



Athena SWAN Silver department award application

Name of university: Queen Mary University of London (QMUL)

Department: School of Engineering and Materials Science (SEMS)

Date of application: April 2015

Date of university Bronze Athena SWAN award: Bronze Award (2007), Renewals (2010 and 2013)

Contact for application: Dr Steffi Krause

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Our Industrial Liaison Forum

Boxes throughout the document show key developments with the following symbols:

- ✓ Actions already implemented and current good practice
- Future actions (Action plan number)
- ☆ Impact to date

**School of Engineering & Materials Science
Head of School**

D A Lee, BSc, PhD, MA

Professor of Cell & Tissue Engineering

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Sarah Dickinson
Athena Swan
Equality Challenge Unit
7th floor, Queens House
55/56 Lincoln's Inn Fields
London, WC2A 3LJ

30th April 2015

Dear Ms Dickinson

As Head of School I would like to express support in the strongest terms for the Athena SWAN Silver award application from the School of Engineering & Materials Science (SEMS) at Queen Mary University of London. SEMS received a Bronze award in 2013, and we have made very strong progress against our Action Plan in the intervening period as outlined in this application.

I am fully committed to promoting equitable working cultures within SEMS in which all staff can achieve their maximum potential. I am a member of the Athena SWAN self-assessment team and have provided leadership for the implementation of our Action Plan. At the time of our Bronze award, a review of the school provided a mixed picture, with areas where SEMS could be justifiably proud, but highlighted other issues that are now being addressed in our Action Plan.

Our outreach and recruitment strategies have resulted in a student population with a higher proportion of women than in most engineering/materials departments, including in the traditionally male-dominated mechanical and aerospace engineering disciplines.

I am committed to ensuring that women are fully supported in their careers through to the highest academic levels and have implemented changes to ensure that women are provided with equal opportunity for career development regardless of personal circumstances. The changes to our recruitment practices have resulted in four women recruited to full time academic posts in the past 3 years, including a female Professor who will join us in September. Our promotions processes have been made more robust, transparent and pro-active with a Professorial Advisory group tasked with identifying staff considered suitable for promotion, resulting in an improvement in the number of female academics applying for promotion and being successful. We have also brought in a formal mentoring scheme for Postdoctoral researchers.

The school has, for many years, actively promoted flexible and part-time working to support parents of young children and those with other caring roles. However, we have recently implemented changes to improve support including ensuring key meetings are held in core hours and are recorded. We have brought in a support package for academic staff taking maternity

leave, tailored to individual needs. This can involve, for example, supporting a Postdoctoral researcher during the leave period and/or reduction in teaching following return from maternity leave.

On a personal level I am well acquainted with the complex challenges of balancing career and family life as I have three school-age children and a long commute. In addition, with my wife, I own a successful nursery that provides childcare to over 80 families with pre-school age children. I have, therefore, first-hand experience of challenges from all angles, as a parent, as Head of School supporting my staff and also as professional childcare provider.

Overall I believe SEMS has made excellent progress in implementing our Action Plan to date and I am committed to continue to deliver major change in the School. I wholeheartedly support this project and am fully committed to its success.

A handwritten signature in black ink, appearing to read 'David Lee', with a stylized, cursive script.

Professor David Lee

Head of School

School of Engineering & Materials Science

1. The self-assessment process: maximum 1000 words

a) A description of the self-assessment team (SAT):

Name	Role in SAT	Role in school, and work-life balance
<i>Dr Steffi Krause</i>	Chair of SAT	Reader in Electroanalytical Systems, son aged 7, part time since 2008 (see case study).
<i>Dr Salzitsa Anastasova-Ivanova</i>	WISE and postdoc representative	PDRA in Pervasive Sensing since 2010, one-year old son, recently returned from maternity leave.
<i>Professor James Busfield</i>	academic representative	Professor in Materials and Director of External Relations and Communications, two daughters aged 10 and 8, works flexibly 3 days each week to fit around his childcare.
<i>Navinderpal Kaur Chana</i>	PhD student representative	PhD Researcher in Biomaterials, joined QMUL as undergraduate student in 2006.
<i>Dr Núria Gavara</i>	academic representative	Lecturer in Biomedical Engineering since 2013, daughter aged 5, works flexibly in school holidays.
<i>Jayne Hawkins</i>	Implements training sessions and exit interviews.	School Manager for SEMS, at QMUL since 1996, was working flexitime whilst caring for elderly parents.
<i>Jonathon Hills</i>	PhD student support	Research Administrator, two daughters, aged 4 and 6, flexitime working arrangement.
<i>Dr Karin Hing</i>	academic representative	Senior lecturer in Biomedical Materials, joined QMUL as PhD student in 1992, PDRA in 1995, two children, part time since 2003.
<i>Prof Martin Knight</i>	academic representative	Professor of Mechanobiology and Director of Research, joined QMUL as PhD student in 1993, EPSRC Advanced Fellowship, lecturer, reader and professor, part time since 2001 to share childcare.
<i>Prof David Lee</i>	Head of school (HoS)	Head of SEMS since 2011, three school age children, owns a successful nursery together with his wife.
<i>Elena di Mascio</i>	Admissions and Outreach	Marketing, Communications and Admissions Manager, two children, works flexible hours since 2009.
<i>Tasnima Rahman</i>	undergraduate representative	Third year undergraduate student, course representative and student ambassador.
<i>Prof Julia Shelton</i>	academic representative	Professor of Biomechanical Engineering and Dean for Taught Programmes, maternity leave in 1996, worked flexibly 2004-2010
<i>Marcia Williams</i>	Diversity Manager	20 years experience as a Diversity Specialist, part time, working parent.

b) Account of the self-assessment process:

The SAT consists of 14 members who represent different levels of seniority and personal experience and have different roles in SEMS. SAT membership has been open to anyone interested in getting involved. Originally, the SAT was made up of academic members of staff and members of the management team and support staff who are involved in outreach activities and student support. To be more inclusive, SAT membership was broadened to include undergraduate, PhD student and postdoc representation. The participation of four out of five members of the School Executive Team in the Athena Swan process has been instrumental in the success of introducing policies that have made the school a better work place for all. Since its formation in 2012, the SAT has been meeting at least three times a year to

- monitor key data such as recruitment, meeting times, committee membership and presentations to ensure that the targets of the action plan are met.
- formulate and implement new policies to promote the career progression of women at all stages of development. Key milestones that were achieved over the last four years are
 - ✓ the launch of a mentoring scheme for postdoctoral researchers (AP2.1),
 - ✓ the provision of substantial support to women going on and returning from maternity leave (AP4.2),
 - ✓ the introduction of a part time working guarantee for academic staff (AP4.1),
 - ✓ the formation of a professorial advisory group who mentors and advises staff on career progression (AP2.3),
 - ✓ improved first year tutorial support to ease the transition from school to university and raise the career aspirations of students. (AP2.6)
- discuss ways of embedding Athena Swan into the school's culture. Athena Swan is now a standing item on the agenda of the monthly staff meeting ensuring an increased awareness among staff of gender equality related issues and giving all staff a chance to feed into the policies developed by the SAT. The policies introduced during our Athena Swan process are publicised every 3 months in our internal newsletter, which is circulated to all staff and students.

Meeting minutes are published on an internal webpage open to all staff. To assess the impact of Athena Swan related actions, the SAT developed and ran a SEMS culture survey in autumn 2014. The results of the culture survey have been reviewed and fed back into the action plan. In the run up to this submission, the SAT has been meeting more frequently. A draft of the Athena Swan silver award application was circulated to all staff three weeks before the submission to receive feedback.

Several Athena Swan events at QMUL such as a talk by Paul Walton (former Head of York Chemistry and first school to win the gold Athena SWAN award) and a talk by Michelle Ryan ("Beyond the glass ceiling: The glass cliff and the precariousness of women's leadership positions") were attended by members of the SAT and fed back into the discussion.

c) Plans for the future of the self-assessment team:

We will continue to meet at least three times a year to monitor progress against the action plan. Staff and student data will be requested from HR and Planning and analysed on an annual basis to identify any problems early and devise suitable actions (AP1.2 and 1.5). Meeting minutes will continue to be posted on an internal website accessible to all staff. We are planning to increase the visibility of our Athena Swan initiatives by creating a dedicated website (AP1.3). The SAT will report back to the monthly staff meetings and in the SEMS newsletter to get feedback from all staff in the school. This will improve awareness of our initiatives and ensure that best practice will be firmly embedded in all of the school's activities. Weaknesses identified in the SEMS culture

survey (see 5.) will be addressed and the survey repeated in 2016 to assess the success of the measures taken **(AP3.8)**.

Key tasks of SAT:

- ✓ Four monthly review of action plan
- ✓ Annual monitoring and analysis of data
- ✓ Regular report to the SEMS staff meeting
- Dedicated Athena Swan webpage **(AP1.3)**
- Repeat SEMS culture survey **(AP3.8)**

999 words

2. A picture of the department: maximum 2000 words

a) Pen-picture of the School.

The School is part of the Faculty of Science and Engineering. It was founded through the merger of the Engineering and Materials Science Departments in 2007. Following the formation of the School, the undergraduate and postgraduate programmes were restructured and jointly taught by both former Engineering and Materials staff.

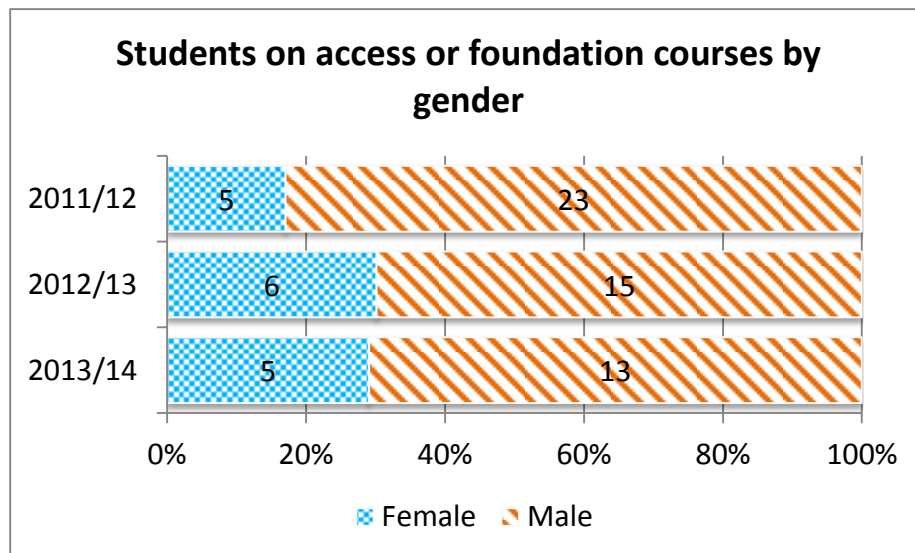
Three research centres were formed in the areas of *Biomedical Engineering and Materials*, *Simulation and Applied Mechanics* and *Functional Nanomaterials*. Each of these centres is populated by former Engineering and Materials members of staff, promoting close interaction and collaboration. The school currently has 58 academic members of staff, 8 of whom are female and 42 postdoctoral researchers (PDRAs), 12 of whom are female. A recent recruitment drive has led to an increase in the academic staff numbers by 6 since our last Athena Swan submission. The incorporation of gender equality in our advertising strategy has attracted more female academics to the School (AP1.6). Three of the recently recruited academic staff are women. We have a vibrant seminar programme, which has seen a steady increase in the proportion of prominent female scientists and engineers presenting their work thereby providing role models to our female students and postgraduates (AP3.5).

