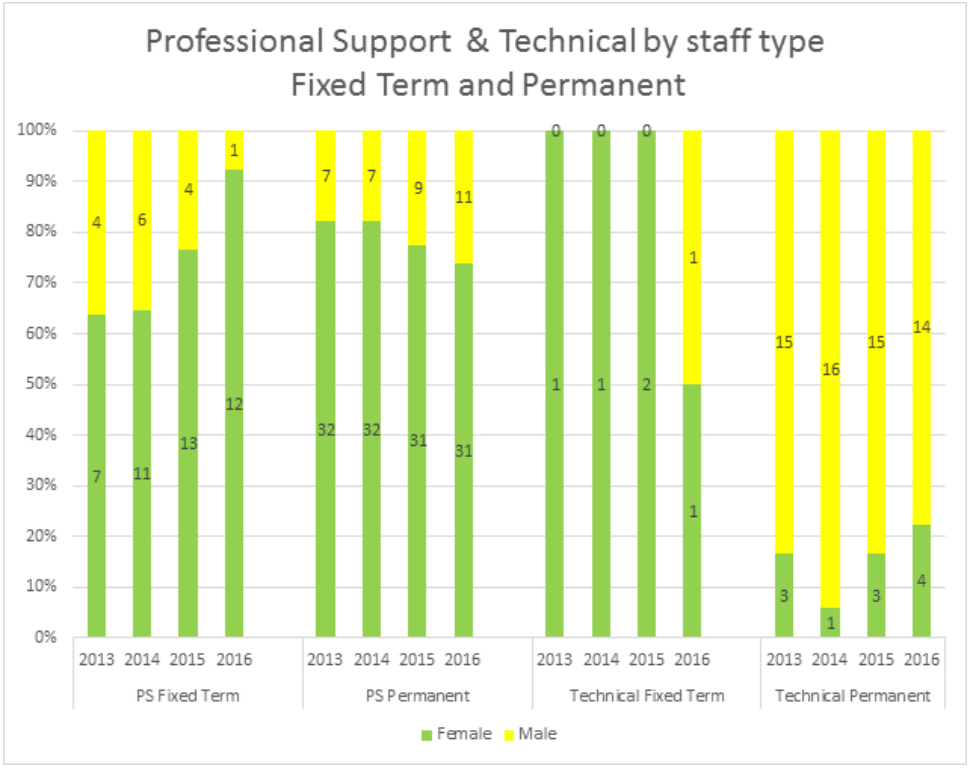


Figure 4.2.17 PS and Technical Staff by Fixed-term/Permanent breakdown

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

A&R leavers are primarily due to retirement, or promotion at another academic institution. The latter is a loss for EAS, but a positive step for individuals. A secondary factor is geographical location and family concerns.

Data on leavers (summarised in figure 4.2.18) is incomplete - since staff may not wish to disclose their reasons for moving and for others it is not a priority. This data recording improvement is an area for improvement. **[A4.7]**

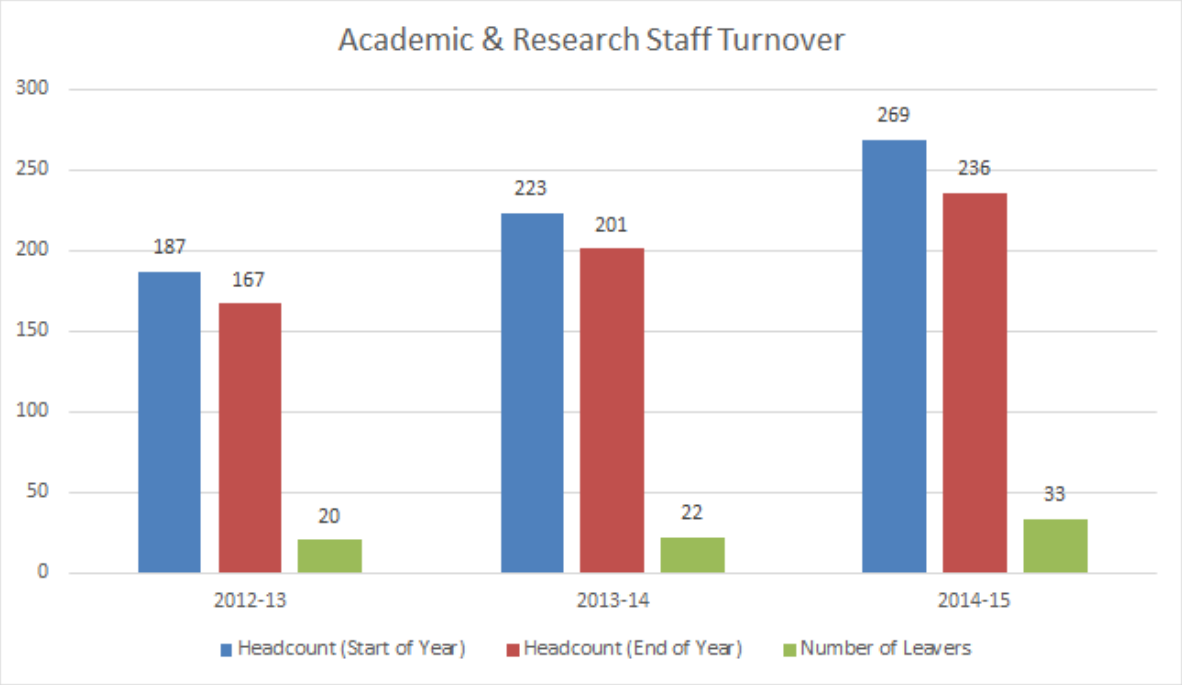


Figure 4.2.18 Academic Staff Turnover

Figure 4.2.19 splits the data by gender and role and shows:

- 2013-14 - no female academic leavers and no male teaching-only leavers.
- 2014-15 - no female academic leavers in teaching-only roles
- 2015-16 - no female leavers in teaching & research roles.

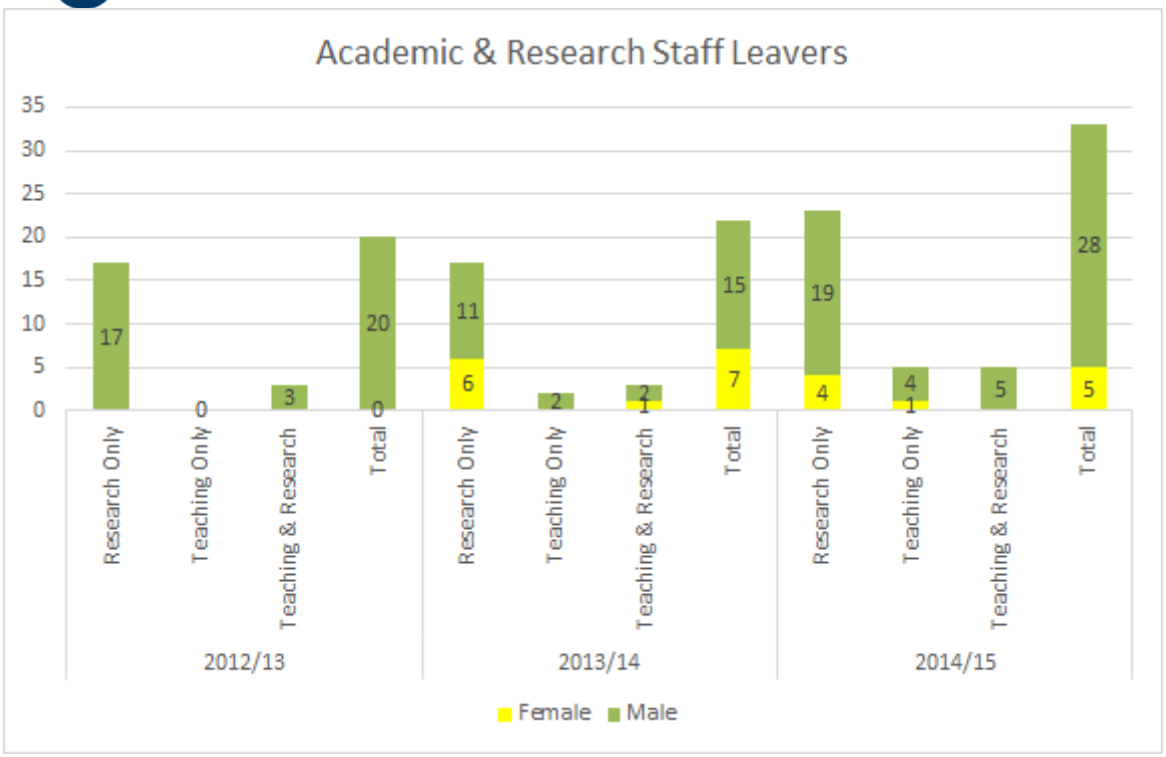


Figure 4.2.19 Academic Staff Leavers by Job Role

Across PST staff, turnover (figure 4.2.20) remains fairly constant with female turnover being slightly higher than male, reflecting the proportions. The small peak in 2015 was due to:

1) A large project was completed in EBRI. 9 PST staff were placed at risk, but 7 were redeployed to other roles within EAS or University.

2) The retirement of two male technical staff.

