Athena SWAN Bronze department award application

Name of university: University of Birmingham

Department: School of Mechanical Engineering

Date of application:

Date of university Bronze and/or Silver SWAN award: November 2011

Contact for application: Dr Raya AL-Dadah

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Athena SWAN **Bronze Department** awards recognise that in addition to university-wide policies the department is working to promote gender equality and to address challenges particular to the discipline.

Not all institutions use the term 'department' and there are many equivalent academic groupings with different names, sizes and compositions. The definition of a 'department' for SWAN purposes can be found on the Athena SWAN website. If in doubt, contact the Athena SWAN Officer well in advance to check eligibility.

It is essential that the contact person for the application is based in the department.

Section 1 - Letter of endorsement from the head of department: maximum 500 words

An accompanying letter of endorsement from the head of department should explain how the SWAN action plan and activities in the department contribute to the overall department strategy and academic mission.

The letter is an opportunity for the head of department to confirm their support for the application and to endorse and commend any women and STEMM activities that have made a significant contribution to the achievement of the departmental mission.

UNIVERSITY OF BIRMINGHAM

College of Engineering and Physical Sciences

School of Mechanical Engineering

D T Pham
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To whom it may concern

22 November 2013

Athena Swan Application from the School of Mechanical Engineering

The School of Mechanical Engineering at the University of Birmingham places a strong emphasis on the fair and equitable treatment of staff and students at all levels. We therefore fully embrace the principle and practices of the Athena Swan charter.

Like many Schools in our discipline, we are working from a low base in terms of numbers of female staff and students. However, we are determined to bring about real change in our processes and procedures to promote greater gender equality. We fully realise that the culture shift needed for that will not be simple and will demand time and effort, which we are willing to devote.

As a School, we shall focus our efforts on supporting female colleagues, thus enabling them to be visible and effective role models, and we will provide advice, mentoring and additional opportunities for our students. We also respect the right of individuals to follow faith-inspired viewpoints and lifestyles and shall take any necessary steps to foster greater diversity. There is a genuine and strong desire within the School to make progress and the School is committed to achieving these goals.

During the process of preparing this application, we have become engaged with other Schools in the University also involved in bidding for Athena recognition and with relevant colleagues in Human Resources. We have learnt much from this interaction. This is reflected in the action plan presented in the application document which underlines our determination to implement best practice from across our institution.

I am happy to endorse this application most strongly and shall continue working with our Athena Swan Team and staff within the School to achieve our equality and diversity goals as soon as it is realistically possible.

D T Pham
Chance Professor of Engineering
Head of the School of Mechanical Engineering

Section 2 - The self-assessment process: maximum 1000 words

Describe the self-assessment process. This should include:

a) A description of the self-assessment team: members' roles (both within the department and as part of the team) and their experiences of work-life balance.

The Athena SWAN self-assessment team are:

Professor Duc Pham: Professor of Engineering and Head of School since October 2011; Married with an adult daughter. As Head of School, Duc will be responsible for ensuring the action plan is implemented

Dr. Raya AL-Dadah: Lecturer in Thermofluids since 1996; Postgraduate Research Admission Tutor; Member of the College Post Graduate Admission Committee; Member of the University and College of Engineering and Physical Sciences Athena SWAN Working Groups; Married with two children at School age; Partner is self-employed and shares the childcare.

Dr. Robert Cripps: Senior Lecturer in Geometric Modelling. Director of Education; Deputy Head of School; Head of Geometric Modelling Research Group; Married with one daughter who is currently in her second year studying Psychology at Durham University; Wife works in the financial sector.

Miss Isaline Lefort: PhD student sponsored by Jaguar Land Rover since 2009 working on the pollutant emissions in diesel engine; Master degree at ISAT (French Engineering School)

Miss Jenny Freij: MEng Mechanical Engineering student since 2011; Acting Ambassador for the University as an Exchange Student at the National University of Singapore 2013 - 2014; Founding committee member of WISE (Women in Science and Engineering) Birmingham.

Ms Judith Sutcliffe: Graduated with a degree in Russian with French in 1981, and joined the University of Birmingham in 1983. Currently: Academic Administrator and Deputy Director of Education (UG). Single, partner retired. She works part-time (60% full time) to care for her elderly mother who has since died.

Ms. Sharon Green: Undergraduate Admission Administrator responsible for administering all aspects of the undergraduate recruitment and admissions process, from handling initial enquiries through to the processing of applications, as well as supporting the School's Undergraduate marketing activities. Married with two children of School age and husband works for an engineering company and shares the childcare. She works on 80% full time.

Ms Vashti Bejai: Undergraduate Programmes Administrator and Extenuating Circumstances Officer. She has direct contact with all undergraduate students (male and female) throughout their degree program. She also maintains contact with students after graduation.

Ms Satwinder Rana: HR Adviser at the University since 2011. She works for the College of Engineering and Physical Sciences; she has knowledge of employment law and its implications in the workplace and of the HR policies and procedures at the University. Married and currently expecting her first child.

Ms Susan Squire: University Staff Diversity Adviser works full time. She provides advice and guidance to Schools participating in Athena SWAN and has supported the production of data and examples of best practice for this submission.