The school runs 20 undergraduate Engineering programmes and 20 undergraduate Materials programmes with more than 950 students. Six of the undergraduate programmes within the Engineering suite of programmes lie in the broad area of Medical Engineering, which have attracted a larger proportion of women. We also run 11 postgraduate taught masters programmes with about 90 students. We have a population of approximately 124 PhD students.

b) Data for the past three years

Student data

(i) Numbers of males and females on access or foundation courses



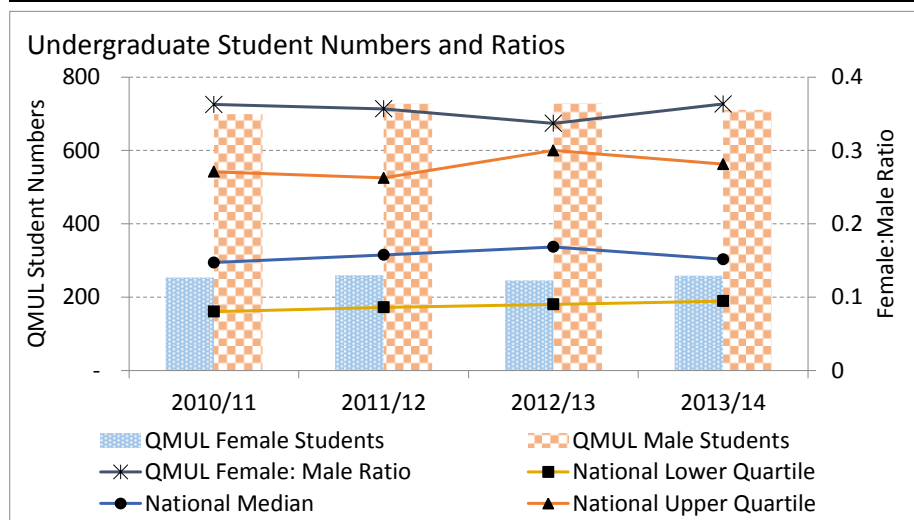
The school runs 4 foundation programmes that lead into our 3 or 4 year undergraduate programmes. Applicants for our undergraduate courses, who have not studied appropriate subjects at A-level, are encouraged to apply through these entry points. This strategy frequently attracts women who had not considered engineering disciplines when making their A-level choices. To prevent a drop in the number of women on these programmes, we have acted to ensure that there is an emphasis on promoting female role models in our publicity and during

open days. Due to these measures and due to the range of distinctive programmes that are attractive to female applicants, we have maintained the number of female applicants despite falling students numbers overall, thereby improving the female to male ratio on foundation programmes over the last three years. **(AP1.1-1.4)**.

(ii) **Undergraduate male and female numbers**

Overall student population:

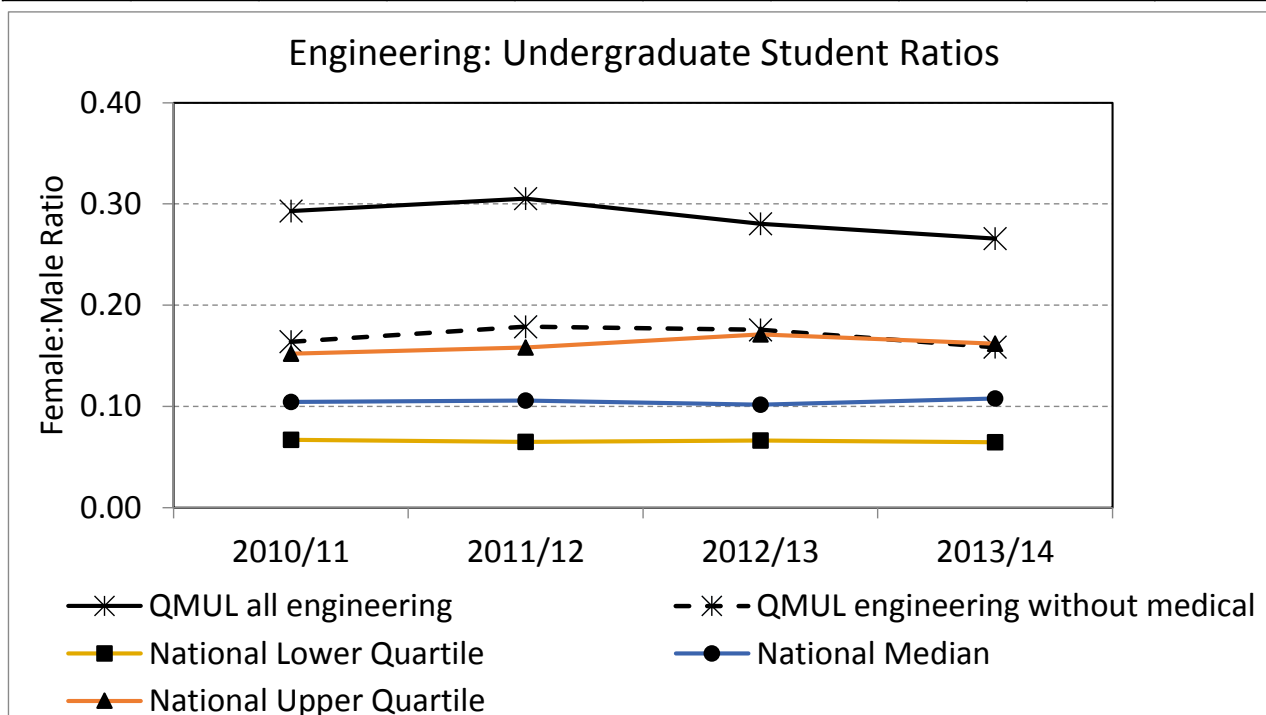
Undergraduate						
	QMUL		Female:Male Ratio			
Year	Female Students	Male Students	QMUL	National Lower Quartile	National Median	National Upper Quartile
2010/11	253	699	0.36:1	0.080	0.15:1	0.27:1
2011/12	259	727	0.36:1	0.086	0.16:1	0.26:1
2012/13	245	728	0.34:1	0.090	0.17:1	0.30:1
2013/14	258	710	0.36:1	0.095	0.15:1	0.28:1



Some 27% of our undergraduate students across all Engineering and Materials disciplines are female. This has been fairly consistent over the last four years. Compared to a national average of 13% of women, this makes QMUL one of the most gender balanced institutions for Engineering and Materials in the UK **(AP1.1-1.4)**. The percentage of female students being higher than the National Upper Quartile in our discipline overall is supported by a strong recruitment of women onto Medical Engineering and Dental and Medical Materials programmes, which are generally more popular with women than traditional Engineering and Materials programmes. Student numbers were divided into the two main disciplines Engineering and Materials, and the student data are presented with and without the medically related programmes to obtain a clearer picture of SEMS' recruitment to the more traditional engineering and materials programmes:

(a) Engineering

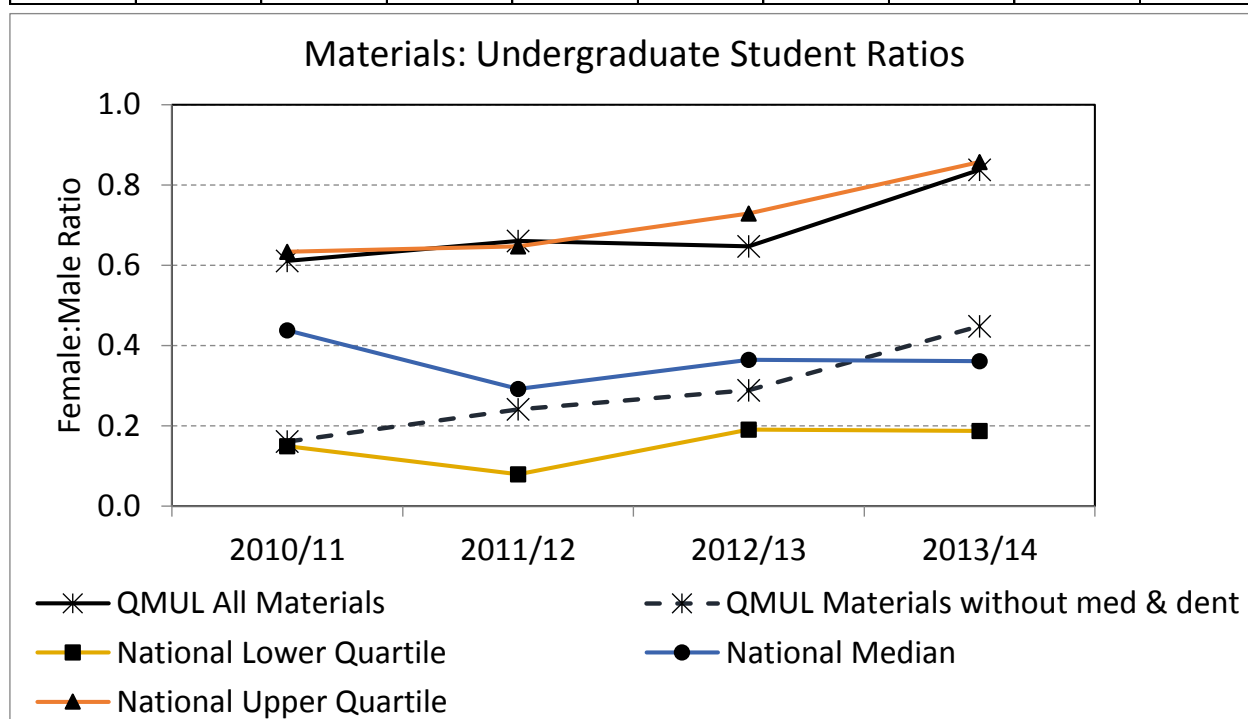
Engineering programmes: Undergraduate									
Year	QMUL all engineering		QMUL engineering without medical		Female:Male Ratio				
	Female Students	Male Students	Female Students	Male Students	QMUL all engineering	QMUL engineering without medical	National Lower Quartile	National Median	National Upper Quartile
2010/11	253	699	76	464	0.29:1	0.16:1	0.067	0.10:1	0.15:1
2011/12	259	727	89	498	0.31:1	0.18:1	0.065	0.11:1	0.16:1
2012/13	245	728	88	501	0.28:1	0.18:1	0.066	0.10:1	0.17:1
2013/14	258	710	76	480	0.27:1	0.16:1	0.064	0.11:1	0.16:1



With 21% female students on engineering courses, the percentage of female students is significantly above the national upper quartile of 14%. To analyse the effectiveness of our recruitment and outreach activities we removed the Medical Engineering stream from the data (dashed line). Even our traditional engineering programmes have 14% female students, which exceeds the national average significantly and tracks the national upper quartile even though the benchmark data includes medical engineering programmes. Female student numbers have remained constant over the last four years with only small fluctuations in the numbers. These data support the view that our sustained activities in outreach and recruitment over the past five years have not only resulted in the recruitment of a higher than national upper quartile percentage of female students on to Medical Engineering courses, but also contributed to the recruitment of a strong female student population into more traditional engineering subjects such as Mechanical and Aerospace Engineering **(AP1.1-1.4)**.