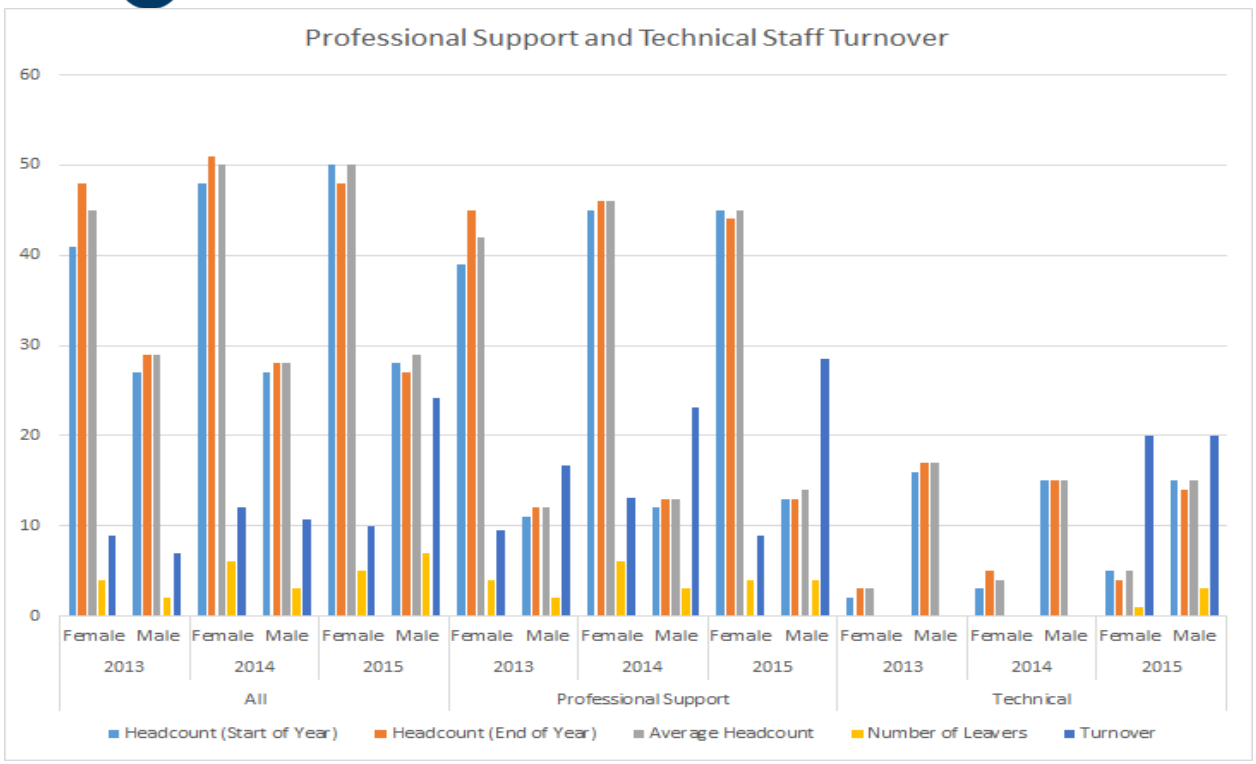


Figure 4.2.20 Turnover statistics for PST Staff

Figure 4.2.21 shows there has been an increase in proportion of BAME employees, with the current proportion being 26%. The A&R BAME percentage is comparatively high. Figure 4.2.21 shows that Aston fares well against the benchmark group although we will still work to increase BAME staff numbers.

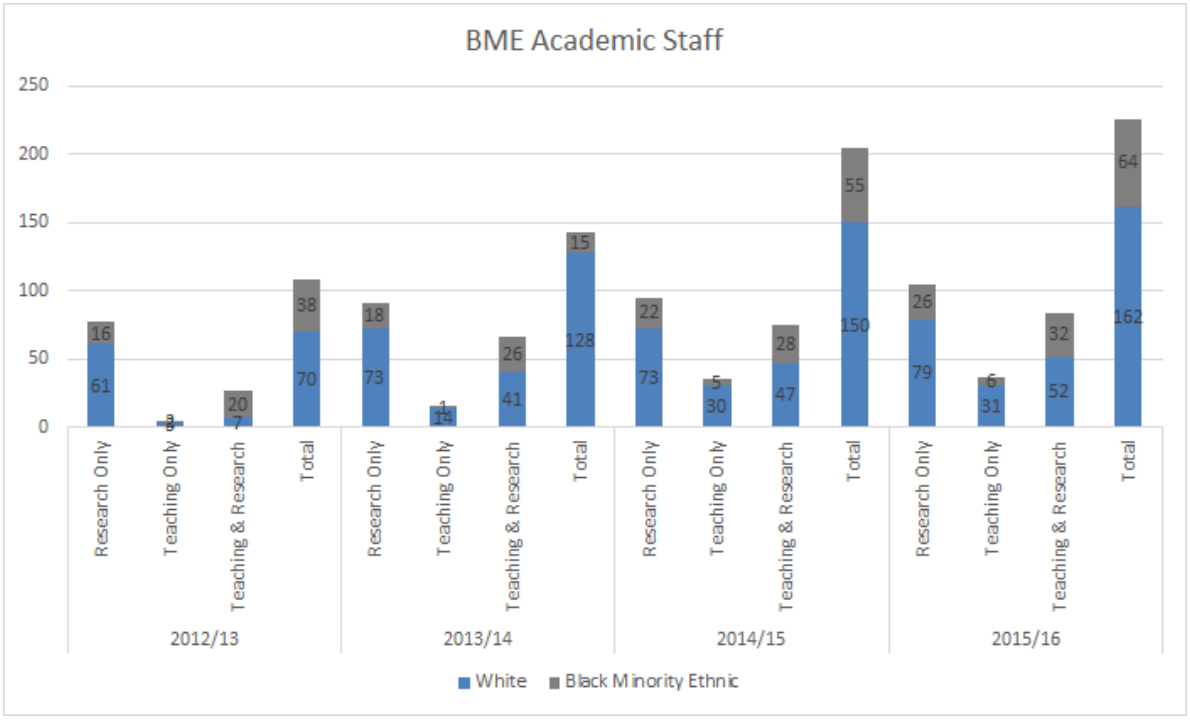


Figure 4.2.21 Academic and Research Staff by Role and BAME

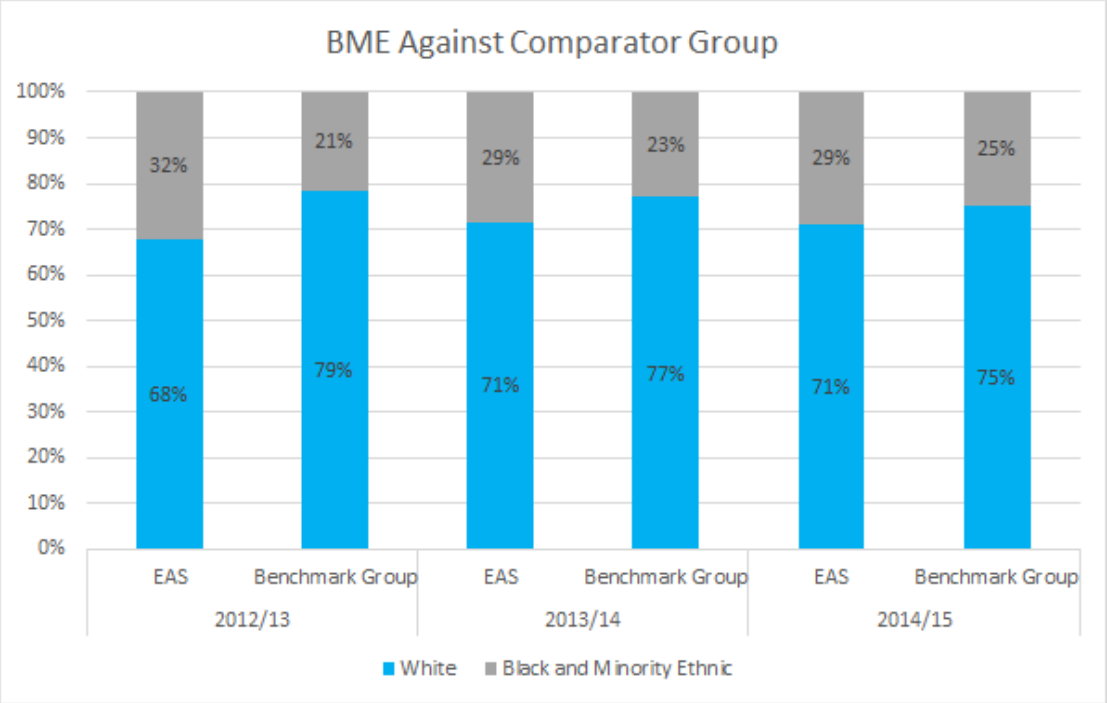


Figure 4.2.22 Academic and Research Staff BAME vs Benchmark Comparator

4.2 BAME PST Staff

Figure 4.2.23 shows the percentage of BAME PST staff has increased over the last 4 years from 21 % to 28%. The PS BAME ratio has remained largely unchanged so the increase is mainly due to an increase in BAME staff in Technical roles.

Overall EAS has 20% BAME PST Staff, with the comparator group at 9.4% (HEIDI data).