The members of the assessment team were divided into three subcommittees; one responsible for undergraduate matters; a second responsible for postgraduate matters and the third responsible for research and academic staff. The members of each committee are; Sub-Committee for undergraduate matters: Dr. Raya AL-Dadah, Ms Sharon Green, Miss Jenny Freij and Ms Vashti Bejai. Sub-Committee for Postgraduate matters includes Dr. Raya AL-Dadah, Miss Isaline Lefort and the directors of postgraduate taught programmes who will be consulted regularly. Subcommittee on research and academic staff matters, Prof. Duc Pham, Dr. Robert Cripps, Dr. Raya AL-Dadah and Ms Judith Sutcliffe. Ms Satwinder Rana and Ms Susan Squire were invited to the main assessment team committee meetings and advised on various human resources and Athena SWAN issues.

b) An account of the self assessment process: details of the self assessment team meetings, including any consultation with staff or individuals outside of the university, and how these have fed into the submission.

The School began the Athena SWAN process in October 2012 when the head of School asked Dr. AL-Dadah to attend a seminar held by the University Athena SWAN Working Group. At the seminar, the Athena SWAN Charter and the University commitment to this charter was explained and hence the School of Mechanical Engineering decided to establish its Athena SWAN Team who would work on establishing activities / actions that build into an application for Athena SWAN Award. Dr. AL-Dadah became a member of the Athena SWAN working groups for the College of Engineering and Physical Sciences and for the University.

Dr. AL-Dadah communicated with various established Athena SWAN working Groups in the College seeking advice on membership of the assessment team. She also wrote to various members of the research and academic staff and students in the School informing them of the Athena SWAN Charter and asking them to become members of the assessment team. The Athena SWAN team was formulated and the first meeting was held on the 30th of January 2013. Since then, the Athena SWAN assessment team has met four times while the subcommittees have met informally several times and communicated frequently via emails.

Apart from the first meeting, the following ones consisted of brainstorming and discussions of specific sections of the application. Sat and Susan provided the data required for the application and Dr. AL-Dadah analysed these data based on consultations with the relevant members of staff. Furthermore, a questionnaire for undergraduate, postgraduate and academic staff was formulated by the postgraduate subcommittee. The aim was to determine the reasons why females underrate a Mechanical Engineering degree, the type of career pursued and the type of activities needed to enhance their experience as female students in the School of Mechanical Engineering of the University of Birmingham. A summary of the outcome of this survey is presented on the School Athena SWAN webpage. The team discussions resulted in establishing an action plan for the School of Mechanical Engineering that aims at increasing awareness of the Athena SWAN Charter **(Action plan section 1)**; continuous monitoring of the female population in Mechanical Engineering **(Action plan section 2)**; enhancing recruitment process of students **(Action plan section 3)** and staff **(Action**

plan section 4); improving the experience of students **(Action plan section 5)** and that of research and academic staff **(Action plan section 6)** and making the School a family friendly place **(Action plan section 7).**

c) Plans for the future of the self assessment team, such as how often the team will continue to meet, any reporting mechanisms and in particular how the self assessment team intends to monitor implementation of the action plan.

The Athena SWAN self-assessment team will meet three times every year to discuss and review progress against our action plan. The meetings schedule and minutes, important events and useful links will be published on the School Athena SWAN webpage that was constructed in July 2013 (http://www.birmingham.ac.uk/Schools/mechanical-engineering/about/athena-swan.aspx). Progress of the School Athena SWAN self-assessment team and important actions will also be reported to academic staff and students through the School staff committee and the student/staff liaison committee meetings. We will also contribute to and benefit from the activities organised by the College and the University's Athena SWAN Working Groups.

Section 3 - A picture of the department: maximum 2000 words

a) Provide a pen-picture of the department to set the context for the application, outlining in particular any significant and relevant features.

The School of Mechanical Engineering is one of the nine Schools forming the College of Engineering and Physical Sciences. The School offers degrees in Mechanical Engineering with options like automotive, biomedical and manufacturing. We are a large and vibrant School with 31 teaching and research staff (5 professors, 2 reader, 6 senior lecturer/researcher, 7 lecturers and 11 researchers) drawn from around the world. Over 350 students attend our undergraduate courses and around 150 postgraduate undertake taught and/or research degrees. After the departure of senior members of staff through early retirement scheme/end of contract/resignation to take jobs elsewhere, a series of appointments were made. These appointments were dominantly at lecturer level with appointee's age ranging from 30 to 40 years old. Thus approximately 65% of the current research/academic staff in the school are of age below 40 years and many of them have families with young children.

In RAE 2008, 70% of the School's research was assessed as world leading or internationally excellent; this research underpins the teaching programmes within the School. There are three research centres in the School; Vehicle Technology, Advanced Manufacturing and Biomedical and Micro-engineering. The School is run by a number of committees that discuss issues related to staff (School staff committee, School promotions committee, School education committee and School postgraduate research committee) and students (student/staff liaison committees for undergraduate, postgraduate taught and postgraduate research). Membership to these committees is based on the administrative roles of the staff and female staff and students contribute significantly to most of these committees.