(b) Materials

Materials programmes: Undergraduate									
	QMUL all materials		QMUL Materials without medical and dental		Female:Male Ratio				
Year	Female Students	Male Students	Female Students	Male Students	QMUL all materials	QMUL Materials without med & dent	National Lower Quartile	National Median	National Upper Quartile
2010/11	66	108	9	56	0.61:1	0.16:1	0.15:1	0.44:1	0.63:1
2011/12	70	106	13	54	0.66:1	0.24:1	0.08:1	0.29:1	0.65:1
2012/13	66	102	15	52	0.65:1	0.29:1	0.19:1	0.36:1	0.73:1
2013/14	88	105	26	58	0.84:1	0.45:1	0.19:1	0.36:1	0.86:1



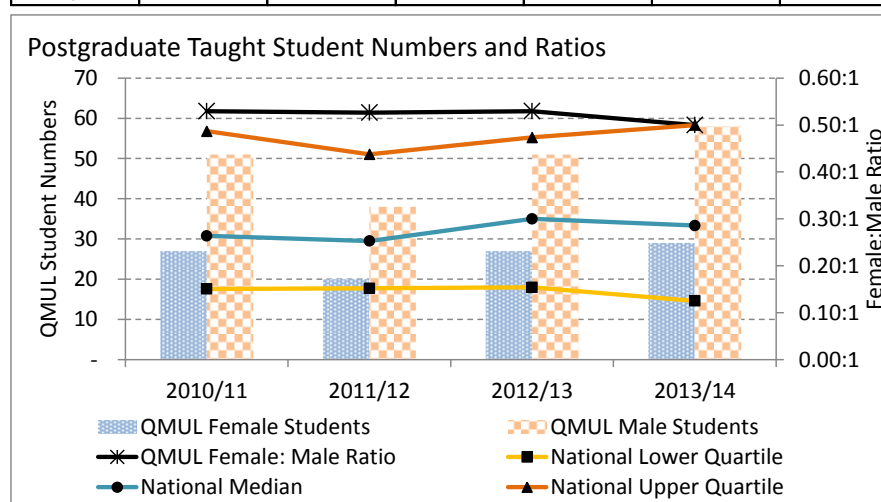
With 46% female students, the percentage of women studying materials science in SEMS is considerably higher than the national average of 26% and tracks the upper national quartile. As with medical engineering, this is partially due to our medical and dental materials programmes. Separate national data for pure and medical materials programmes are not available making a comparison with other universities difficult. We therefore presented the data for our traditional Materials Science programmes separately (dashed line). There has been a steady increase in female student numbers on traditional Materials Science programmes over the last four years while the number of male students has remained almost constant. The recruitment of female students to our traditional materials programmes was relatively poor 4 years ago. Now, with 31% of female students, the percentage of women exceeds the national average of 26%. This demonstrates the success of our recruitment and outreach activities, several of which have been specifically targeted towards recruiting women onto our programmes **(AP1.1-1.4)**.

- ✓ Advertising foundation courses to students with inappropriate A-level subjects attracts a good number of female applicants.
- ✓ Success of recruitment and outreach activities results in large proportion of female undergraduates:
 - ☆ Female:Male ratio on traditional engineering programmes tracks upper national quartile.
 - ☆ Female:Male ratio on traditional materials programmes exceeds national average.

(iii) **Postgraduate male and female numbers completing taught courses**

Postgraduate numbers were not split into different subject areas as the numbers are too small to show any statistically meaningful trends. Many of our Masters programmes cross subject boundaries and have elements of both Engineering and Materials.

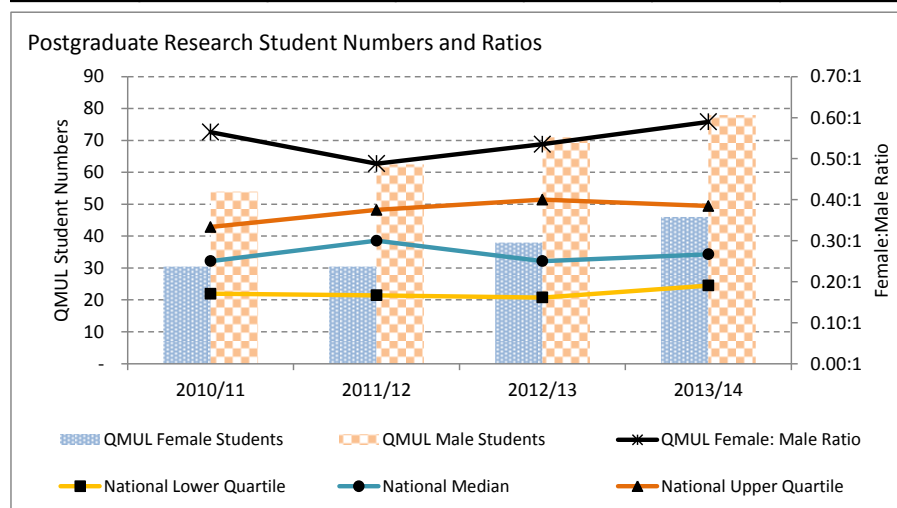
Postgraduate Taught						
Year	QMUL		Female:Male Ratio			
	Female Students	Male Students	QMUL	National Lower Quartile	National Median	National Upper Quartile
2010/11	27	51	0.53:1	0.15:1	0.26:1	0.49:1
2011/12	20	38	0.53:1	0.15:1	0.25:1	0.44:1
2012/13	27	51	0.53:1	0.15:1	0.30:1	0.47:1
2013/14	29	58	0.50:1	0.13:1	0.29:1	0.50:1



The percentage of female students has remained constantly high with 33% compared to a national average of 22%. The female to male ratio among postgraduate students is higher than that of our undergraduate student population. To ensure that the female percentage of taught postgraduate students remains high, we will continue to show strong female role models in our recruitment materials both online and in print **(AP1.1-1.4)**.

(iv) **Postgraduate male and female numbers on research**

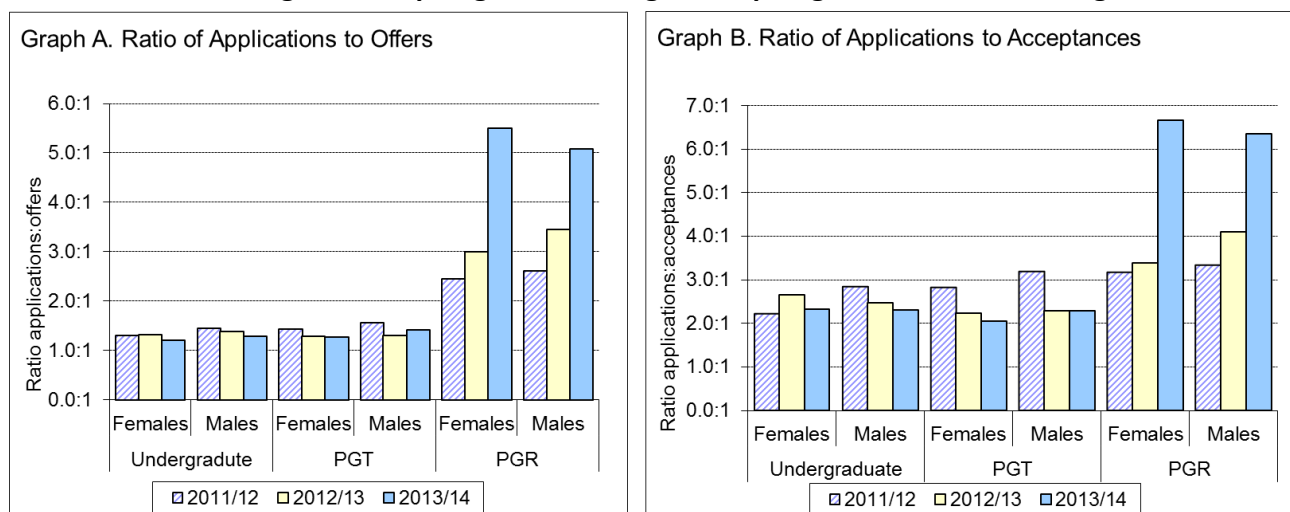
Postgraduate Research						
Year	QMUL		Female:Male Ratio			
	Female Students	Male Students	QMUL	National Lower Quartile	National Median	National Upper Quartile
2010/11	31	54	0.56:1	0.17:1	0.25:1	0.33:1
2011/12	31	63	0.49:1	0.17:1	0.30:1	0.38:1
2012/13	38	71	0.54:1	0.16:1	0.25:1	0.40:1
2013/14	46	78	0.59:1	0.19:1	0.27:1	0.38:1



SEMS has had a consistently high percentage of female PGR students compared to both the national median and the national upper quartile (37% in 2013/14 compared to a national median of 21%). Every effort is made to retain excellent female graduates from our undergraduate degree programmes. A large number of our female graduates decide to stay for a PhD as they appreciate the support they received at undergraduate level as evidenced by our national student satisfaction ratings over the last few years (see support for female students). In addition, our high numbers of female PGR students and PDRAs encourages more women to stay for a postgraduate degree as there is a strong PGR community. The PGR community is also strengthened by the School's engagement in the Women in Science and Engineering (WISE) initiative (see support for female students) **(AP1.7)**.

- ✓ Good support of students at undergraduate level and strong female role models in our publications led to a large proportion of female postgraduates:
 - ☆ Female percentage of taught postgraduates tracks upper national quartile
 - ☆ Female percentage of PhD students significantly exceeds national upper quartile.

(v) **Ratio of course applications to offers and acceptances by gender for undergraduate, postgraduate taught and postgraduate research degrees**



For undergraduate and PGT, the numbers of applications per offer between males and females over the three years are similar. Women generally make slightly fewer applications per offer. The ratio of applications to acceptances does not show any statistically significant trend over the three years for undergraduate and taught postgraduate programmes **(AP1.1-1.4)**.