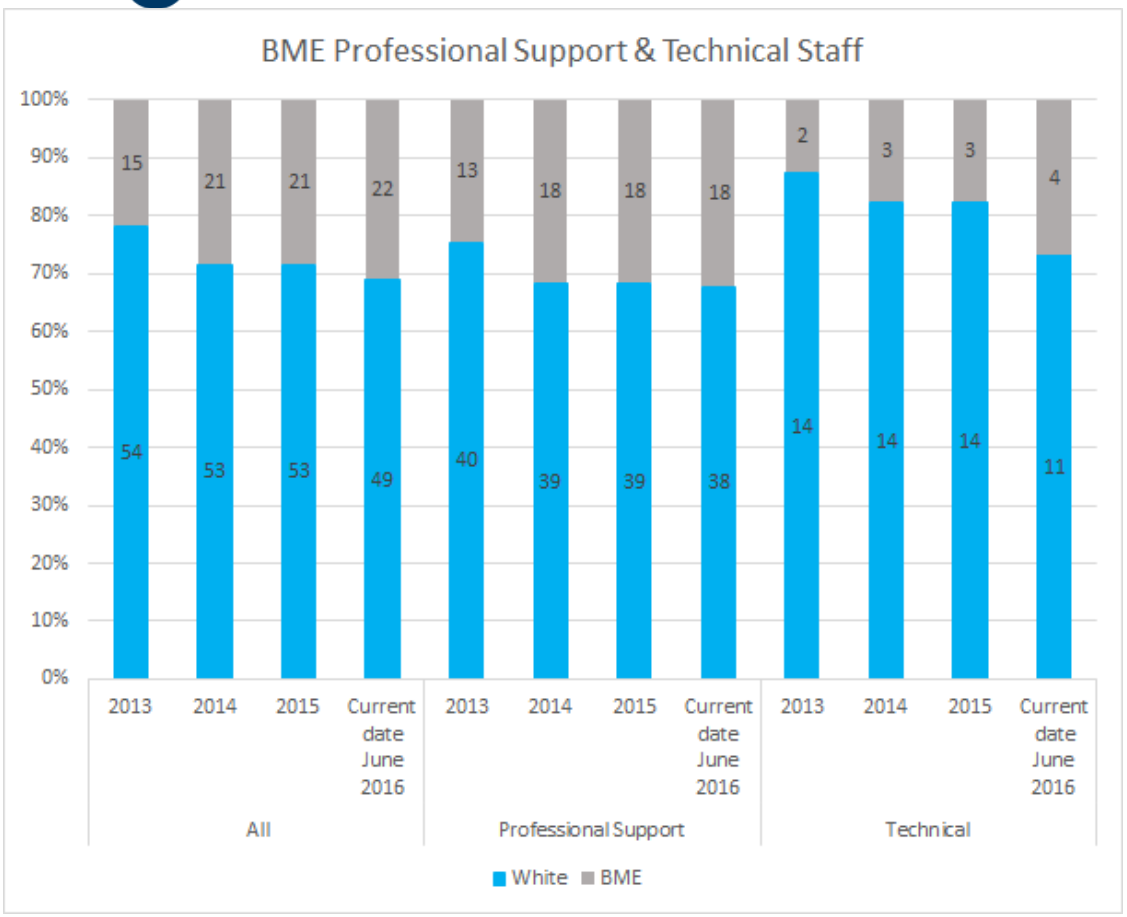


Figure 4.2.23 – BME Professional Support and Technical staff (not by grade owing to small numbers)

[Section 4. WORD COUNT = 2576]

5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

5.1. Key career transition points: academic staff

(i) Recruitment (Academic Staff)

The positive impact of EAS recruitment policies is evident in Fig 5.1.1. Males dominate the application pool with a roughly 4:1 ratio. Nevertheless, policies for shortlisting and interview panel compositions, and for unconscious bias training, are helping ensure that women are shortlisted at the same rate as men; and that women are offered positions at a slightly higher rate than men. Policies supporting work-life balance encourage women to accept offers made (100% of offers accepted).

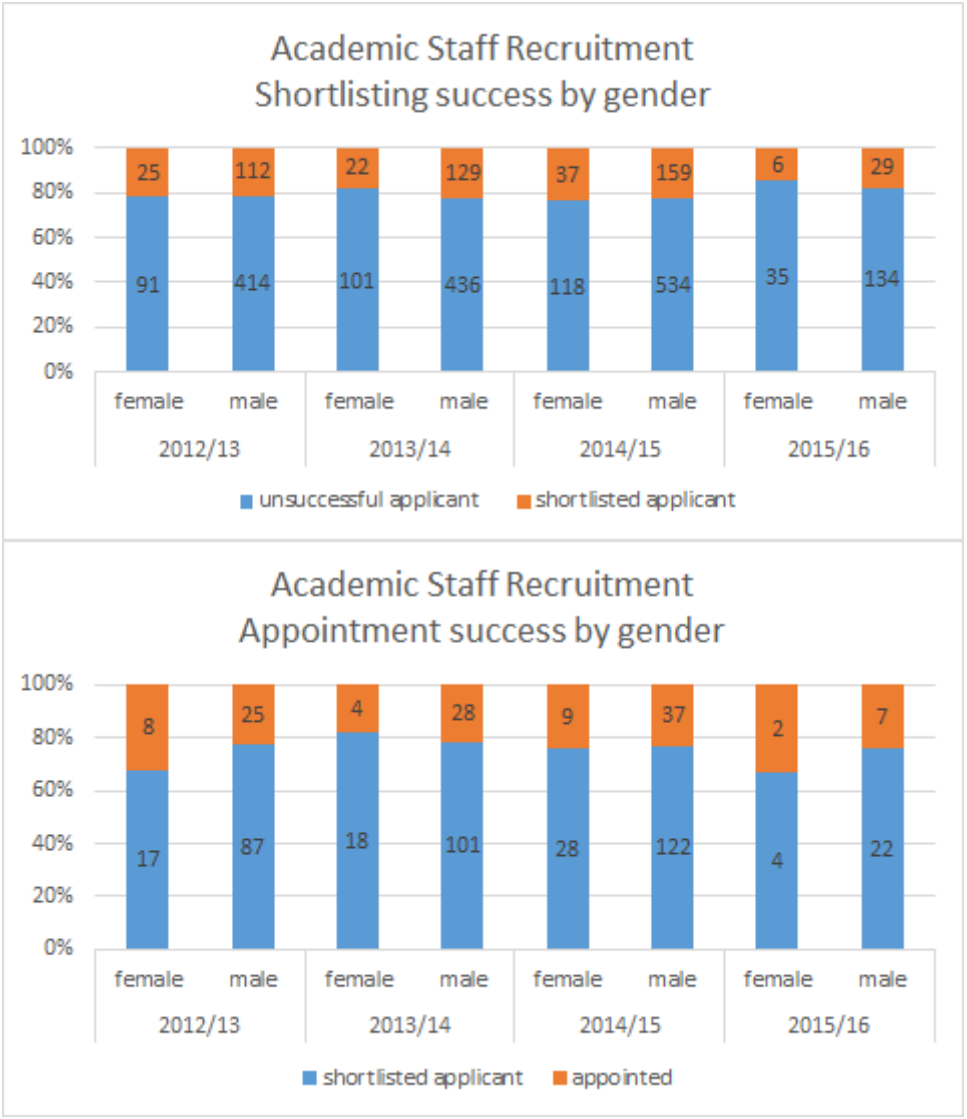


Figure 5.1.1 Academic Staff Recruitment. (Absolute numbers provided as data labels.)

Recruitment material states University commitment to equal opportunities in employment. All job descriptions are written in non-discriminatory language; clearly identify job duties include a person specification outlining educational qualifications, skills, work experience and personal attributes necessary for satisfactory job performance.

There is a comprehensive programme of Equality Training for University staff and all staff are required to attend the Introduction to Aston Programme which includes a session on Equal Opportunities. All staff involved in recruitment must be familiar with the Recruitment and Selection Good Practice Guidelines and should undertake recruitment and selection skills training to ensure interviewers are aware of appropriate non-discriminatory questioning procedures and wherever possible panels will be balanced to address diversity.

*** 2 Case Studies removed for web-site publication 03/05/17

(ii) Induction (Academic Staff)

EAS follows the University and School policies including completion of a "checklist". Induction includes:

- meetings with their manager
- introduction to an independent "induction buddy"
- introduction to local operational procedures, office, labs and facilities
- appropriate health and safety training
- informal meetings with key staff and technical support are all phased at appropriate intervals
- New staff are invited to lunch with the Vice-Chancellor and Executive - many staff in focus group discussions expressed their appreciation for this as an occasion to meet senior Aston staff and other new starters.

They are introduced to their specific role and activities, following the PDR framework (5.3.ii). Induction is an effective way of integrating staff, informing them about policies and facilities, and an opportunity to introduce organisational values and culture.

A recent large lecturer intake highlighted existing processes as variable and lacking some rigour. A new PDR introduction and support session shared best practice and importance of PDR to career development and promotion. Further refinements include a new induction handbook. These improvements are being disseminated in the School, and University. **[A4.1, A4.2, A5.1]**

(iii) Promotion (Academic Staff)

For promotion purposes Aston recognises excellence in three aspects of academic work. Excellence in research, is demonstrated through peer-reviewed outputs, research grant awards, and academic esteem indicators appropriate to the promotion grade sought. The more recently introduced learning & teaching route requires excellent teaching, plus significant innovations in programme content and delivery techniques with national impact for promotion to the more senior levels. Five EAS staff have been promoted using this important new route including one to professor level. A third route recognises outreach and wider engagement, though at present no staff members have been promoted on this track exclusively.