The School enjoys strong interaction with industry throughout undergraduate, postgraduate and research activities. We have an industrial advisory board with representatives from 4 major UK companies (Jaguar Land Rover, Delcam, Renishaw and Corin). These companies and many others (BP, Rolls Royce, BAE systems, EDF Energy, JCB, Optimal Technologies Ltd) target Birmingham students for placements and graduate jobs. Students undertaking MEng Mechanical Engineering with year in industry benefit from the strong relationship with the industry. The School prides itself with the formula one activity. More than 45 undergraduate students (20% of the team are females) work together every year to produce a formula one racing car with sponsorship from many companies and compete in national and international formula one racing events. With this strong relation with industry, the employability of our graduates is over 90%. A number of our female graduates benefited from this link to industry as shown in the School Athena SWAN webpage. The School also has strong links to the regional Institute of Mechanical Engineers (IMechE West Midlands) who runs regular talks and activities in the School.

b) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

Student data

(i) **Numbers of males and females on access or foundation courses** – comment on the data and describe any initiatives taken to attract women to the courses.

The College of Engineering and Physical Sciences runs a foundation year for students whose qualifications are not accepted for direct entry to undergraduate degree programmes including those of the School of Mechanical Engineering. The Birmingham Foundation Academy (BFA) manages admission to the College Foundation year. Table 1 shows the entrants to the foundation year by gender indicating that the total number of entrants is small and the percentage of female is also small. Only in 2012/13, 40% of the entrants were female. For the coming years, it is proposed to update the marketing literature of the foundation year programme to feature female Mechanical Engineering students **(Action plan section 3.1)**. Also the female population of the foundation year will be monitored and assessed regularly (**Action plan section 2.1**).

Table 1- Foundation year entrants to Mechanical Engineering Programmes

	Foundation Academy		**Entrants %**	
Year	**Female**	**Male**	**Female**	**Male**
2010/11	0	5	0%	100%
2011/12	0	7	0%	100%
2012/13	2	5	40%	60%

(ii) **Undergraduate male and female numbers** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the impact to date. Comment upon any plans for the future.

The School of Mechanical Engineering offers a range of full time undergraduate degree programmes including:

1- MEng Mechanical Engineering: a four years degree programme that requires three A levels in relevant subjects.
2- BEng Mechanical Engineering: a three years degree programme that requires two A levels and one B in relevant subjects.
3- MEng Mechanical Engineering (Automotive): a four years degree programme that requires three A levels in relevant subjects.
4- BEng Mechanical Engineering (Automotive): a three years degree programme that requires two A levels and one B in relevant subjects.
5- MEng Mechanical Engineering with Industrial year: a five year degree programme that requires three A levels in relevant subjects.

The School typically has over 350 UG students reading for the above degrees. Figure 1 and Table 2 show the female population of the School being consistently at 13.5% compared to the 9-9.5% national average based on the HESA data. However, admission data shown in

Table 3 indicates that there is a decreasing trend in the number of females enrolling to year 1.

Figure 1: Female UG population compared to the sector (%)

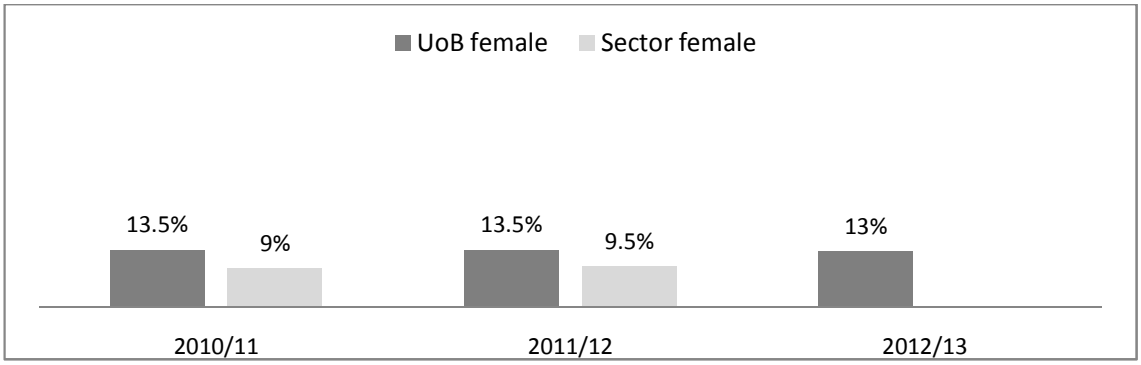

Table 2: Undergraduate population by gender

	School of Mechanical Engineering					National average (HESA)	
Year	**Female UG**		**Male UG**		**Total**	**Female**	**Male**
2010/11	55	**13.5%**	353	**86.5%**	408	9%	91%
2011/12	53	**13.5%**	345	**86.5%**	398	9.5%	90.5%
2012/13	44	**13%**	293	**87%**	337	-	-

Table 3: Undergraduate enrolment (year 1 only)

School of Mechanical Engineering					
Year	**Female**		**Male**		**Total**
2010/11	22	**14%**	133	**86%**	155
2011/12	12	**11%**	96	**89%**	108
2012/13	11	**10.5%**	95	**89.5%**	106

Even though the School female population is higher than the HESA figures, overall females are under-represented in Mechanical Engineering compared to other STEMM subjects **(For example, the female percentage in undergraduate population in the School of Civil Engineering of UoB is 22% (National average based on HESA is 25%) and that in the School of Biosciences is 62% (National average based on HESA is 60%))**. This is due to the general perception that Mechanical Engineering is a male type job and often females are called Mr. rather than Mrs and their names shortene**d** to a male name **(See article by Phillipa Oldham http://www.eurekamagazine.co.uk/design-engineering-features/interviews/interview-with-the-imeches/50102/).** There is a need to communicate what Mechanical Engineering degree in UoB can offer females and what a Mechanical Engineering career can be achieved by females after they undertake a Mechanical Engineering degree from UoB.