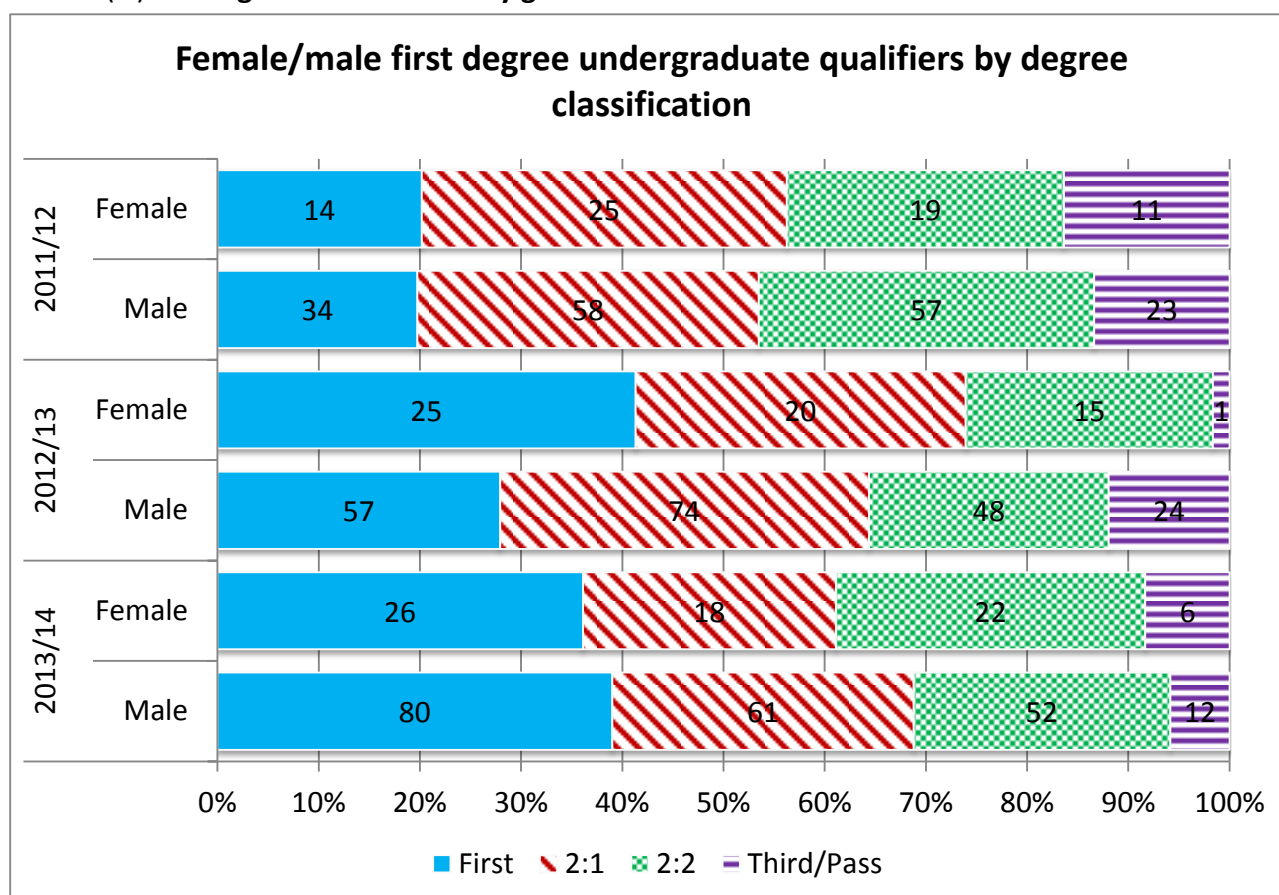
For PGR students, the trend for applications to offers for both genders shows the greatest movement over the years due to an increase in applications but not offers. A significant increase in applications in 2013/14 coincides with QMUL joining the Russell Group. There is no clear trend in applications per offer or applications per acceptance for female and male applicants.

No allowance is made for gender in making offers, and the slightly higher proportion of female applications that receive offers for undergraduate and PGT programmes is due to the quality of the candidates that our programmes attract, which is also reflected in the increasingly strong academic performance of women in our undergraduate and postgraduate programmes.

Last year, the SAT implemented a new policy where staff are strongly encouraged to form gender balanced panels for interviewing PhD candidates. To avoid overburdening female staff with interviewing duties, it was decided to invite PDRAs with a suitable scientific background to join the interviewing panels. This has the added advantage that PDRAs gain valuable interviewing experience. All postdocs will receive training in fair selection prior to interviewing **(AP1.7)**.

- ✓ Gender balanced panels for interviews of PhD candidates
- Fair selection training for PDRAs **(AP1.7)**

(vi) Degree classification by gender



Due to the relatively small numbers, there is no statistically significant difference in the performance of female and male students. In 2011/12 and 2013/14 females and males were equally likely to receive a first class degree, while in 2012/13 female students outperformed male students.

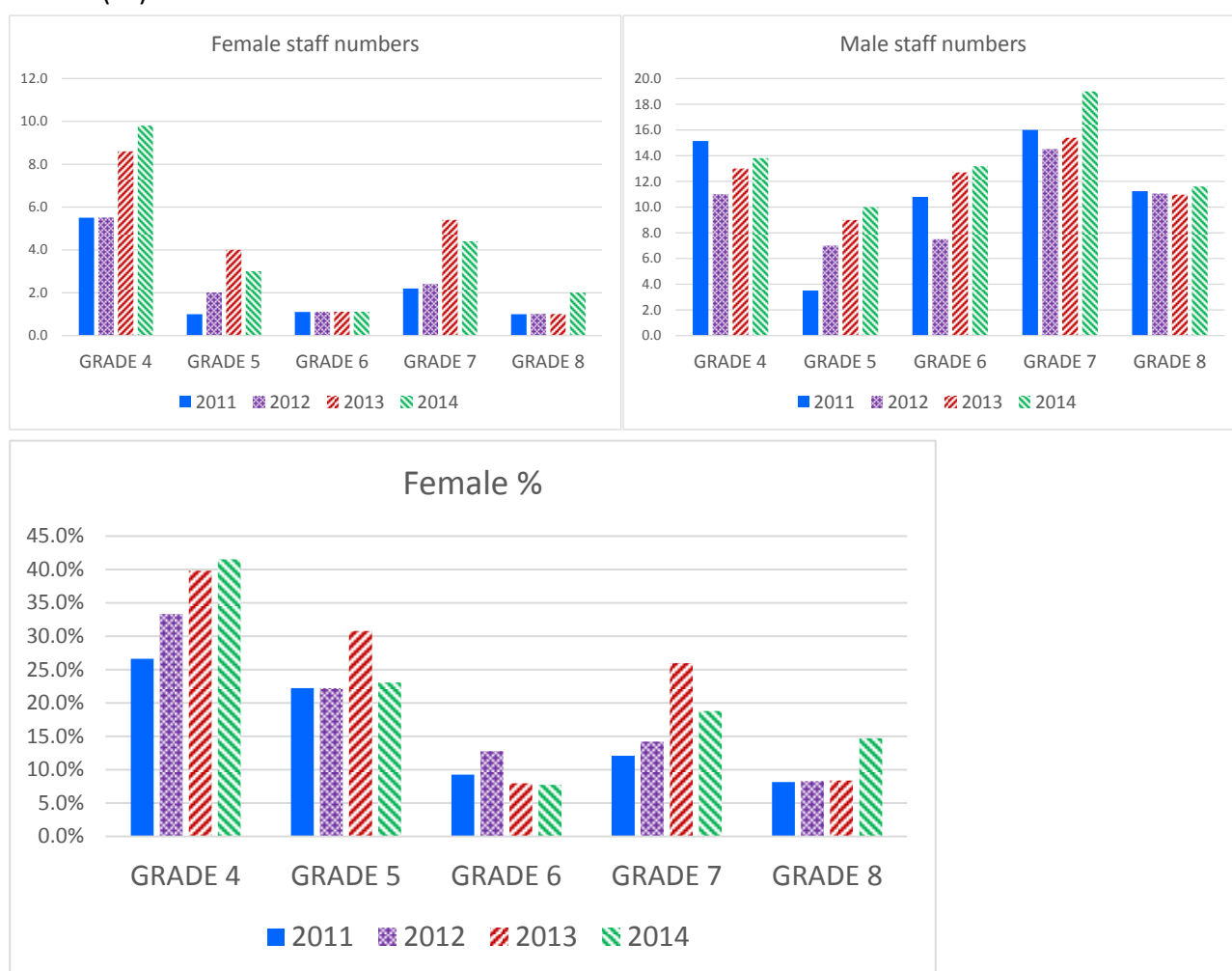
Staff data

Staff data will not be analysed separately for Engineering and Materials as the demarcations between subject areas are blurred.

Notes about grades:

Grades	Job levels within grades
Grade 4	Research Assistants, Research Associates, Post Doctoral Research Assistants
Grade 5	Research Assistants, Post Doctoral Research Assistants, Academic Fellow, Lecturer
Grade 6	Research Fellow, Academic Fellow, Lecturer
Grade 7	Senior Lecturer, Reader
Grade 8	Professor

(vii) **Female:male ratio of academic staff and research staff**



There was an overall increase in the percentage of female staff from 16% in 2011 to 23% in 2014. The current percentage of female staff in SEMS puts us in 5th position among the Russell Group Universities as shown by the benchmark data (see table below). There has been a steady increase in the percentage of female postdocs (grades 4 and 5) from 26% in 2011 to 35% in 2014, which is more typical of our PhD student population. Reflecting the trend in field, it has been recognised that there is still a noticeable drop in female numbers at grade 6 with only 8% of female lecturers. This partly reflects the lower proportions of women studying engineering subjects historically. Although the numbers at grade 7 and 8 are still significantly lower than at undergraduate or postdoctoral level, they have shown a marked increase with 19% and 15% of women at reader and professorial levels.

The increase in the number of senior female academic has been achieved through two routes:

- (i) There has been excellent continuity in the population of female academics in the school as no women at grade 6 or above left and three were promoted to senior lecturer, reader and professor.
- (ii) Recent recruitment led to an increase in the number of female academics from 5 in 2011 to 8 in 2014 **(AP1.6)**.

We will continue to ensure that

- ✓ job adverts for academic posts are gender neutral **(AP1.6)**
- ✓ we have appropriate female representation on all shortlisting and interviewing panels **(AP1.6)**
- ✓ all members of staff are trained in fair selection **(AP1.6)**
- ✓ there is high visibility of the achievements of female scientists/engineers on our webpages **(AP1.3)**
- ✓ we provide support for members of staff seeking promotion through the appraisal process **(AP2.3)**
- ✓ female staff members are put forward for Leadership development programmes **(AP2.3)**.
- ✓ the professorial advisory group actively advises and encourages academics to apply for promotion **(AP2.3)**.

New actions planned to support the recruitment and promotions process are

- Advertising academic jobs through the Womens' Engineering Society **(AP1.6)**
- Unconscious bias training for professorial advisory group **(AP2.3)**.

2013/14 Research and Academic Staff FPE (excluding atypical) in Engineering and Materials at Russell Group Institutions from HEIDI

	INSTITUTION	TOTAL WOMEN	TOTAL MEN	WOMEN (%)
1	University of Manchester	75	220	25.4%
2	The University of Edinburgh	10	30	25.0%
3	Imperial	105	370	22.1%
4	The University of Warwick	55	205	21.2%
5	Queen Mary University of London	20	75	21.1%
6	The University of Cambridge	110	440	20.0%
7	The University of Leeds	30	125	19.4%
8	University College London	25	105	19.2%
10	University of Nottingham	60	270	18.2%
10	The University of Southampton	50	225	18.2%
12	University of Newcastle-upon-Tyne	20	95	17.4%
13	The Queen's University of Belfast	10	50	16.7%
13	The University of Birmingham	20	100	16.7%
15	The University of Sheffield	55	280	16.4%
16	The University of Exeter	25	135	15.6%
17	Cardiff University	10	60	14.3%
17	The University of Oxford	40	240	14.3%
19	The University of Bristol	15	120	11.1%
20	The University of Glasgow	5	50	9.1%
21	University of Durham	5	55	8.3%
22	The University of Liverpool	5	75	6.3%
23	King's College London	0	15	0.0%

(viii) **Turnover by grade and gender**

Two male academic staff (grades 6 and 7) departed in 2011/12, and three male staff (grade 7) in 2012/13. There were no staff departures in 2013/14. No female staff left in the reporting period. All leavers went to other academic appointments.