Figures 5.1.2-5.1.3 shows promotion activity. Eligibility counts all staff at the level immediately below the target promotion level. Outcomes are similar for female and males with 60-70% successful. The percentage of the population varies each year; largely due to small numbers.

We recognise that female staff may be more self-critical and less likely to put themselves forward. Mentoring and coaching plus leadership programmes to develop confidence and empower change are helping. (See 5.3.iii).

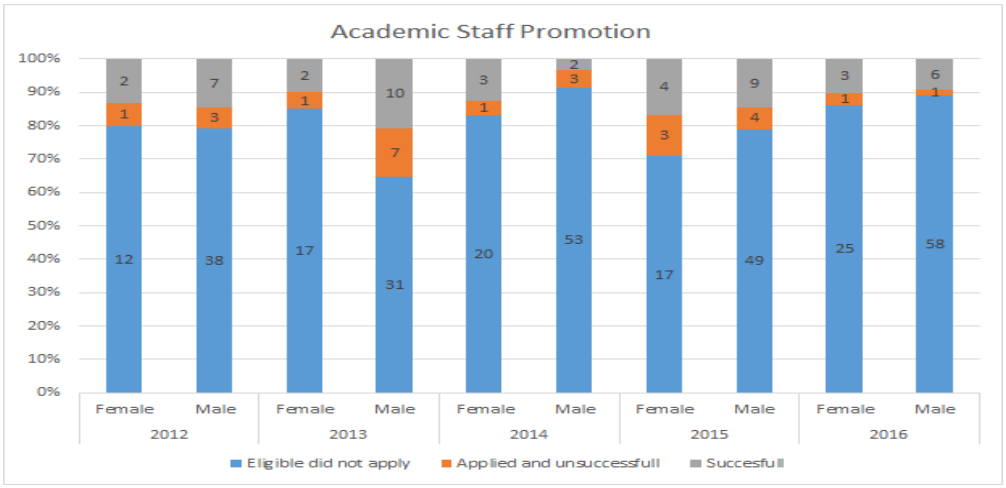
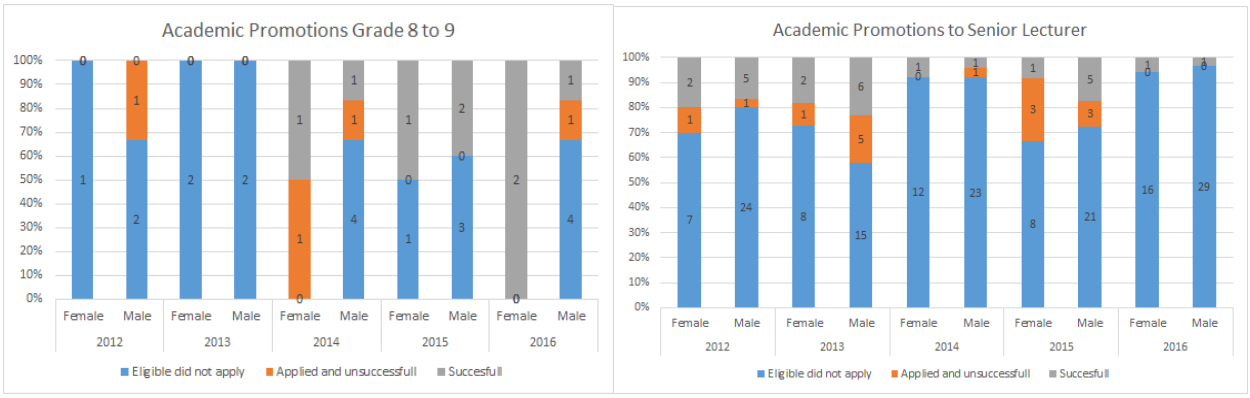


Figure 5.1.2 EAS Promotions, Overall.



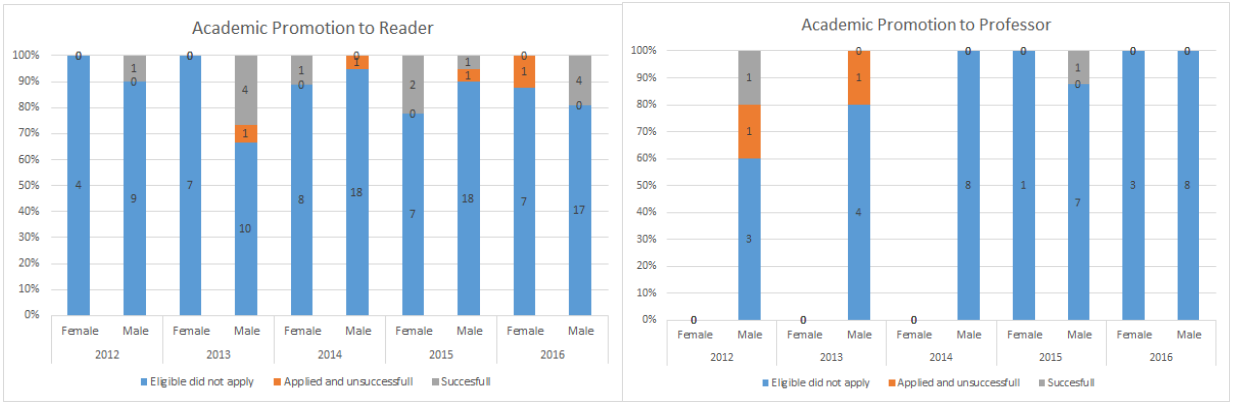


Figure 5.1.3 EAS Promotions by Grade

5.1.3 suggests that female *application* rates are lower than for males, yet female *success* rates are higher. This may be linked to the differences in female and male approaches to applying. But this may hide individuals holding back their applications, and spending longer at each level. [A1.4, A4.1]

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

Table 5.1.4 RAE/REF submission data

RAE 2008	Eligible Female	Eligible Male	Submitted Female	Submitted Male	% Female submitted	% Male submitted	% Staff submitted
Aston	89	204	75	162	84.3%	79.4%	80.9%
EAS	16	61	12	46	75.0%	75.4%	75.3%
REF 2014	**Eligible Female**	**Eligible Male**	**Submitted Female**	**Submitted Male**	**% Female submitted**	**% Male submitted**	**% Staff submitted**
Aston	114	240	63	149	55.3%	62.1%	59.9%
EAS	25	78	17	53	68.0%	67.9%	68.0%

REF2014 was more selective than RAE2008. Neither exhibits gender imbalance; papers were selected solely by quality, internally and externally judged. For disability and ethnicity, numbers are small and there was no significant difference between the 2 assessments or between genders.

5.2. Key career transition points: professional and support staff

(i) Induction (PST staff)

Induction for PST staff is the same as for A&R (5.1.ii) and these staff welcome meeting the Vice-Chancellor and Executive. However, the specialist work often means that PST staff often do not gain a wider view of Aston. PST induction is patchy and needs reviewing. [A5.1]

(ii) Promotion (PST staff)

Aston, like most UK Institutions has no promotion cycle for PST staff. Progression is possible via two mechanisms:

- applying for a different role, which may be in a different area/School
- via the Higher Education Role Analysis (HERA) process, involving re-assessing the current role against 14 criteria, to determine its grade. Staff are actively encouraged and supported in asking for re-assessment of their role, even though it is possible that no grade increase will be the result. (See fig 5.2.1).

Many PST staff do not hold A-levels or university qualifications, and so may be barred from applying for higher grade positions. EAS encourages and supports staff to enrol in Aston's Foundation Degree in Business and Education Management, followed by an Honours Degree in Business and Professional Studies. Support includes:

- **financial sponsorship**
- **flexible study-leave arrangements**

Currently two are enrolled and EAS will monitor their careers and progression.

For degree holders, postgraduate study in Aston Business School is available, including the MBA programme.

[A4.4]

With high numbers of females at lower grades, and supported by survey feedback (Table 5.2.1), we are piloting new promotion pathways within team hierarchies [A4.5].

Another barrier to progression is size; in small institutions, staff sometimes progress by moving on. Mentoring support helps here, as mentors take a career view.