Currently the admission team feature female students in marketing and publicity literature; organize the interviewing of female applicants in groups and allow them to be interviewed by female academic staff. Female students act as ambassadors on interview and open days, ensuring that their presence in the School is visible to potential applicants.

In addition to the current activities, it is proposed to feature graduate female engineers in interview and open day's publicity materials. It is also proposed to positively reflect females in Mechanical Engineering by targeting recruitment activities and taking part in initiatives organised by UKRC and national HE STEM initiatives. It is proposed to establish a network of female engineers who are currently employed and involve them in recruitment and various school female activities. Also it is proposed that the Mechanical Engineering Athena SWAN website will feature the biography of female graduates **(Action plan sections 3.1-3.3)**.

The School recruitment and outreach activities to schools and colleges, whilst gender neutral, are inclusive; we ensure that wherever possible female staff and students are involved, providing visible females presence within the discipline. We will continue to explore the motivation of females to undertake the subject and ensure that we capitalise on the positive perceptions that are influencing females to undertake the subject as well as addressing any negative aspects **(Action plan section 3.2)**.

The School contributes to the Access to Birmingham (A2B) scheme which supports sixth form students from families and communities in the West Midlands who have little or no experience of higher education. This scheme did not specifically target women but aimed at students from poor or unusual educational backgrounds like those with special needs and those who have problems adapting due to gap years and career change. However, the number of those joined the school through the A2B scheme is small. In 2010/11 two male students, 2011/12 another two male students and in 2012/13, one female and 4 male students were admitted. The increase in the number of students admitted in 2012/13 is encouraging, therefore it is proposed to update the marketing literature of the A2B scheme to feature female Mechanical Engineering students **(Action plan section 3.1)** and to monitor its female population (**Action plan section 2.1**).

The School has a number of agreements with universities in China, Malysia, Iran and Thailand that enable students to directly join the second or third year of the undergraduate programmes. Table 4 shows that the percentage of female students in the direct entry population is similar to the percentage of female within the overall undergraduate population within the School (Table 2) but slightly higher than the first year enrolment shown in Table 3. The School Athena SWAN activities will also be disseminated to our International partners **(Action plan section 3.1)**. The overall female population (home and international) will be monitored and assessed regularly (**Action plan section 2.1**)

Table 4: Direct entry undergraduate students

2010/11

Year of study	Amirkabir, Iran	Taylors, Malaysia	China	Total
2	0	1	11	12 (0 female)
3	36 (8 female)	25 (2 female)	15 (1 female)	76 (11 female)
Total	36 (8 female)	26 (2 female)	26 (2 female)	**88 (12 female, 13.6%)**

2011/12

Year of study	Amirkabir, Iran	Taylors, Malaysia	China	Total
2	0	0	18 (2 female)	18 (2 female)
3	10 (3 female)	10 (2 female)	3 (0 female)	23 (5 female)
Total	10 (3 female)	10 (2 female)	21 (2 female)	**41 (7 female, 17.1%)**

2012/13

Year of study	Amirkabir, Iran	Taylors, Malaysia	China	Total
2	2 (1 female)	4 (0 female)	26 (2 female)	32 (3 female)
3	3 (2 female)	6 (0 female)	0 (0 female)	9 (2 female)
Total	5 (3 female)	10 (0 female)	26 (2 female)	**41 (5 female, 12.2%)**

(iii) **Postgraduate male and female numbers completing taught courses** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the effect to date. Comment upon any plans for the future.

Figure 2: Female PGT population compared to the sector (%)

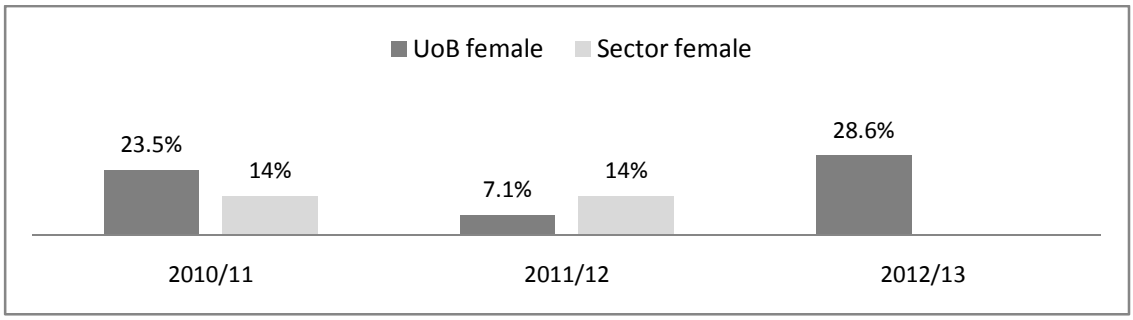

Table 5: Postgraduate taught population by gender

	School of Mechanical Engineering					National average (HESA)	
Year	Female PGT		Male PGT		Total	Female	Male
2010/11	4	**23.5%**	13	**76.5%**	17	14%	86%
2011/12	1	**7.1%**	13	**92.9%**	14	14%	86%
2012/13	10	**28.6%**	25	**71.4%**	35	-	-