1991 words

3. Supporting and advancing women's careers: maximum 5000 words

Key career transition points

a) Data for the past three years

(i) Job application and success rates by gender and grade

2011/12	Number of applications for jobs			Count of job offered			Success Rate		
Level of position	Female	Male	Unknown	Female	Male	Unknown	Female	Male	Unknown
Grade 4	3	5	1	-	-	1	0%	0%	100%
Grade 5	2	14	2	-	-	2	0%	0%	100%
Total	5	19	3	-	-	3	0%	0%	100%
2012/13	Number of applications for jobs			Count of job offered			Success Rate		
Level of position	Female	Male	Unknown	Female	Male	Unknown	Female	Male	Unknown
Grade 4	2	6		1	1		50%	17%	
Grade 5	30	170	6		3	2	0%	2%	33%
Grade 7	11	83	11			2	0%	0%	18%
Grade 8	12	111	9		6	2	0%	5%	22%
Total	55	370	26	1	10	6	2%	3%	23%
2013/14	Number of applications for jobs			Count of job offered			Success Rate		
Level of position	Female	Male	Unknown	Female	Male	Unknown	Female	Male	Unknown
Grade 4	14	52	1	1	10	-	7%	19%	0%
Total	14	52	1	1	10		7%	19%	0%

The data shown above may not be fully representative as the online recruitment system only ensures full data capture from 2013/14. The numbers are too small to draw any statistical significance. Applicants frequently withhold their gender at the application stage, which makes it impossible to determine success rates for males and females.

12 academic staff were recruited in the last three years, 9 male (4 lecturers, 2 senior lecturers, 1 reader and 2 professors) and 3 female (1 lecturer, 1 senior lecturer and 1 reader). Another female professor will join the school in September 2015. 25% of newly recruited academics were female, which shows the success of the changes made to our advertising strategy (see recruitment of staff). SEMS will become a member of the Women's Engineering Society (WES). This will allow us to advertise academic appointments via WES and thereby reach a wider community of highly qualified female engineers **(AP1.6)**.

- ☆ Three new female academics appointed as a result of improved advertising, shortlisting and appointment procedures.
- Future advertising of academic posts via WES **(AP1.6)**.

(ii) Applications for promotion and success rates by gender and grade

2011	Number of Applications for Promotion		Number of application that were successful		Success rate	
Level of position	Female	Male	Female	Male	Female	Male
Grade 6	0	2	0	0		0%
Grade 7	0	3	0	2		67%
2012	Number of Applications for Promotion		Number of application that were successful		Success rate	
Level of position	Female	Male	Female	Male	Female	Male
Grade 6	1	3	1	0	100%	0%
Grade 7	2	7	1	3	50%	43%
2013	Number of Applications for Promotion		Number of application that were successful		Success rate	
Level of position	Female	Male	Female	Male	Female	Male
Grade 6	0	3	0	3		100%
Grade 7	0	1	0	1		100%
2014	Number of Applications for Promotion		Number of application that were successful		Success rate	
Level of position	Female	Male	Female	Male	Female	Male
Grade 6	0	0	0	0		
Grade 7	2	2	1	0	50%	0%

In our last reporting period (2008-11), only a single female academic and very few male academics applied for promotion over a three year period. To address this problem, the appraisal system was significantly improved giving all members of staff the chance to have constructive discussions about their career progression. A professorial advisory group was formed in 2012 to provide staff with advice on their applications for promotion (see career development). **(AP2.3)** The improved support showed positive impact. Over the last four years, 71% of eligible female and 62% of eligible male academics applied for promotion. Women have been pro-actively targeted and encouraged to attend 'pathways to promotion' workshops organised by the university twice a year. SEMS has been leading a review of the promotions process at faculty and university levels to make it more transparent, to include further elements for promotion such as outreach activities and to create better career pathway for staff who are on teaching-only contracts.

No statistically relevant conclusions can be drawn about the success rate as the numbers are too small.

- ☆ Higher percentage of women applied for promotion than in previous years.
- ☆ Three women promoted to senior lecturer, reader and professor.
- ✓ Improved appraisal system supports career development of academic staff.

b) Key issues, steps taken and impact.

(i) Recruitment of staff

To ensure a high level of female applicants for posts, SEMS actively promotes women on its website and in its brochures. The Athena SWAN Bronze Award logo is displayed on the school's main website, on the SEMS vacancies website and on job adverts. The HoS incorporates the logo in all e-mails. All staff who sit on interview panel have to undertake a recruitment and interview skills training that covers equality and diversity and have to attend a refresher course every 3 years. The School ensures that there is relevant female representation on all interview panels. We are working with the Equality and Diversity team in HR to ensure that all of our recruitment materials are gender neutral and encourage a diverse range of applicants **(AP1.6)**. As a result of these changes, three additional women were recruited to the permanent academic staff.



Dr Karin Hing receives the Institute of Materials, Minerals and Mining Kroll Medal and Prize
<http://www.sems.qmul.ac.uk/news/?eid=3442>

(ii) Support for staff at key career transition points

Key areas of attrition that have been identified by QMUL are the transition of female postdoctoral researchers (PDRAs) into permanent posts and the promotion of female staff beyond the senior lecturer/reader level.

The college's centre for academic and professional development (CAPD) provides a dedicated programme to PDRAs that allow them to take part in personal effectiveness training, media training and public engagement exercises that equip them for future careers. The University has a PDRA support officer and a dedicated Researchers' careers officer who are responsible for working with them to ensure that they are able to move onto fulfilling careers either inside academia or in industry. For PDRAs who want to progress into academia, annual coaching sessions about how to apply for early career fellowships are provided.

The School has a good track record for PDRAs to progress into permanent academic posts. Of the current academic staff, nine were previously employed as PDRAs (four women and five men). In 2014, we launched a school wide PDRA mentoring scheme. Mentors and mentees received training, and most have met several times. The uptake was relatively low with 6 mentees. However the initial feedback from a survey ran 3 months after the launch of the scheme was very positive. We will continue to advertise and expand this scheme. **(AP2.1)**

SEMS provides dedicated networking opportunities with two annual events organised by the school, the Graduate Road Show and the Industrial Liaison Forum (see culture). Further networking opportunities exist within the research centres, each of which organises its own seminar programme. The School runs several informal seminar programmes at which the female PDRAs and PhD students frequently talk. **(AP2.1)**

In terms of staff development, the school provides a mentoring programme for probationary staff. The School nominates both men and women to attend leadership training sessions run by the University's CAPD. Dedicated support for women has been provided by the University's annual 'Women into Leadership programme' launched in November 2012, which has been well attended by eligible women in SEMS and supports women who hold reader or professorial positions. The

Head of School has promoted these programmes to relevant female staff to ensure good participation **(AP2.3)**. A university wide women's mentoring scheme was launched two years ago with academics at reader and professorial level mentoring female lecturers and senior lecturers across school boundaries. Eight female academics from SEMS engaged in the mentoring scheme as both mentors and mentees.

- ✓ New mentoring scheme for postdocs launched successfully in SEMS
- ✓ Networking events at annual Graduate Roadshow and Industrial Liaison Forum
- ✓ Informal seminar programmes with PhD student and postdoctoral speakers
- ✓ Mentoring programme for probationary staff
- ✓ Engagement of SEMS academics in university wide schemes.

Career development

a) Key issues, steps taken and impact.

(i) Promotion and career development

In 2012, the HoS founded a professorial advisory group, whose task it was to give staff members individual advice on how to improve their profiles for promotion. Since 2014, the group has also actively identified staff members who are ready to apply for promotion and encouraged them to do so. This has resulted in three women being promoted to senior lecturer, reader and professor. All female professors have been invited to join the advisory group which is now more gender balanced. As part of the group's broader interests, it will participate in unconscious bias training in 2015. **(AP2.3)**.

The appraisal system provides clarity for individuals on how they are progressing in their career, how they may progress in the future and what support is necessary from the School or Faculty to achieve this. It is also intended to allow recognition of contributions across all aspects of an individual's job including knowledge creation, knowledge dissemination, public/business engagement, and enabling activities. There are routes to promotion with clear criteria through both research-focused and teaching and scholarship focused roles. All appraisers are trained and there are good practice guidelines available for both the appraiser and appraisee.

- ✓ Professorial advisory group mentors and advises staff on career progression
- ☆ More women promoted as a result of professorial advisory group
- ✓ Outreach, administrative and pastoral duties included in promotion criteria
- ✓ Appraisers receive training

(ii) Induction and training

Both the University and the School provide formal inductions for new staff at all levels. All probationary staff members are mentored by a senior academic in SEMS. Networking is encouraged from the onset through the research group meetings and the two industrial networking events organised by the school (see culture). A new induction programme for staff has been developed by the School. It consists of a series of informal meetings that inform new staff members about the various processes at school and university levels. Themes include teaching, research support, careers and the vision for the School. We have also run an Athena SWAN session that raises awareness of the school's commitment to gender equality and the actions we are undertaking including the flexible and part time working policies in SEMS **(AP2.2)**.

The University inductions include a session on equality and diversity, which includes information on gender equality. During induction, staff are informed about flexible working, child-care vouchers and the centrally organised staff development programmes that they can attend at the CAPD.

✓ Induction programme with dedicated Athena Swan session to raise awareness

(iii) Support for female students

The school is engaged in the faculty based WISE (Women in Science and Engineering) initiative. WISE@QMUL (<https://wisegml.wordpress.com/>) aims to provide a networking platform for female undergraduates, postgraduates and academic staff in Science and Engineering seeking encouragement and advice on managing their careers within and beyond academia and tackling life's important questions such as work-home balance. WISE brings together women at early stages in their career for discussion groups, seminars with prominent and interesting women (and men) in the field, workshops and social events.

The Women's Engineering Society (WES) organises annual student conferences. The programme is a balance of personal development sessions and technology hot topics with plenty of time for networking and connecting with employers. SEMS has sent 3 - 5 students annually from our second and third year cohorts since 2012. The students enjoyed the experience and said that they gained "a confidence boost", "practical advice for career development" and "acquired networking skills". The School will get an education membership, which will allow up to 40 students to get free membership and 10 students to attend the annual conference **(AP2.4)**.

There are Materials and Engineering Societies in SEMS, which are both currently run by students and mainly organise social events. The School has been providing support for these societies, which help the student organisers to raise awareness and interest in these societies among both students and staff and to organise seminars and events that can aid career development **(AP2.5)**.

All undergraduate and postgraduate taught students are assigned a personal tutor and have the right to request a change of tutor, for example if they wish to request a female tutor – a request that is always granted **(AP3.1)**. Since 2013/14 the School has been committed to never having just one female in any tutor group to ensure no female student is isolated. This has been extended to practical groups in 2014/15. Tutors provide mostly pastoral support and mentoring. A more structured tutorial system was introduced in 2012/13 to ease the transition from school to university. This was later turned into a compulsory module on "Transferable skills for Engineers & Materials Scientists" **(AP2.6)**. For example, a report writing exercise is carried out over the first 4 weeks of year 1 under the guidance of personal tutors to introduce students to the requirements of problem based learning and report writing at the university. Students received advice how to structure their CVs for job and industrial placement applications. Focus groups were run in autumn 2014 to understand first year SEMS students' response to this new module. The students agreed that it 'helped to bridge the gap between school and university'. They enjoyed the fact that there

were different lecturers and guest speakers. For example, when the careers department came to talk about CVs they said this was particularly helpful.