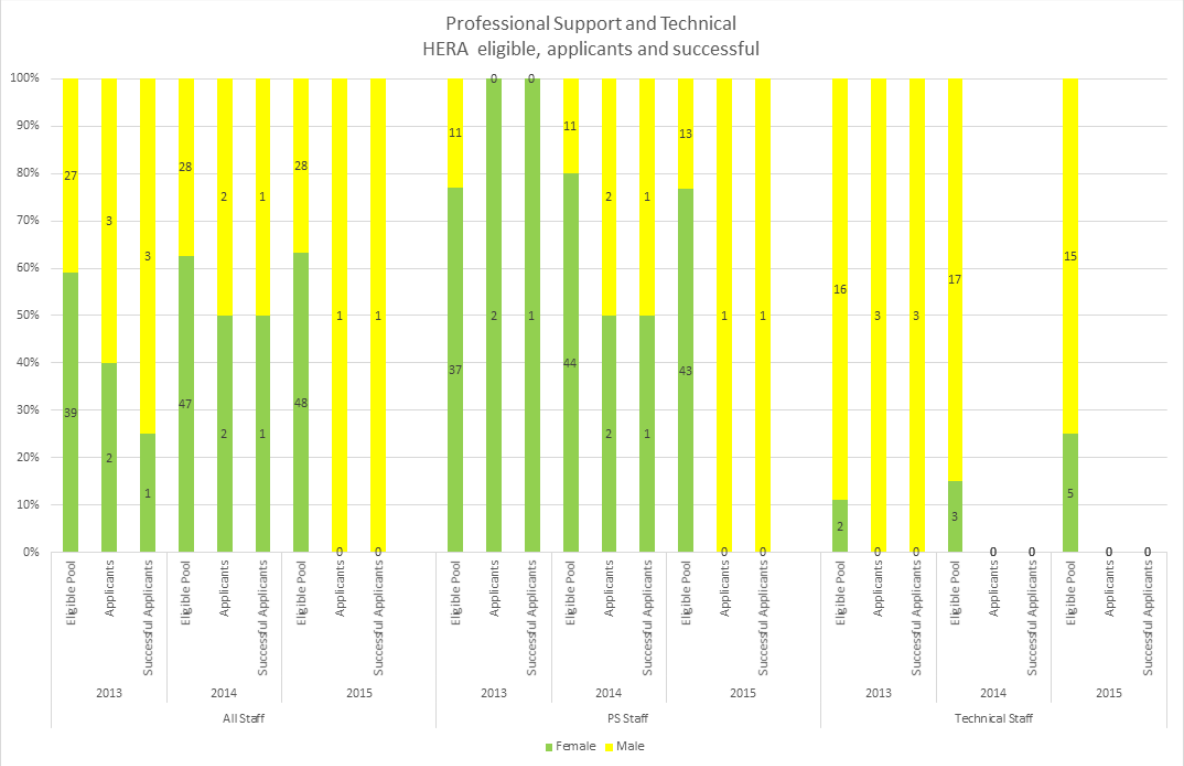


Figure 5.2.1 shows PST staff eligibility, applicants and success rates for HERA. Note: Data not available for grade and contract status.

> *" I don't want to apply for a higher graded job as I'm not sure I will be able to manage my work life balance (f)"*
>
> *" I like to be able to say I have experience of every item listed on a job description (f)"*
>
> *" Not having experience of every item on a job description doesn't bother me (m)"*
>
> *" Work/life balance is important to me when considering applying for a higher grade role(f)"*
>
> *" I think that applying for another job outside of my area as a 'risk' could I do the role? What happens if I take the job and find I can't do it? (f)"*

"I don't see not having experience of all the tasks as a barrier to application, however my ability to do a good job without sacrificing work/life balance was a consideration at a point in my life, I took a downgrade because of this. (f)" *"You don't really know what a job involves until you've tried it (f)"*

Table 5.2.1. Excerpts from Grade 6 survey feedback regarding career mobility

5.3. Career development: academic staff

(i) Training (Academic Staff)

All staff are encouraged to take advantage of mentoring, training and other opportunities provided through "Staff & Graduate Development"; e.g., "Dare to Succeed" is a 5 day programme encouraging innovation and risk taking to achieve high performance. The programme brings together industry leaders, Aston Alumni and Aston colleagues, to share ways to support innovation in teams. The sessions also help build Aston-wide networks.

(ii) Appraisal/development review (Academic Staff)

All managers take Performance Development Review (PDR) training and hold mandatory annual PDR meetings with each staff member (including post-docs) to review previous performance and plan objectives for the next along with longer term career plans, training, promotion prospects etc.

PDRs are mandatory with at least 85% of staff participating, with an even male/female split. In some cases alternative mechanisms are in place - e.g. each Marie Curie fellow has a very specific programme of career development. Improvements for participation are in process, alongside better data management on the process [A1.4, A4.1].

(iii) Support given to academic staff for career progression

Since 2013 Aston Early Career Researcher's Forum has supported our Early Career Researchers (ECRs). An annual 5-day series of events based on the Vitae Framework is organised, including a full range of guidance, resources and training opportunities to support career development, teaching and research skills.

ECRs are in their first employed role as a researcher/lecturer (for up to 5 years) and encompasses lecturers and research staff (including all postdoctoral researchers).

Support includes an ECR Development Programme, Annual Research Events, an ECR Forum and access to Vitae resources. The Aston Postdoc Society provides opportunities for researchers to meet and share best practice in a supportive environment.

Mentors are assigned to all ECRs, drawn from a pool of Research Fellow supervisors and senior academics providing additional mentoring. (See also 5.3.v.)

Post-doctoral Fellows sometimes stay after their first visiting position.

*** 2 Case Studies removed for web-site publication 03/05/17

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

Subject-groups initiate student career progression support, e.g., CS funded five students to attend the first Grace Hopper Celebration in London. This was a trial, modelled on a similar programme at Harvey Mudd College, California where they have been able to sustain a near 50% level of F:M CS students. The event affords opportunities to meet and hear role models, as well as fellow female CS students:

> *" ... it gave me a clear insight as to the various career paths women can take when studying CS and not always be pinned down to just programming.*
>
> *...I was very unsure about what career path ... but after attending, my options have broadened, and I have become slightly less confused. I applied for a placement as a Project Assistant, whereby I would be managing new projects and learning new IT skills, and brought up what I picked up from the event in the interview. I mentioned that nowadays you hardly see women in such a high status in leadership roles, and this was something I wanted to do, to prove women can do just as well the same role as men.*
>
> *… there were many other girls in my position who wanted the same as me. At Aston there is only a handful of girls on my course who study CS, so to find so many other girls there felt reassuring and made me also think how grateful I am that I'm in a position to contribute to an evolving industry which is rapidly ever-changing."*

In 2016 CS established the Industry Club, a novel partnership between industry, the department, and students. The Club develops closer relationships between prospective employers and students; and prospective research partners and faculty. 20 firms have joined and our students are seeing benefits. One partner, Tata Consulting Services have offered career-long mentors for most of our female students throughout their studies (Sixty 2nd, 3rd and final year students). Other Club members are now offering to contribute similar support. It is enormously exciting to see this tangible employer investment.

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

Academic and research staff are supported by the "EAS On-boarding Process". Staff meet with EAS's Research and Enterprise Officer (REO) to discuss research activity and plans for the future. Research funding is made available to ECRs to help establish their research (£10k over three years). The REO provides advice, guidance and support; and together they develop a five year research plan. New starters are provided with a mentor. SG Heads limit teaching load for the first three years to provide time for adjustment and establishment. ARMS helps ensure teaching load and administrative roles are distributed fairly and consistently, within Groups and across EAS. One new staff member commented:

> *"The start-up grant has allowed me to set up a small mechanical testing facility in our laboratory. This has been used extensively by my project and placement students and has enabled some important early stage research that would otherwise have been impossible."*

Figure 5.3.1 uses grant application rates as a *proxy* for research engagement, and suggests:

- ECR support is helping;
- ECR staff are submitting applications with Male rates close to those of established staff but female ECR rates are lowest in each year measured.

More refinement is needed to understand this, but there is a suggestion that ECR female staff may be held back in submitting applications. Additional support may be beneficial. [A4.7]

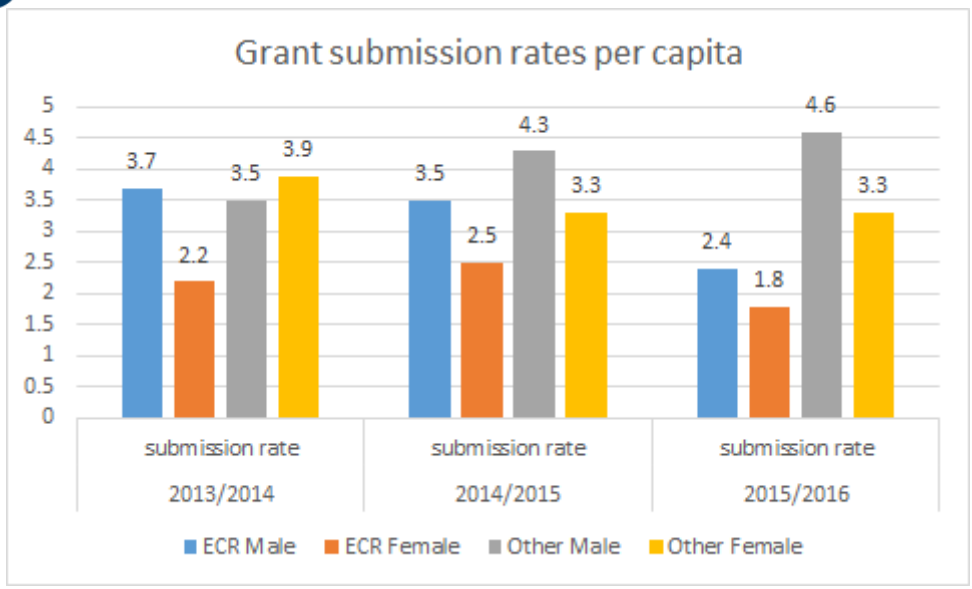


Figure 5.3.1. Per-capita grant submission rates for ECRs and non-ECRs 2013/14 - 2014/16

5.4. Career development: professional and support staff

(i) Training (PST)

Training is provided in two ways:

- Staff Development offers training in themes: Awareness & Wellbeing, H&S, IT, Leadership and Management, Personal Effectiveness and Supporting Staff, or the more academic focused training in research skills or learning and teaching;
- Career progression (detailed in section 5.4.ii.)