The School offers three full time postgraduate taught MSc programmes including Operations Managements (OM), Project Management (PM) and Engineering Management (EM). The overall number of students on these programmes decreased from 17 in 2010 to 14 in 2011 but increased significantly to 35 in 2012. The female percentage decreased from 23.5% in 2010 to 7.1% in 2011 but increased significantly to 28.6% in 2012 which is double

the HESA average for 2010/11 and 2011/12. Even though the current female population is higher than the average national HESA in 2010/11 and 2011/12, the significant reduction seen in 2011 needs to be addressed. It is proposed that a review of the marketing material for the various MSc programmes is carried out and updated to feature female students **(Action plan section 3.1)**. The School also decided to offer a new MSc programme titled Advanced Mechanical Engineering starting in September 2013. The female population in the existing and new MSc programmes will be monitored and assessed regularly (**Action plan section 2.1**).

(iv) **Postgraduate male and female numbers on research degrees** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the effect to date. Comment upon any plans for the future.

Similar to the postgraduate taught programme, a drop in the female postgraduate research population occurred in 2011 (see Figure 3 and Table 6). It dropped from 12% in 2010/11 to 10% in 2011/12 but increased to 12.5% in 2012/13. This population is significantly lower than the national HESA average of 23% in 2010/11 and 21.5% in 2011/12. It is clear, when compared to the undergraduate and postgraduate taught student numbers that the transition from undergraduate/postgraduate taught to postgraduate research degrees is an attrition point for the School where we begin to fall below the sector average. Therefore there is a pressing need to increase the female population of postgraduate research degree programmes. It is proposed to update the postgraduate research programmes promotional literature to feature female research student's achievements **(Action plan section 3.1)**. Also, it is proposed to target our excellent undergraduate female students and encourage them to undertake postgraduate research degrees **(Action plan section 3.5)**. Finally, the female population in the postgraduate research degree programmes will be monitored and assessed regularly **(Action plan section 2.1)**.

Figure 3: Female PGR population compared to the sector (%)

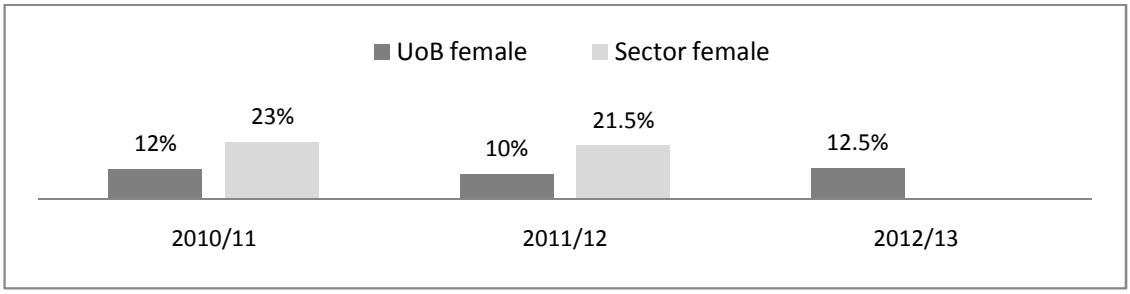

Table 6: Postgraduate research population by gender

	School of Mechanical Engineering					National average (HESA)	
Year	**Female PGR**		**Male PGR**		**Total**	**Female**	**Male**
2010/11	11	**12%**	82	**88%**	93	23%	77%
2011/12	11	**10%**	98	**90%**	109	21.5%	78.5%
2012/13	15	**12.5%**	104	**87.5%**	119	-	-

(v) **Ratio of course applications to offers and acceptances by gender for undergraduate, postgraduate taught and postgraduate research degrees** – comment on the differences between male and female application and success rates and describe any initiatives taken to address any imbalance and their effect to date. Comment upon any plans for the future.

Undergraduates

Figure 4 and Table 7 show that the number of applications (both from male and female) decreased significantly in 2012 but increased again in 2013. The School consistently made more offers to female applicants (67% to 79%) compared to male applicants (51% to 66%) to achieve the same level of offer acceptances. To ensure no significant drop in the coming years, we intend to enhance our outreach activities to Schools **(Action plan section 3.2)** and to improve the quality of our applicants visit days **(Action plan section 3.3)**.