The school also employs 4 teaching assistants who run subject specific tutorial sessions, are always available to answer questions and have very close interactions with our students. In the past 3 years, at least one of the teaching assistants has been a woman. A peer assisted study support (PASS) scheme was put in place in 2008 to promote more effective peer mentoring for undergraduates. PASS is a buddy scheme between students, where year 2 and 3 UG mentor year 1 UG students. There are always two student organisers for SEMS PASS many of whom have been women. **(AP2.6)**

The strong support provided to our students by the school is reflected by the results of the National Student Survey (NSS) with both Materials and Aerospace Engineering ranked consistently in the top five nationwide for overall satisfaction levels in 2014.

- ✓ Participation in WISE (Women in Science and Engineering) initiative
- ✓ Female students sent to annual WES student conference; WES membership for SEMS
- ✓ No lone women in tutorial and practical groups
- ✓ Module on “Transferable skills for Engineers & Materials Scientists” for first year students
- ✓ PASS mentoring scheme
- ☆ Materials and Aerospace Engineering consistently ranked in top five for overall satisfaction in NSS

Organisation and culture

a) Data for the past three years

(i) Male and female representation on committees

Committee	2011/2012	2012/2013	2013/14	2014/15
	Female	Female	Female	Female
School Executive Team (4)*	1 (25%)	1 (25%)	1 (25%)	1 (25%)
School Management Team (9&10)	2 (20%)	2 (20%)	2 (20%)	2 (20%)
Research Committee (6, 7 & 13)	0 (0%)	1 (14%)	1 (14%)	3 (39%)
Health and Safety Committee (13&16))	3 (39%)	4 (25%)	4 (25%)	4 (25%)
Education and Learning Committee (8&10))	2 (25%)	3 (30%)	3 (30%)	3 (30%)
U/G Staff/Student Liaison Committee (17& 27)	5 (26%)	10 (27%)	10 (27%)	10 (27%)
P/G Staff/Student Liaison Committee (11&10)	4 (44%)	4 (44%)	4 (44%)	4 (44%)

Women are well represented on all decision making committees of the school, commonly corresponding to or exceeding the proportion of female academic staff. Committee membership is determined by an academic's specific administrative duties, for example the heads of research centres join the research committee. This can sometimes lead to an imbalance such as the absence of women on the Research Committee in 2011/12. To improve fairness in the selection of committee members and involve academics of all grades in the decision making processes, the HoS introduced a new policy in 2012/13 that allowed the heads of committees to co-opt two additional members onto the committee, e.g. a female senior lecturer was asked to join the research committee (**AP3.2**). Recent promotions and recruitment resulted in an increase in the number of senior female academics, which has now led to an increase in the number of female academics on the Research Committee as they took on roles as director/deputy director of a research centre. Currently two of our three research centres have a female director.

- ☆ Female representation on all decision making committees
- ✓ Option to co-opt additional members of staff onto committees to address imbalance

(ii) **Female:male ratio of academic and research staff on fixed-term contracts and open-ended (permanent) contracts**

FEMALE												
Row Labels	2011				2012				2013			
	F	FTC	PERM	F Total	F	FTC	PERM	F Total	F	FTC	PERM	F Total
GRADE 4		5.5		5.5	100.0%	5.5		5.5	100.0%	8.6		8.6
GRADE 5		1.0		1.0	100.0%	2.0		2.0	100.0%	4.0		4.0
GRADE 6			1.1	1.1	0.0%		1.1	1.1	0.0%		1.1	1.1
GRADE 7			2.2	2.2	0.0%		2.4	2.4	0.0%		5.4	5.4
GRADE 8			1.0	1.0	0.0%		1.0	1.0	0.0%		1.0	1.0
MALE												
Row Labels	2011				2012				2013			
	M	FTC	PERM	M Total	M	FTC	PERM	M Total	M	FTC	PERM	M Total
GRADE 4		15.1		15.1	100.0%	11.0		11.0	100.0%	13.0		13.0
GRADE 5		2.5	1.0	3.5	71.4%	5.0	2.0	7.0	77.8%	7.0	2.0	9.0
GRADE 6		3.3	7.5	10.8	30.5%		7.5	7.5	0.0%	1.0	11.7	12.7
GRADE 7			16.0	16.0	0.0%	1.0	13.5	14.5	6.9%		15.4	15.4
GRADE 8		2.5	8.7	11.2	22.6%	3.0	8.0	11.0	27.5%	2.2	8.8	11.0
CLINICAL			1.0	1.0	0.0%		1.0	1.0	0.0%		1.0	1.0

All female academic staff in SEMS are on permanent contracts, while a small number of male academic staff have been on fixed term contracts. 100% of women and most men on grades 4 and 5 are on fixed term contracts as these are PDRAs employed on research contracts with a limited duration. All grade 4 and 5 men with permanent positions in the table above are members of the support staff.

b) Key issues, steps taken and impact.

(i) Representation on decision-making committees

The structure of the school has been designed to keep the number of decision making committees small, thereby allowing female representation on most committees without overburdening the relatively small number of female staff. As the data above suggests, most committees have a good gender balance. There has been no problem with underrepresentation of women on committees recently with the growing number of senior female academics increasingly taking on leadership roles. **(AP3.2)** This trend is supported by university wide schemes such as an annual women into leadership programme and a high potential leadership programme. Prof Julia Shelton, who attended the women into leadership programme, is the Dean for Taught Programmes in the Faculty of Science and Engineering.

(ii) Workload model

The Faculty of Science and Engineering has introduced a new workload model, which will ensure that the wide range of activities and administrative responsibilities that are currently added to the typical day are better taken into account and acknowledged. The workload allocation system is designed to include responsibilities around teaching; pastoral, advisor and mentoring roles; research, and administrative duties. The allocation records the weighting of activities to reflect and effect a realistic and transparent distribution of workload throughout the School. The new workload model was piloted in SEMS, but problems with getting the system to yield accurate results have meant that the final implementation of the workload model is still work in progress. A deadline of June 2015 has been set for making the model accessible to all academic staff to promote fairness and equity **(AP3.3)**.

- Workload model to be introduced that includes pastoral, administrative and outreach duties to balance workloads **(AP3.3)**

(iii) Timing of departmental meetings and social gatherings

Staff meetings are always held during core working hours (10-4) to allow staff members with family commitments to attend. **(AP3.4)** The week day on which these meetings are held is rotated so that none of the part time staff are consistently excluded from meetings. It has been recognised that staff members with caring responsibilities may have to leave early. The School has therefore

recorded the staff meetings for the past three years. Since 2014, staff meetings have not been limited to academic staff, but have been open to all staff thereby creating a more inclusive environment. The head of school has also introduced monthly school forums open to all staff, where a single topic of interest is discussed in depth. These forums are held on alternating weekdays, and lunch is provided for all attendees.

Social gatherings in the summer and before Christmas are always held during core hours not only to accommodate staff with caring responsibilities, but also to encourage administrative and technical staff to join in and promote a good working relationship between the different staff groups in the school. **(AP3.7)**

- ✓ Staff meeting held on alternating weekdays during core hours
- ✓ Lunchtime school forums open to all staff
- ✓ Social gatherings during core hours

(iv) Culture

As the composition of the SAT indicates, SEMS has a long history of supporting flexible working and family-friendly policies as well as celebrating the teaching and research success of its students and staff. The School has a friendly atmosphere and offers staff a space with free tea and coffee where staff members can socialise with one another or meet and greet visitors. We have one teaching away day that is generally held on or near the university campus to ensure that staff can attend. The school has five discipline teaching groups and three research groups, which frequently meet over lunch. The research groups also organise the seminar programme. From 2009 to 2011 the proportion of female speakers was very low. Since the formation of the SAT and our regular analysis of the gender balance in seminar speakers, heads of research groups have been encouraged to increase the number of distinguished female seminar speakers who are invited **(AP3.5)**. The total number of seminar speakers as well as the proportion of female speakers has been continuously rising since this intervention (see table below), thereby providing an adequate number of role models for our female PhD students and staff. Molly Stevens (Imperial), Serena Best (Cambridge), Fiona Watt (Kings) and Fran Balkwill (QMUL) were among the high-profile female speakers during the last year to name but a few.

Acad Year	Number of Female Speakers	Number of Male Speakers	Proportion of Female Speakers %
2010/11	2	16	11.11%
2011/12	6	31	16.22%
2012/13	10	43	18.87%
2013/14	14	47	22.95%

There are two big annual events in the school that celebrate the achievements of female and male undergraduate students and PhD students. Our annual Graduate Research Show in autumn coincides with an Industrial Liaison open day and provides students and PDRAs with the

opportunity to showcase their research posters to the School and the industrial visitors attending. This is a valuable opportunity for our graduate students and PDRAs to get feedback on their work, network with industrial visitors, other students and academics. Many of the companies attending this event sponsor prizes for our undergraduate and taught postgraduate students,



which are awarded at this event. The School has sponsored a new prize – the Beryl Beadle prize - named after the first woman to receive an honours degree in Engineering at Queen Mary (AP3.6) and has been awarded to the best overall graduating student for the last two years.

The second event is an Industrial Liaison Forum (ILF) in spring where undergraduates from the School display and discuss their projects in detail with the industrial visitors and academics. Academics and PDRAs get a chance to discuss with companies possible collaborations, work placements and project titles that individual companies might be interested in. One of the aims of this event is to increase the number of work placements that are available to our students. The event also includes a networking lunch for academics and industrial visitors and gives students a chance to talk to the visitors about industrial placements. Every year, a large number of alumni from our courses are invited to attend the ILF in spring. Traditionally, this also includes a significant number of female alumni. This provides our students with a chance to talk to female and male role models and get positive feedback for their own career choices.

The school holds two major social gatherings per year, a summer party and a Christmas party, which are open to PhD students and all academic, clerical and technical staff. The summer party is a family friendly gathering (AP3.7).

- ☆ Steady increase in the number of female speakers.
- ✓ Industrial liaison forum and graduate roadshow for students and PDRAs to showcase their work and network with industrial visitors.
- ✓ Female named prize introduced.
- ✓ Two social gathering open to staff and PhD students.

(v) Outreach activities

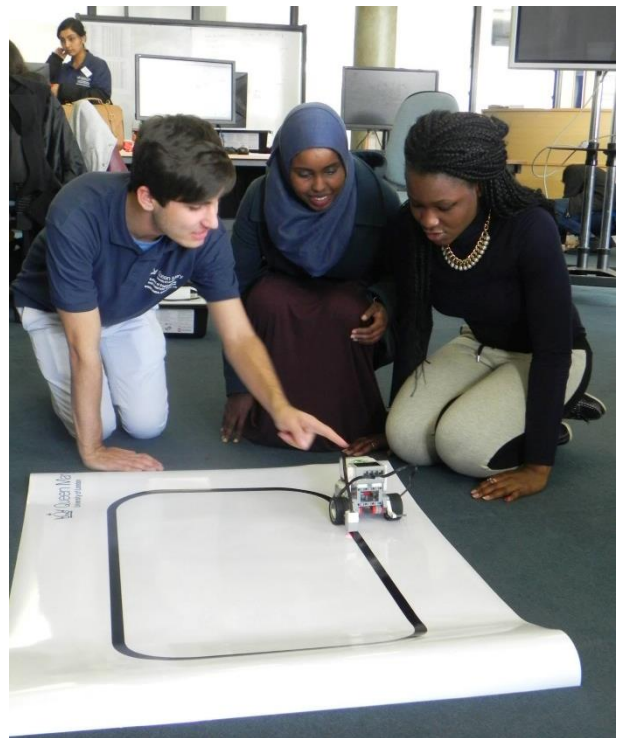
The School is committed to both Outreach and Public Engagement. In an effort to attract the best qualified candidates into SEMS and to raise the general profile of engineering with young people we have developed a number of 'outreach' and widening access activities including summer schools, subject focussed sessions for schools and outreach activities for different year groups. The Outreach team is committed to bring SEMS subjects to audiences that may not have been traditionally interested in the subjects including female students.