The University recently introduced a Women in Leadership course. A recent attendee reported:

> *"The Women in Leadership was a valuable experience in understanding my career aspirations and what I need to work on to get there. I have already recommended it to someone I manage as part of their development"*

(ii) Appraisal/development review (PST)

Same as for academic staff; see 5.3.ii.

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

To support career progression staff are encouraged to discuss their career aspirations throughout the year and particularly during PDRs. Many staff are supported to the next level of their education through programmes such as our PG certificate, foundation year, bachelor degree, MBA and relevant professional qualifications. Figure 5.4.1 shows further education and development supported over the last 3 years. A staff development budget is set aside for PST staff of £10,000.

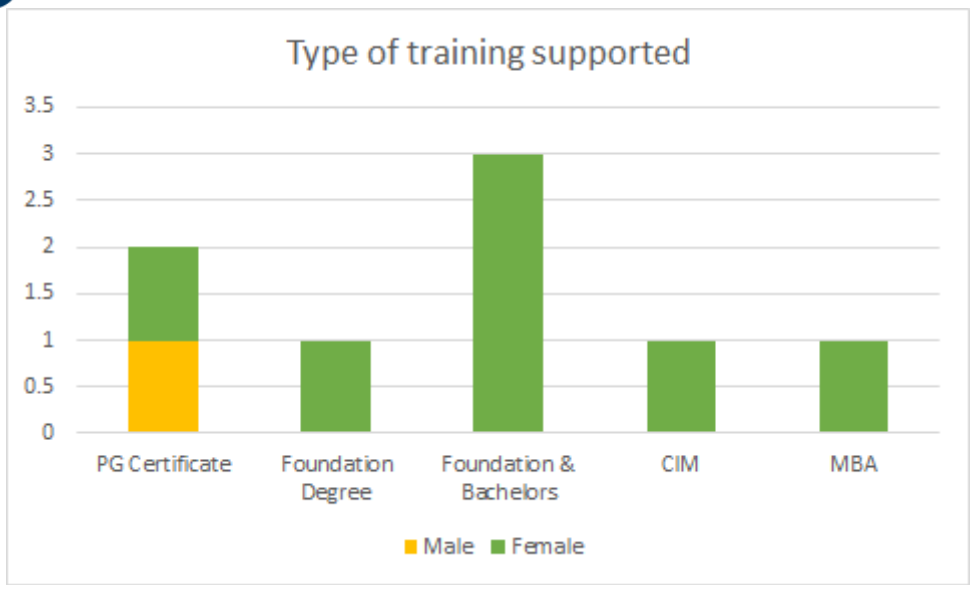


Figure 5.4.1.Training support for PST Staff

EAS supports and encourages development opportunities through secondments. Over the last three years, two female staff members took up maternity cover posts: one in EAS and one centrally. One earned a promotion through this experience.

5.5. Flexible working and managing career breaks

Maternity/Adoption support is provided as a combination of Statutory, University and School initiatives (Table 5.5.1).

Table 5.5.1 Maternity/Adoption support summary

	From the University	From EAS (see text)
Before Maternity/Adoption leave	Paid time off for ante-natal appointments	Provision of maternity cover
During Maternity/Adoption leave. Staff have available up to 52 weeks of leave with the security of returning to the same, or equivalent post.	Weeks 1-12: full pay Weeks 13-26: ½ pay + Statutory Maternity Pay (SMP) Weeks 27-40: SMP Weeks 41-52 unpaid	The Dean supports staff to schedule 10 keep-in-touch fully paid workdays to maintain connection with colleagues and with their workplace.
Returning from Maternity/Adoption leave		Continuity of cover to ensure handover on return.

EAS recognises and is addressing some of the unique issues relating to maternity support, e.g., maternity cover was not guaranteed by university policy. Within EAS such cover has always been provided; but some of these

appointments require approval beyond EAS, and all require budgeting. This is complex, and if not done with sensitivity

- adds stress to the leave-taker;
- inadvertently conveys negative messages regarding the importance of their role;
- raises concerns regarding the state of their position, when they do return.

These are significant negatives. We have proposed and received University Executive approval for a new University-wide policy ensuring that maternity cover is budgeted centrally and requires no further approval. The benefits of this new policy will be significant. [A5.1]

Table 5.5.2 Maternity/Adoption take-up

	Maternity leave	Proportion of Staff remaining in post after 6, 12 and 18 months.	Paternity Leave
Academic Staff	2	100% at 6, 12 & 18 months	3
Professional Support & Technical Staff	4	50% at 6, 12 and 18 months	1

*note one member of staff has only recently taken maternity leave, so is excluded

(i) Flexible working

Flexible working is supported by the University, with specific policies tailored for different staff groups in EAS.

School Flexible Working Policy for Teaching Staff

To enable academic and teaching staff with caring responsibilities (or other, e.g., health) to work flexibly, staff can apply for flexible teaching arrangements. Once approved by the SG Head, the requested hours are blocked out from teaching duty. This contributes significantly to work-life balance, and 25% of academic and teaching staff benefit yearly (cf. <name removed> case study); comprising 31.5% of female staff and 23.7% of male staff. The average number of flexible hours is 16.1, with very little gender difference.

School Flexible Working Policy for Professional Staff

In 2014 the PS staff developed a proposal that supports business needs as well as providing flexible options for staff. It does so through collaboration and imposing a modest degree of structure. The professional staff are organised into a small number of distinct and small teams; each of which has a degree of specialisation and focused delivery of service to stakeholders. In many cases these stakeholders are a mixed population of students, other professional and academic staff, and industrial partners.

The approach defines core hours for service delivery between 9:30-12:00 and 2:30-4:00pm with all staff expected to be working these times. The flexible element allows staff to arrive from 8:00-9:30 am, and to leave

between 4:00-6:00pm. Total weekly full-time hours are 36.5. Part-time staff can also participate. Further, staff can carry a surplus/deficit of 2 hours across weeks. Part of the cooperative model has full-time members of staff working "normal hours" 9-5 on a rota, i.e., rotating weekly through the team to ensure full coverage during standard business hours.

The programme is administered by timesheets maintained online. Individual Professional team managers monitor and approve these monthly.

The proposal came initially from the team providing service to work-based/bespoke delivery of programmes, most of which are linked directly with industry, and deliver educational service to student-employees who are work-based. The proposal is particularly innovative because it also allows staff to be available out of traditional 9-5 working hours; this adds value to work-based students who may not be able to reach EAS during normal hours since they work themselves during those periods.

Operating since December 2014, take-up for the full year 2015-16 has been high. 74% of all PS staff take part in the scheme with marginally more female staff using the scheme than male, 76% against 66%.

Currently Technical staff are unable to take up the flexi-time scheme due to teaching commitments. Flexibility for Technical staff is equally important, and this is an area for future implementation. **[A5.1]**

EAS also supports flexible working outside of the flexi-time scheme where possible, e.g., where colleagues take part in Eid fasting; or where colleagues have caring responsibilities.

> "As a mother of two children with special needs, the flexible working policy goes a long way to enhancing my work life balance. Not only can I make up the time over two weeks when I am delayed due to childcare, but I am empowered by understanding to excel at my job".

Flexibility and Support for students with caring responsibility.

Our approach to flexibility and support is also extending to students with caring responsibilities, e.g., children of their own. The following quotes provide some support for this:

> *"I found the grant that I applied for to be very helpful especially in 1st and 2nd year. I was able to stay longer at university to do more work because at that time my second child was under one and childcare for that age is very expensive. Also using recordings of lectures, I was able to catch up with lectures in the evening at home, especially the late ones at 4-6 that I was not able to attend."*

> *"Having a personal tutor/supervisor who also has children understood how difficult it is to study full time and raise children at the same time. Also the pastoral and motivational support that was given to me was very helpful and encouraged me during tough times. I would forever appreciate it."*

The first quote refers to a school policy that requires the recording of lectures to support students. Also, all students are provided with personal/tutor support.

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

EAS has a flexible approach for all staff to support re-entry following maternity/adoption leave. For some, an immediate return to fulltime work is desirable; for others, a more staggered approach is needed. The quote below illustrates the perspective of a returning academic staff member:

> "As I wasn't sure whether PT would work for me I was given the opportunity to try it out. I chose to work .8 FTE in 2015/16 for one year. After that I was able to decide if I wished to continue

working PT or return to FT. I was also assured that I can opt to go PT if my situation changes. This flexibility was very helpful to me as an academic; especially for someone who has a young family to look after"

5.6. Organisation and culture

(i) Culture

EAS has developed a number of equality and inclusivity policies (discussed throughout this submission). These are reviewed, revised and approved regularly by the SMT for relevance; and then communication. New policies and best practice are regularly developed in different departments, and then spread more widely as they prove effective.