Figure 4a: UG applications by gender (%)

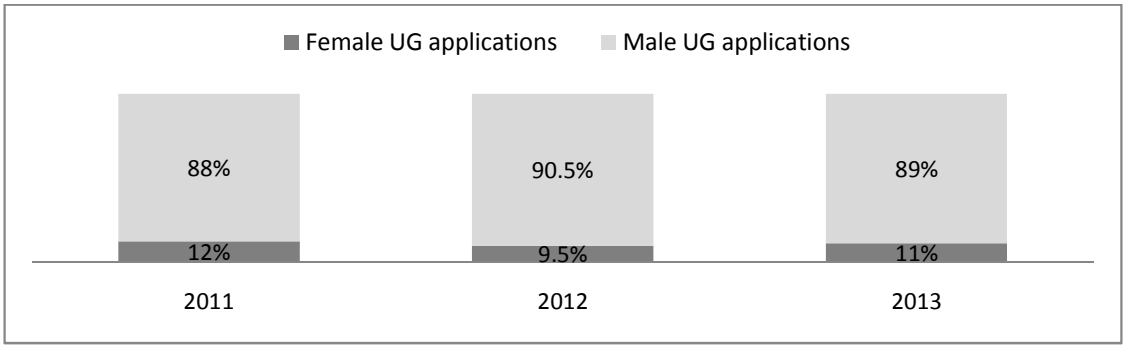

Figure 4b: UG offer and acceptance rates by gender (%)

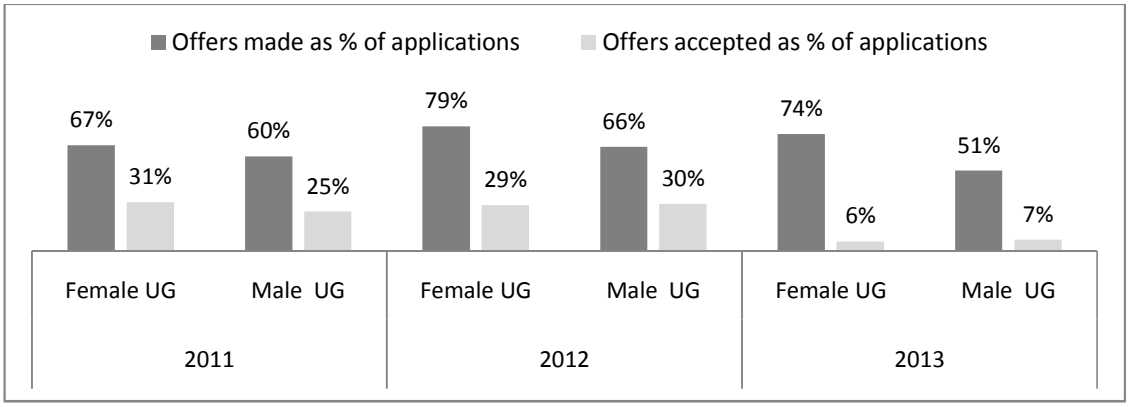

Table 7: UG applications, offers and acceptances

UG applications, offers and acceptances (no.)									
	Applications			**Offers made**			**Offers accepted**		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
Female	106	68	84	71	54	62	33	20	5
Male	765	653	672	457	424	342	190	190	49
Total	**871**	**721**	**756**	**528**	**478**	**404**	**223**	**210**	**54**

Postgraduates - taught

The female percentage applications decreased slightly in 2012 compared to 2011 but increased significantly in 2013 (Figure 5 and Table 8). However, in spite of the significant decrease in the number of applications, the percentage of offers made increased in 2012 and 2013 which resulted in increasing the percentage of accepted applications. We propose to continue monitoring the female applications/offers **(Action plan section 2.1)** and invite female PGT representative to sit on the Athena SWAN self-assessment team meetings to help inform and shape activity to attract PGT applicants (**Action plan section 5.3).**

Figure 5a – PGT applications by gender (%)

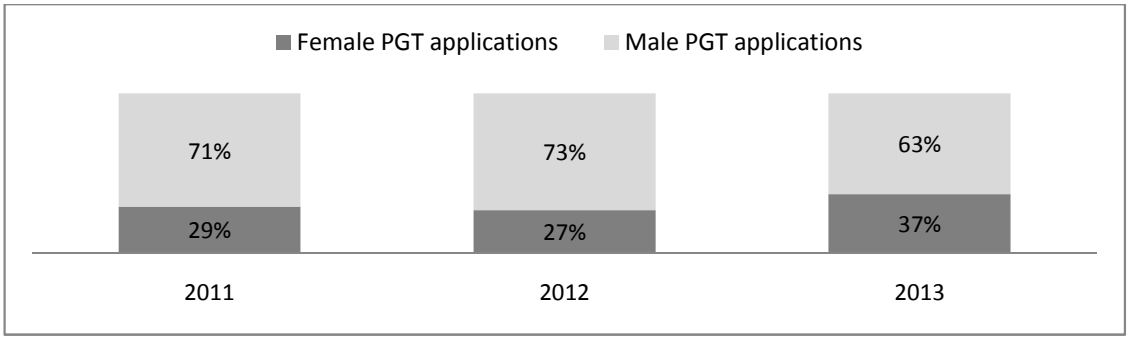

Figure 5b – PGT offer and acceptance rates by gender (%)