SEMS runs a minimum of 70 outreach events in schools per year, meaning that we speak to about 4,000 students a year, giving us a large audience to promote our subject area to. When running school visits, we ask schools to ensure that they send a certain proportion of female students if possible. **(AP1.4)**

This year, we are developing a Target School list; we aim to work with secondary schools which produce qualified students who do not go to study STEM subjects and schools with low participation in STEM subjects from female students; we will offer targeted STEM activities with both SEMS staff and Student Ambassadors. This academic cycle, we have been successful in securing funding to extend our work with schools that meet our Widening Participation criteria (one being working with female students); through this funding we aim to reach a further 50 schools **(AP1.1)**.



Since 2004, we have been running a one-day Taster course specifically aimed at female students interested in Engineering to open up the possibility of engineering to those who may believe it to be an exclusively male profession, or who would not wish to attend a predominantly male activity. This event has run successfully, with a very engaged and enthusiastic group of girls attending each year. It started with 30 students, but has grown to 60+. We have found that this provides them with an environment where they feel comfortable asking questions. The feedback consistently shows that they enjoy being able to work in female only groups when making these important decisions about their future. Since 2012, we have ran our annual female-only three-day Headstart course for 30 year 11 students. It has been successful, and this year we have secured funding to develop the practical activities on this course further **(AP1.1)**.



For approximately 10 years, SEMS has run a 4 day Widening Participation event for year 12 students from lower socio-economic groups. This tends to attract almost exclusively male students; in order to address this imbalance we intend to offer a second week that is open to female students only from lower socio-economic groups next year **(AP1.1)**.

In March 2014, SEMS marked International Women's Day by running a STEM event with other QMUL Schools for 60 female year 9 & 10 students. In June 2014 to recognize the first ever 'National Women in Engineering Day', Dr Karin Hing wrote a blog for WES. We intend both dates to be a regular features in our outreach calendar. **(AP1.1)**

SEMS ensures that female academic staff and students are present at outreach and recruitment events. Our Student Ambassadors team attracts a high proportion of female students, ensuring

good female representation of students at these events. SEMS similarly prioritises female student representation in recruitment literature and on the School website. We have created a 'Student voices' page on the website, which provides testimonials from current students, to showcase female positive role models (from both students and staff) for potential applicants. **(AP1.4)**

The School encourages both male and female staff to take part in these activities and their participation is taken into account in the promotions process and in the new workload model.

Flexibility and managing career breaks

a) Data for the past three years

(i) Maternity return rate

The maternity return rate for researchers and academic staff has been 100% for many years, although this only affected a relatively small number of women. In the last three years, one grade 5 researcher took maternity leave and returned. One senior lecturer went on maternity leave in September 2014 and returned recently (see case study).

(ii) Paternity, adoption and parental leave uptake

Paternity leave:

	2011	2012	2013	2014
Grade 3		1		
Grade 4	2	1		1
Grade 5		1	1	
Grade 6	1	1	1	
Grade 7		1	1	
Grade 8				
Total	3	5	3	1

Over the last three years, 9 members of staff across all grades have taken paternity leave, an increase compared to 5 members of staff who took paternity leave over the reporting period of our last Athena Swan submission. As a result of action through the equality committee, QMUL now offers an enhanced package of paternity leave. No staff members took adoption leave or paternity leave.

(iii) Numbers of applications and success rates for flexible working by gender and grade

The following staff members are working part time:

	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Total
Female	3	0	1	2	0	6
Male	1	0	3	2	5	11

The number of part time working women increased by two and the number of part time working men decreased by one over the last three years. All requests for part time/flexible work have been granted in the reporting period:

Year	Applications for flexible working
2014	1 application- female grade 4. Approved
2013	non
2012	1 male application grade 5. Approved
2011	1 application. Female grade 7. Approved

The School introduced a part time working guarantee in 2012. Staff members who decide to reduce their FTE for flexible working needs will be guaranteed that they can return to their previous maximum load. (This excludes people who reduce their load to take on jobs in different institutions.) The scheme is publicised regularly in the SEMS newsletter **(AP4.1)**.

✓ Part time working guarantee introduced.

b) Key issues, steps taken and impact.

(i) Flexible working

There are 17 members of staff, including research assistants and academics, who are working part time. This includes 3 academics, 2 females and 1 male, who are working part time to support their families. Other academics are working part time because they have commitments in a second work place, sometimes at a different university, sometimes in a company.

Part time work has not excluded academics from promotion. Both female and the one male part time academic with child caring responsibilities have been promoted to senior lecturer, reader and professor, respectively.

The School provides staff members with a remote desktop that allows them to work efficiently from home. Academic staff members can also choose to undertake their marking at home and submit marks electronically when they are not able to be at the University.

Flexible work arrangements can be made formally by applying to Human Resources or informally within the School. Only one female academic on a part time contract has a formal flexible work arrangement (see case study). However, many academics with caring responsibilities for children or elderly relatives have informal flexible work arrangements tailored to their needs within the school that allow them to arrive late or leave early and make up time by working from home. Some examples are given in the pen portraits of the SAT and the case studies. Teaching is organised in groups of two or more staff to allow flexibility for half term holidays, conference attendance etc. **(AP4.1)**

- ✓ Remote desktop facilitates working from home
- ✓ Formal and informal flexible work arrangements implemented
- ✓ Teaching organised in groups of two to increase flexibility

(ii) Cover for maternity and adoption leave and support on return

The school recognises that staff members returning from maternity leave or long-term illness frequently lose momentum in their research activities. In order to counteract this, the School implemented a policy in 2012 that gives returning staff members additional support. The support is discussed on a case by case basis and could be a significantly reduced administration and teaching load during the first full semester of their return to allow them to get their research back on track. Alternatively the school may fund a senior PDRA to help with the running of the research group during the maternity leave period **(AP4.2)**. A senior lecturer who recently returned from maternity leave was the first staff member to benefit from this support (see case study).

Cover for PhD students will be provided by their second supervisors who are required to give support to PhD students without changing the strategic direction for their research projects. The school will bring in additional staff to cover teaching or administration during the extended absence and for a sufficient period after. Although the additional staff may not cover the specific teaching of the absentee, as a re-shuffle of duties may be more advantageous, this will guarantee that none of the existing staff members experiences an increase in their load during this period. Staff on leave are encouraged to keep in touch with the School via remote access and occasional visits. Changes in caring responsibility have often led to informal agreements for flexible hours, while others (both male and female) have chosen to change from full time to part time contracts.

In the cases concerned, the school management has been very supportive when changes in percentage FTE or flexible working were requested. The recently implemented part time working guarantee makes the decision to temporarily change the FTE much easier.

✓ Improved maternity support implemented in 2012

4983 words

4. Any other comments: maximum 500 words

SEMS culture survey:

A culture survey was run in SEMS in November 2014 with 51% of staff responding. A number of responses were very positive. The majority of respondents agreed that

- ✓ staff are treated on their merits irrespective of gender (e.g. both women and men are actively encouraged to apply for promotion and take up training opportunities) (76%),
- ✓ the School is a great place to work for both women and men (59%),
- ✓ they felt confident that their line manager/supervisor would deal effectively with any complaints about harassment, bullying or offensive behaviour (79%),
- ✓ work related social activities in SEMS such as staff parties, team building or networking events, are likely to be welcoming to both women and men (84%),
- ✓ meetings are organised within core hours (66%).

Some issues that SEMS can improve on are listed below:

- Only 38% of respondents reported that they understood the promotions process and criteria. SEMS has been leading the discussion within the faculty and the university that has led to the development of much clearer university level promotion criteria that will be implemented in the 2015 promotion round. The HoS will also encourage staff to attend the 'pathways to promotion' workshops more strongly as take up by SEMS staff has been quite poor to date **(AP2.3)**.
- Only 30% of respondents agreed that SEMS has made it clear what its policies are in relation to gender equality (e.g. discrimination, parental leave, carer's leave, flexible working). This will be addressed by the creation of a dedicated website: "Athena Swan in SEMS" and by regular presentations and discussion of Athena Swan related issues at all staff meetings and by publications in the SEMS newsletter **(AP2.2)**.
- There were significant differences in the perceptions of fair work allocation, particularly for part-time staff (43%) as compared with full-time staff (62%) and men (54%) when compared with women (68%). The imminent publication of the workload model to all staff should address this problem **(AP3.3)**.

As the results of the culture survey were only made available to SEMS very recently, the discussion about the results and how to address some of the points above are still ongoing. We will repeat the survey in 2016 to monitor the effectiveness of the actions put in place to improve staff satisfaction **(AP3.8)**.

PDRA Mentoring Survey

A call for PDRA seeking offline mentoring was put out amongst SEMS postdoctoral researchers. The first cohort attracted 6 candidates (5 female, 1 male). Topics discussed in mentoring sessions included academic career progression, research funding and other facets of academic professional development. The six mentor-mentee pairs were surveyed 3 months into the start of this pilot mentoring programme. Participants found the sessions useful and constructive to their careers, while remarking that it is too soon into the scheme to expect any major changes in behaviour.

We will continue to advertise the PDRA mentoring scheme to attract more participants and monitor its effectiveness by running another survey in 2016 **(AP2.1)**.

492 words

5. Action plan

See appendix.