Timetabling and Flexibility

Timetabling is another important opportunity. EAS has been innovative in the past in its approach to soliciting and accommodating individual staff constraints in module timetabling (5.5.vi), with many staff benefitting. There is still room for improvement: academic timetabling software is quite manual, and the growing demands of flexible provisioning have inspired us to tackle this problem directly. In 2014 an effort began to develop an automated timetabling system. This new approach will benefit the University and also the individual. Greater flexibility can be afforded (cf. Marc Eberhard case study), and rooms more effectively used. We expect system deployment by 2018.

Cross-EAS Initiatives and Sharing

EDWG has enhanced cross-EAS networking by forging new links between different SGs, providing a platform for sharing best practice. EAS culture encourages individual staff to kick-off new initiatives, establishing new links that are very powerful, and can help increase staff profiles across the School. This also helps with promotion.

(ii) HR policies

EAS's HR lead sits on SMT, ensuring two-way flow of policy updates best-practice. Policies are quite dynamic and in some cases evolve out of good practice in one area, e.g., 2016 has produced significant improvements in induction practices for CEAC & EBRI; these will next benefit the School, and more widely to the University.

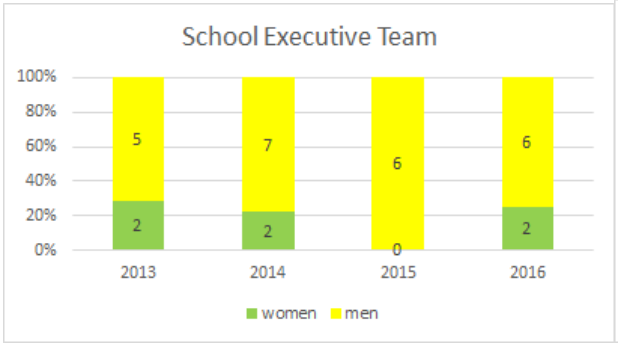
(iii) Representation of men and women on committees

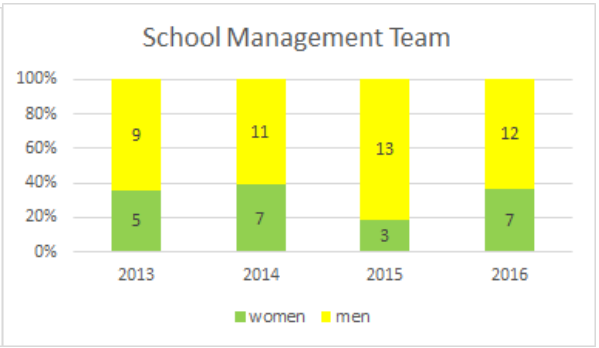
EAS policy regarding committee diversity

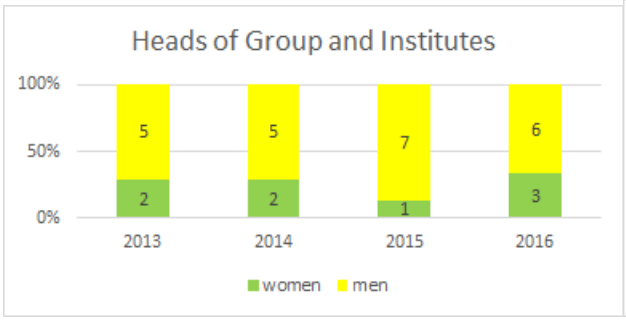
- requires committees to reflect and report on their composition;
- encourages SG Heads & Managers to delegate, where possible, their committee membership roles.

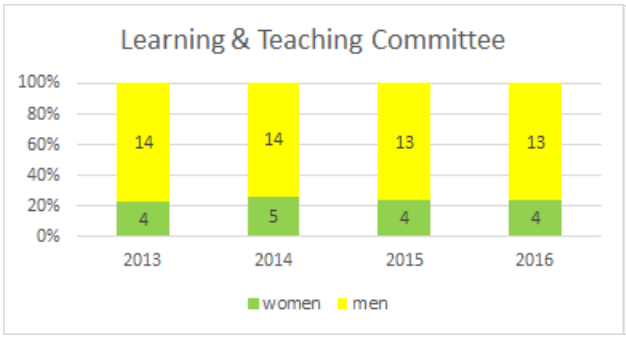
In 2016 the University's Executive adopted this policy. At the November 2016 Senate the new Vice Chancellor, Professor Alec Cameron, challenged (and recognised) the Senate's diverse composition; and then noted the positive impact this policy will have on all University committees.

Without intervention, committee composition *inherits* bias extant at senior University management levels (e.g., all five Executive-Deans sit on most University-wide committees). This new policy encourages delegation to others in Schools - replacing inherent bias with explicit action enhancing diversity and opportunity. **[A3.3, A5.1]**









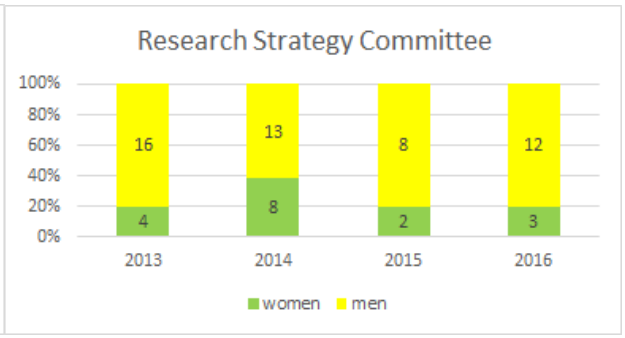


Figure 5.6.1: Membership of key committees. The SMT holds resourcing and strategy responsibility.

Committees have a variety of mechanisms for appointment. SMT comprises:

- SG/Institute Heads,
- Associate/Deputy Deans,
- Head of Business, Strategy and Administration (PST Head)
- Leads for School services (e.g., Marketing, Finance, HR).

Committee diversity reflects each of these areas, e.g., 20-30% female population in each SG; and a higher female PST population. Associate/Deputy deans (see EAS Exec Committee graph) are Dean appointments, and stand at around 20% female population, except 2015 when one member was on maternity leave. Whilst a higher F:M population is desirable, we recognise that overloading our female leaders is undesirable. We have made use of deputy positions to provide development opportunity, and in those roles achieving higher F:M ratio is more feasible.

*** 3 Case Studies removed for web-site publication 03/05/17

(iv) Participation on influential external committees

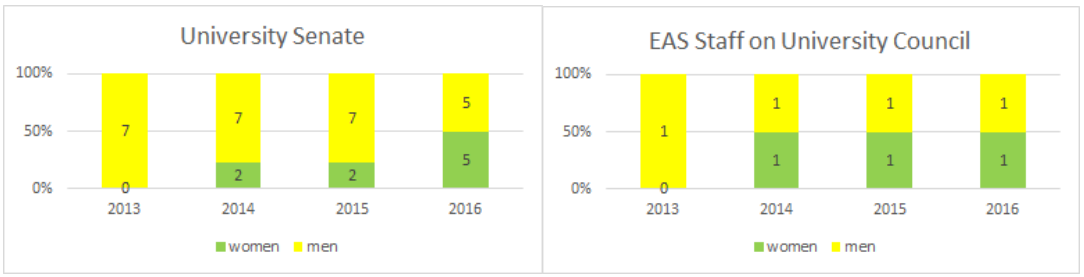


Figure 5.6.2: Membership of influential external committees.

A substantial growth in EAS women in the University Senate is evident; many of these places are won through election.

Council positions are particularly important and influential; one EAS seat is held by the Dean. A female member of staff secured a seat through the Academic Assembly nomination process. This is a competitive process, and it is very positive for EAS to have diverse representation.

EAS supports and encourages external contribution, and views this as an intrinsic part of career development:

- EAS has 10 male and 2 female staff on EPSRC peer review panels.
- Professor Alison Hodge served on REF subpanel B-13, and also had responsibility for EAS REF2014 submissions.
- Dr Kate Sugden is now on her 4th year on the IET's Membership and Professional Development Board and Council.

(v) Workload model

Activity Reporting

A number of workload models have been used in performance and career planning activities for academic staff. However all of these have had a number of deficiencies limiting their adoption and use. In 2015 the Dean commissioned an effort to define and implement an Activity Reporting Management System (ARMS).

This initiative is novel, with important differences from prior work:

- it is for all staff – academics, PST staff;
- the specification is being developed explicitly by the staff for the purpose of ensuring fair and equitable working;
- it is not a model being imposed, but an opportunity to articulate and capture how we spend our time;
- staff, management and unions are working together to jointly create this process and system.

Motivations include:

- Many important activities are not yet monitored:
  - academics and PST staff engage in activities outside of work hours (e.g., outreach), yet with no formal recording or acknowledgement.
  - personal development, and contribution to others' development (e.g., mentoring) are not monitored.
- Outreach activities lack visibility, resulting in low management appreciation.
- Contribution to outreach tends to be dominated by female staff, introducing additional pressures and inequities.
- With no incentive, staff are reluctant to record external engagements.
- EAS's growth creates new demands. New types of programmes and modes of delivery require richer activity recording.

Explicitly including these in ARMS improves the dialogue between managers and staff regarding workload, and supports informed career planning discussions.

ARMS, launched in 2016, will be iteratively improved over the next two years. Training for staff and management has been delivered; focus groups and other feedback sessions will provide regular feedback for further improvements.