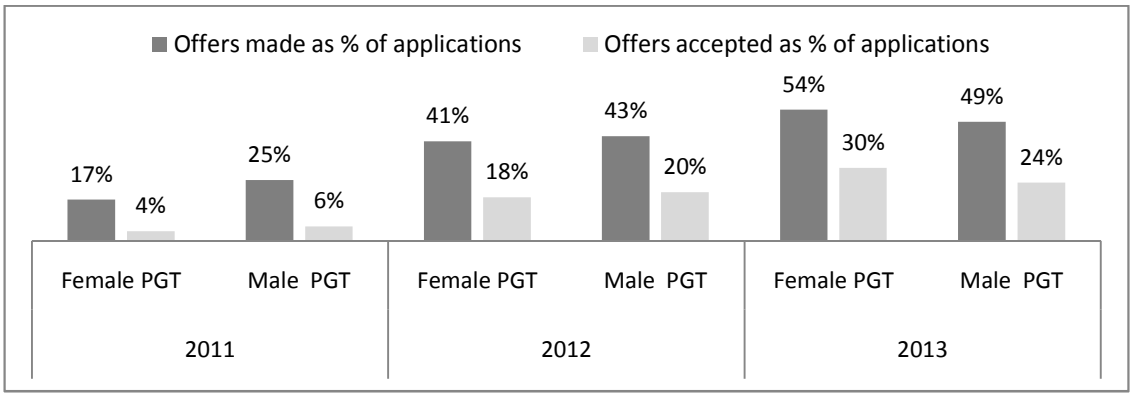

Table 8: PGT applications, offers and acceptances

PGT applications, offers and acceptances (no.)									
	Applications			**Offers made**			**Offers accepted**		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
Female	255	196	165	44	80	89	10	35	49
Male	620	536	281	153	231	138	39	109	68
Total	**875**	**732**	**446**	**197**	**311**	**227**	**49**	**144**	**117**

Postgraduates - research

The percentage of female applications increased significantly in 2012 (16%) compared to 2011 (10%) but decreased again in 2013 (13%) as shown in Figure 6 and Table 9. However, the proportions of offers made and acceptances to those offers decreased in 2012 compared to 2011 but increased in 2013. As the percentage of female PGRs in the School is lower than the national HSEA, it is recommended to monitor the PGR applications, offers

and acceptances regularly **(Action plan sections 2.1 and 2.2)** and correlate the numbers to the changes in the marketing literature as per **action plan section 3.1.**

Figure 6a: PGR applications by gender (%)

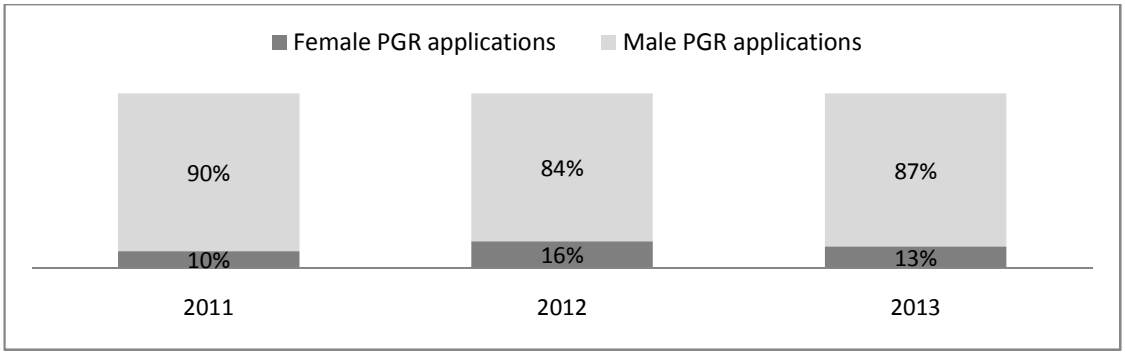

Figure 6b: PGR offer and acceptance rates by gender (%)

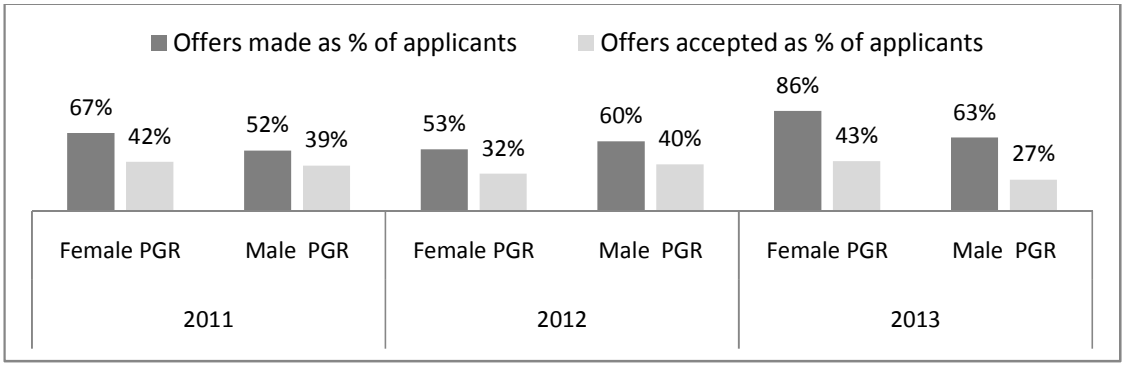

Table 9: PGR applications, offers and acceptances

PGR applications, offers and acceptances (no.)									
	Applications			**Offers made**			**Offers accepted**		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
Female	12	19	7	8	10	6	5	6	3
Male	106	104	49	55	63	31	41	42	13
Total	**118**	**123**	**56**	**63**	**73**	**37**	**46**	**48**	**16**

(vi) **Degree classification by gender** – comment on any differences in degree attainment between males and females and describe what actions are being taken to address any imbalance.