SEMS Action plan as of April 2015

Action	Description of action	Success Measure	Action taken already at April 2015	Further action planned at April 2015	Impact to date	Action owner	Time scale	Start date
1	Recruitment and outreach activities							
1.1	Incorporate recruitment and outreach activities that are specifically targeting female students into the School action plan for outreach and admissions at UG and PG level	Continued interest of female students in the taster courses targeting women Move towards a female:male ratio of 1:1 in traditional engineering and materials subjects	Taster course "Women in Engineering" has been running successfully since 2004 The practicals of the taster courses, including "Women in Engineering" have been updated and modernised Female only Headstart course has been running since 2012 SEMS employs a dedicated Outreach and Recruitment Officer and a Marketing, Communications and Admissions Manager. STEM event with other QMUL Schools for 60 female year 9 & 10 students on International Women's day. Recognised first 'National Women in Engineering Day' by writing a blog	Headstart course, Women in Engineering taster course, events for International Women's day and National Women in Engineering Day will continue to run on an annual basis. Widening Participation event will be expanded to target female students from lower socio-economic groups Practical component of Female only Headstart course will be updated.	Percentage of female students on traditional materials and engineering programmes consistently higher than national average.	Marketing, Communications and Admissions Manager	2015/16 ongoing	2004
1.2	Monitor UG and PG student data by gender Annual report to -Executive Team -Staff meeting	Provide feedback to recruitment process annually. When positive trend is observed analyse reasons to build on it. If negative trend is seen form an action group to remedy	Data collected with the help of the planning office and discussed by SAT	Data will continue to be provided by Planning to the school in spring and will be reviewed every year	Feeds into AP1.1	Marketing, Communications and Admissions Manager	ongoing	2013

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1.3	Develop webpage advertising women's achievements and non-standard career paths	Good gender balance in student and staff applications	News items already show achievements of women in the school	Develop dedicated Athena Swan webpage	Feeds into AP1.1	Marketing, Communications and Admissions Manager, SAT chair	Dec. 2015	May 2015
1.4	Raise the profile of the School's research and teaching subject areas	Broaden the School's appeal to different groups, particularly those currently under-represented in our staff and student body including women	<p>News items appear on the School's webpage on a regular basis.</p> <p>Media campaign with news stories, Staff encouraged to put news stories forward to expand the media campaign</p> <p>'Student voices' page on the website</p> <p>A minimum of 70 outreach events per year such as school visits and taster courses</p> <p>School publications sent to schools and handout at open days, taster courses etc.</p>	Develop a target school list with secondary schools which produce qualified students who do not go to study STEM subjects and schools with low participation in STEM subjects from female students	Continuous increase in entry tariff of incoming students including female students	Marketing, Communications and Admissions Manager	July 2016	2004
1.5	<p>Monitor staff destinations</p> <p>Annual report to</p> <ul style="list-style-type: none"> - Executive Team - Staff meeting 	Provide complete information about reasons for leaving to catch any gender biased trends and feed them back to the Executive Team for analysis and action if required	<p>Destinations of leavers over the last three years were recorded with the help of the School's personnel manager</p> <p>Exit interviews have been carried out.</p>	Continue exit interviews		School Manager	Annual report will be given to the SAT in Oct	Nov. 2012

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1.6	Encourage women to apply for fixed term and permanent posts	Improve the gender balance in applications to achieve <u>20% of female academic staff (grades 6 to 8) with at least 15% of women at each academic grade by 2020</u>	<p>Appropriate women were invited to apply for academic posts.</p> <p>Athena SWAN logo displayed on School webpage and the School's vacancy webpage</p> <p>The Athena SWAN logo is on adverts. The advertisement text used for advertising research and academic posts has been revised.</p> <p>Female representation on interview panels.</p> <p>All staff trained for fair selection.</p>	SEMS will become an Education Member of WES. The membership will allow advertising of academic positions to a community of women engineers.	Three women recently recruited to permanent academic staff → 15% of academic staff (grades 6-8) are female with ≥8% of women at each academic grade. Another female professor to join in Sept. 2015.	HoS, School manager	Dec. 2015	Oct. 2012
1.7	Improve the recruitment process for women for PhD studentships	Improve gender balance in acceptances of PhD studentships	Staff have been asked to ensure female representation on PhD recruitment panels.	<p>Monitor implementation of scheme.</p> <p>To avoid overburdening female staff, PDRAs will be encouraged to sit on panels.</p> <p>Provide fair selection training to postdocs prior to interviewing.</p>	Maintained percentage of female PhD students far above national upper quartile.	Research Manager	Oct 2015	Oct 2014

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2	Career Development							
2.1	Support the career development of PDRAs	Help PDRAs with their transition to permanent posts in academia and industry	<p>2 annual networking events organised by the school; Events organised by the Learning Institute and the university's researchers' career officer have been advertised to PDRAs</p> <p>A school wide mentoring scheme for postdocs has been introduced</p> <p>A QMPlus forum for researchers has been set up to encourage postdocs and PhD students to network with each other across the school.</p>	<p>Monitor the effectiveness and further develop the school wide mentoring scheme for PDRAs</p> <p>Set up workshop centring on job applications, CVs and the selection process.</p>	Positive feedback from postdoc mentoring scheme	Executive team	Oct 2016	Oct 2014
2.2	Improve staff induction and raise awareness of Athena Swan	Raised awareness of the progress of the Athena SWAN action plan in SEMS and flexible and part time working policies of the school	<p>Development of a new induction programme for staff in 2011/12</p> <p>Athena SWAN session has been developed as part of the induction process</p> <p>Athena Swan is now a standing item on the agenda of staff meetings.</p> <p>Part time working guarantee was publicised at staff meetings and in the school news, which are circulated by email and are available on our webpage.</p>	<p>Continue annual Athena SWAN sessions as part of the induction process</p> <p>Develop dedicated Athena Swan website</p>		Chair of the SAT	<p>Ongoing</p> <p>Sept 2015</p>	July 2012

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2.3	Support academics to develop their profiles for promotion	Encouragement of staff to apply for promotion at the right time of their career development to support <u>increase of female representation at all academic grades to a minimum of 15% by 2020.</u>	<p>Professorial advisory group of the school to act as mentors for staff seeking promotion and to encourage staff actively to apply when ready.</p> <p>Piloting of the new system CADRe in the School.</p> <p>The appraisal scheme was improved after the first run.</p> <p>Women encouraged to attend leadership programmes.</p>	<p>Unconscious bias training for professorial advisory group.</p> <p>HoS to encourage staff to attend 'pathways to promotion' workshops.</p>	<p>Increased number of female academics applied for promotion.</p> <p>Three recent promotions of women, one to senior lecturer, one to reader, one to professor.</p>	HoS	<p>2015/16</p> <p>ongoing</p>	May 2012
2.4	Raise awareness of Women's Engineering Society (WES) among female students	Raised awareness of issues affecting the career development of females in a male dominated subject area.	3-5 students have been sent to the WES student conference since 2012	Publicise WES student conference to increase uptake by students.	Attendees reported "a confidence boost", "practical advice for career development" and "acquired networking skills"	Director of taught programmes	ongoing	Nov 2012
2.5	Providing support to Engineering and Materials student society at the School	Raised interest in student society. New forum for social and professional interaction for students and academics	Communication with student societies has been established. Events (seminars, workshops) have been planned since 2012/13	Continue providing support to student societies in the organisation of useful events and establish a constitution		Industrial placement manager	Nov 2016	2012

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2.6	Improved tutorial support	Improved study skills for all students leading to better academic performance in the first year cohort and reduced drop-out rates of less than 5%	A structured tutorial system is currently implemented to ease the transition from school to university Participation in the Peer Assisted Study Support (PASS) scheme.	Continue to improve new tutorial system in response to the needs of the students.	Positive feedback from focus group on training for CV and cover letter writing and help with transition from school to university. Materials and Aerospace Engineering consistently ranked in top five for overall satisfaction in NSS	Deputy Director of taught programmes	April 2017	Sept. 2012
3	Organisation and Culture							
3.1	Ease the transition from school to an engineering course for women	<u>Progression rates >95% for women from first to second year</u>	Ensure that women are not isolated in tutorial groups by assigning more than one woman to a tutorial group This principle is now extended to laboratory groups	Continue to ensure that women are not isolated in any teaching groups formed throughout the course.	Drop-out rate currently at 5.8% Feeds into 2.6	School Manager	April 2015	Oct. 2014
3.2	Improve representation of different genders and grades on different committees	Good balance of genders and grades on all decision making committees to improve fairness of decision making processes	The balance of gender and grades on the Research committee improved by co-opting a female senior lecturer onto the committee.	Review committee membership on an annual basis and co-opt additional members onto committees when an improvement in the balance of genders and grades is required.	The research committee now has two female members thanks to recent restructuring of the committee structure and recruitment.	HoS	Review every year in May	Sept. 2012

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3.3	Improve the distribution of workload across the School	A fair distribution of the workload among all academic staff including teaching, administration, outreach and university activities	A new workload model is currently being piloted in the school	Solve problems with workload model and publish to staff		HoS	June 2015 High priority	May 2012
3.4	Improve involvement of staff who are working flexibly in the School	Participation of all staff in academic staff meetings and their involvement in the decision making processes of the school	Improved timing of staff meeting by organising them in core working hours (10-4) and on different week days to ensure that part time academic staff members can attend most of the meetings. Academic staff meeting now extended to include all staff to give everybody a voice in the development of school policy Lunch time School forums focused on specific topics introduced to allow all staff to contribute to school matters.	Continue to record staff meetings	More inclusive working environment Core hours confirmed by culture survey	School Manager	ongoing	Nov 2012
3.5	Increase the number of female speakers	<u>Move towards 25% of female seminar speakers</u> to provide a larger number of female role models	Gender balance of seminar speakers over the last three years has been recorded and heads of research groups have been asked to address the gender balance of the speaker invited by their groups The School runs informal seminar programmes at which the female postdocs and PhD students frequently talk.	Record gender balance of speakers twice a year. Alert heads of research groups if the female to male ratio falls below an acceptable level.	Increase in the number of female seminar speakers from 11% to 23% over the last 4 years	Research Manager	ongoing	Aug 2012

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3.6	Develop female named prize	Encouragement for female students and promotion of positive role models	<p>A substantial number of industry funded prizes is awarded annually to female and male undergraduate and postgraduate students at all levels at the Graduate Road Show thereby encouraging all students to do well in their courses.</p> <p>A female named prize, the Beryl Beadle prize, has been introduced and awarded twice.</p>	Continue to award Beryl Beadle prize		Director of taught programmes	ongoing	Oct 2013
3.7	Improve social aspect of School	<p>Event organised in Summer 2013 and every year if successful</p> <p>Family friendly culture is promoted</p>	<p>Summer party and Christmas party for all PhD students and staff are seen as positive to working culture</p> <p>Summer party has been turned into a family friendly gathering in a park close to the university</p>	Continue to organise family friendly social gatherings twice a year in core working hours.	<p>Good working relationship between different staff groups</p> <p>Positive feedback from culture survey</p>	School manager	ongoing	Oct 2012
3.8	Monitor staff satisfaction	Feedback to all other action points	<p>SEMS culture survey run in 2014</p> <p>Actions devised to address problems identified in culture survey</p>	<p>Repeat of culture survey, devise further action to address any potential problems</p> <p>Continue to promote women in engineering and awareness of Athena Swan</p>		SAT chair	May 2016	Nov 2014

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4	Career breaks/flexible working							
4.1	Improved flexibility for academics	Improved image of part-time working staff, greater flexibility for all academics	<p>Part time working guarantee introduced by which a member of staff who decides to work part-time can come back to her/his previous maximum FTE at any time</p> <p>A remote desktop for working from home has been available for more than 10 years.</p> <p>Teaching is organised in groups of two or more staff to allow flexibility for half term holidays, conference attendance etc.</p>	Publicise part time working guarantee to all staff		HoS	ongoing	Oct 2012
4.2	Improved support for staff members returning from maternity leave or long-term illness	Enable returning academics to maintain a high career trajectory (e.g. re-energise research)	A policy that provides additional support depending on the individual's needs such as a reduced teaching and administration load in the first full semester after returning or the employment of a PDRA to run the research group during the period of absence has been introduced (see case study).	<p>Publicise the scheme to all staff</p> <p>Monitor efficiency of the new policy</p>	The research group of a senior lecturer on maternity leave was run by an experienced postdoc whose contract was extended by 9 months.	HoS	ongoing	Oct 2012