(vi) Timing of departmental meetings and social gatherings

Most meetings (e.g., School, SMT, SG, social gatherings) are held in the very early afternoon; frequently Wednesday afternoons – a time free of teaching responsibilities. Gatherings are coordinated with staff input and aim to accommodate personal and professional constraints.

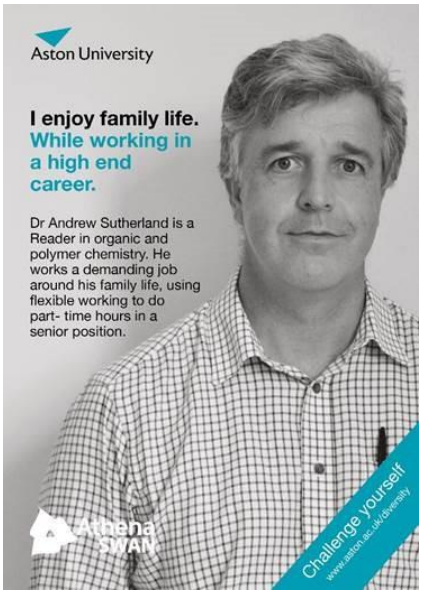
Chemistry Labs Opening celebration dinner

(vii) Visibility of role models

School meetings are usually led by members of the SMT, with gender balance achieved through ensuring a good balance in the SMT.

The School, now University, policy on committee composition (5.6.iii) promotes visibility and balance.

Subject-groups ensure gender balance at open-day presentations.



EDWG reviewed all EAS publicity material (and continues to do so) with Marketing, resulting in:

- Commissioning new photographs reflecting our diverse student population.
- Commissioning new photographs of staff
- Development of a central stock of photographs with preferred images chosen for diversity of people and breadth of engineering topics
- Changes to the images shown on the website.
- A marketing campaign involving posters focussing on diversity in science and engineering.

EAS sponsors students to attend the WES student conference (held annually at Aston). We support employers running Women in Engineering events.

EAS was strongly represented in the University's campaign on Women in Science.

(viii) Outreach activities

Aston's UK Student Recruitment and Outreach team (SRO) works to raise aspirations and support for school-age learners amongst the least advantaged groups, focusing on local communities in Birmingham and the West Midlands. The new Aston Stem Education Centre (ASEC), launched June 2016, will also be a major contributor to the development and evaluation of EAS outreach schemes.

Academic and research staff work in collaboration with the SRO to offer exciting activities targeting various age groups and events. SRO and School-wide schemes include:

- Aston Progression Pathway, a 2-day residential engineering workshop for local A-Level students;
- Masterclasses for A-level students offering taster Engineering lectures;
- Targeted outreach activities to girls' schools;
- Over 100 outreach events organised with over 80% in the West Midlands, delivering workshops to over 4500 school-age learners;
- EAS participates in large science fairs, e.g., the NEC Big Bang where the combined number of visitors exceeded 85,000.

Subject group activities include:

- EDT Headstart course for local students interested in CS;
- Student-led team targeting local schools to raise interest; and providing role models to encourage female recruitment in CS.
- Career development for female Mathematics postgraduate students, encouraging participation in events promoting the role of women in STEM.
- Lightfest (a Photonics show), delivered in 2015 and attended by over 6000 children (see photo).
- In 2016, a Mathematics PhD student won the best poster prize in the L'Oréal UNESCO competition and was invited to a "Women of the future" event.

Significant growth in schoolchildren attendance at EAS outreach is evident in Table 5.6.1. The academic staff designing and delivering events are from a mix of grades and are gender mixed. However, the academic leads are predominantly female lecturers or senior lecturers, with PST support. Females carry out most of the administrative and time-intensive aspects. We are working to address this bias by enabling better distribution of outreach work, and ensuring recognition for contributions (see end of this section).

Table 5.6.1 Approximate student numbers and female/male school children involved in Aston outreach activities from SRO and EAS. **Note:** data on female/male numbers were not consistently captured, however improvements since 2013 on data capture and female/male ratio has been noted and has been further addressed in the action plan.

	2013-14	F	M	2014-15	F	M	2015-16	F	M
Outreach activities (all key stages and degree level)	1537	**12**	**49**	1297	**155**	**505**	1900	**836**	**1039**
Science fairs and events	1400	n/a	n/a	906	n/a	n/a	86,621	n/a	n/a
Total	2937			2203			88,521		

EEPE has grown their outreach team from 7 (2013) to 49 (2016) staff, showing a spread across levels (Table 5.6.2). Measuring impact is challenging: years may lapse between pupil involvement and enrolment; and not all will come to Aston. We have limited pre-enrolment contact data (Table 5.6.2). The promising indications from student surveys are:

- More are attending an open day (i.e. actively choose the programme rather than coming through clearing);
- More have interacted via outreach activities with the team prior to enrolling;
- By involving all staff in a large one-day event, more staff are prepared to support future outreach delivery.

Feedback is very positive, e.g. the lead Year 6 teacher at Anderton Park School said: *"The gift of inspiration you all give as scientists from all genders and backgrounds is priceless".*

Table 5.6.2 Summary of recorded activities in EEPE

	2013	2014	2015	2016
Number of children involved in EEPE outreach activities (excludes ~6000 at Lightfest 2015 and annual Big Bang event)	380	755	826	1408
Number of students enrolled in Year 1	33	44	54	62
Percentage (and number) of students attending an Open day in year prior to enrolment	39.5% (13)	-	-	79.5% (49)
Percentage (and number) of these students who had also attended an EAS outreach activity	24% (8)	-	-	32% (20)
Total number of different staff involved in delivery	7	13	25 (+all	49

Female/male split - very positive in terms of increasing male participation in outreach Staff level split - student & postdoc: Prof support staff: Lecturer: Senior lecturer: Reader: Professor			AIPT and PST staff for Lightfest)	
	2:5	4:9	7:18	8:41
	0:2: 1:2:1:1	5:4: 1:0:2:1	17:2: 2:1:2:1	39:2: 2:2:2:2
F:M staff numbers in terms of total sessions run involving those staff - highlighting the workload on the female staff involved in outreach	10:4	15:12	20:21 (excludes Lightfest)	26:47

Several actions are in place:

1) Recognition: Recognising staff contribution for outreach. Contributions and commitment to outreach activities is part of ARMS. Established Outreach Champions as a recognised departmental role. Contributions support annual PDRs. **[A1.2, A1.3]**
2) Assessment & Impact: regularly auditing and evaluating outreach organised and delivered by SRO and ASEC. **[A2.2]**
3) Activity in a Box: organise lesson plans and training to allow a better distribution of outreach work, and support effective recruitment of academic staff interested in getting involved. **[A2.6]**

[Section 5. WORD COUNT = 5181]

6. CASE STUDIES

***** 2 CASE STUDIES REMOVED FOR WEB-SITE PUBLICATION 03/05/17**

[Section 6. WORD COUNT = 738]

7. FURTHER INFORMATION

Embedding

EDWG efforts are paying significant dividends in terms of embedding Diversity awareness and thinking. EDWG members are being contacted by staff with specific diversity concerns, with recommendations for how we should take forward current and future initiatives, and for their views/inputs to University policy. Topics such as maternity cover and re-entry; activity reporting for new delivery approaches (e.g., Degree Apprenticeships); and ensuring fair pay scales and benefits for all staff. Traditionally the domain of HR, we are being entrusted with questions and concerns for staff that are quite sensitive, and we see this as a positive step. People are talking about things that matter to them, and they believe we can all work together to make improvements.

New interdisciplinary centres afford new opportunities

The Aston STEM Education Centre (ASEC), launched in June 2016, is the focal point for Education Scholarship and Research. ASEC is co-directed by Dr Jane Andrews and Professor Robin Clark and supports academics across EAS; engaging ECRs and more experienced academic staff. Seminars and workshops provide a platform of learning and networking for ECRs interested in improving their teaching. Dr Andrews has also been appointed Programme Director for the Foundation Year, and aims to improve FY to UG progression, whilst supporting students from start to finish.

Figure 7.0.1: Images from the ASEC launch event. Left - Professor Dame Julia King, Vice Chancellor, chats to ASEC researcher, Dr Sarah Junaid. Right - Professor Dame Julia King, Dr Trevor Oliver, Dr Jane Andrews (ASEC director), Dr Sylvia Wong and Professor Robin Clark (ASEC director).

The Aston Institute of Materials Research (AIMR), created 2016, comprises academics from all EAS disciplines. The management team comprises director Dr Paul Topham and deputy directors Dr Laura Leslie and Dr Richard Martin, again providing a good gender balance and visible inclusivity.

ECRs will benefit from the network of experienced researchers within the Institutes, providing greater opportunities and support for them in establishing their research careers through networking, collaborations and peer mentoring.

[Section 7. WORD COUNT = 282]

8. ACTION PLAN

There are five key areas for the action plan:

1. Assuring Fairness and Opportunity
2. Continuing to develop a diverse engineering student pipeline
3. Achieving and sustaining greater diversity in senior positions
4. Supporting Academic and Professional Staff Career Progression
5. Sharing and disseminating best practice

Each of these is a substantial area of current activity yielding progress, but continued focus and innovation is required.

*** See action plan in a separate document 03/05/17

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