<u>Undergraduate degree outcomes</u>

Figure 7 and Table 10 show that the percentage of undergraduate females receiving a first or upper second class degree increased significantly from 46% in 2010 to 68.5% in 2011 but decreased slightly to 64.5% in 2012. The 64.5% in 2012 is 8% lower than the proportion of male undergraduate students receiving first class or upper second class degrees in Mechanical Engineering and 15.5% lower than the proportion of undergraduate students receiving such degrees in the whole of UoB. Therefore it is proposed that the School will continue to monitor attainment by gender **(Action plan section 2.1)** and introduce support mechanisms specifically for female students if appropriate **(Action plan section 5.5)**. The

support may include tutorial support for female students in the subjects where they underperformed.

Figure 7: Undergraduates receiving a first or upper second degree (%)

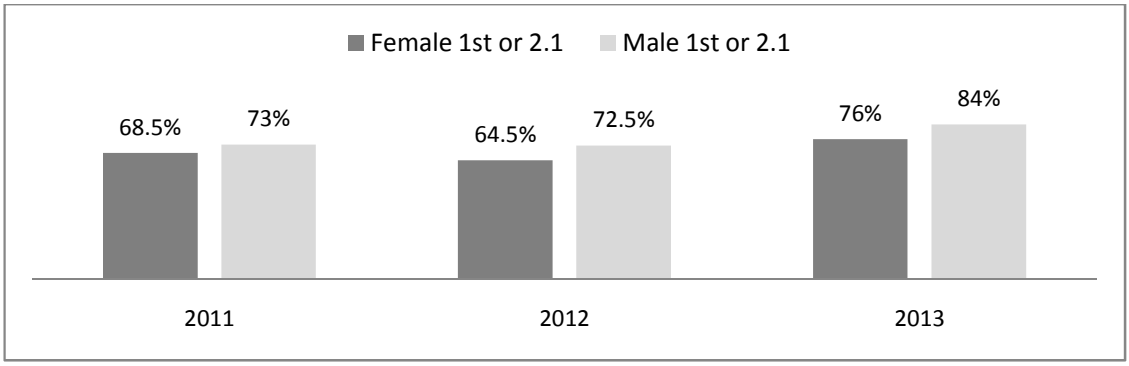

Table 10: Undergraduate degree classification by gender

Undergraduate degree classification by gender					
2010/11	**1st**	6	**21%**	37	**25%**
	2.1	13	**47.5%**	71	**48%**
	2.2	8	**28%**	32	**21.5%**
	3rd	1	**3.5%**	6	**4%**
	Pass	0	**0%**	2	**1.5%**
	Total	28	**100%**	148	**100%**
2011/12	**1st**	4	**28.5%**	30	**27%**
	2.1	5	**36%**	52	**45.5%**
	2.2	4	**28.5%**	29	**26%**
	3rd	1	**7%**	1	**0.5%**
	Pass	0	**0%**	1	**1%**
	Total	14	**100%**	113	**100%**
2012/13	**1st**	7	**41%**	34	**42%**
	2.1	6	**35%**	34	**42%**
	2.2	4	**24%**	11	**13%**
	3rd	0	**0%**	2	**3%**
	Pass	0	**0%**	0	**0%**
	Total	17	**100%**	81	**100%**

Postgraduate taught degree outcomes

Figure 8 and Table 11 show that the proportion of females achieving merit class degree is higher than the proportion of male. However, it is also observed that only in 2012/13, one female student did achieve a distinction while the percentage of males obtaining distinction increased from 15.4% in 2010/11 to 38.5% in 2011/12 but decreased to 28% in 2012/13. Therefore it is proposed to monitor the postgraduate taught female attainment **(Action plan section 2.1)** and introduce support mechanism if possible **(Action plan section 5.5)**.

Figure 8: Postgraduate degree outcomes

Table 11: PGT degree classification by gender

PGT degree classification by gender					
2010/11	**Award**	**Female**		**Male**	
	Distinction	0	**0%**	2	**15.4%**
	Merit	4	**100%**	7	**53.8%**
	Pass	0	**0%**	4	**30.8%**
	Total	4	**100%**	13	**100%**

2011/12	**Award**	**Female**		**Male**	
	Distinction	0	**0%**	5	**38.5%**
	Merit	1	**100%**	7	**53.8%**
	Pass	0	**0%**	1	**7.7%**
	Total	1	**100%**	13	**100%**

2012/13	**Award**	**Female**		**Male**	
	Distinction	1	**10%**	7	**28%**
	Merit	9	**90%**	9	**36%**
	Pass	0	**0%**	9	**36%**
	Total	10	**100%**	25	**100%**

Staff data

Please note:
The staff population data is taken from a snapshot of the staff body in June of each year. Where data is used in relation to an employment process (such as recruitment, promotions and turnover), it is based on a full academic year.

(vii) **Female:male ratio of academic staff and research staff** – researcher, lecturer, senior lecturer, reader, professor (or equivalent). comment on any differences in numbers between males and females and say what action is being taken to address any underrepresentation at particular grades/levels

Currently the School employs 1 female Lecturer and another Researcher who constitute 6.5% of the staff population (Figure 9a and Table 12) . This proportion of female academic staff in the School of Mechanical Engineering represents a significant reduction from the 17% in 2011/12 and was due to loss of 3 female researchers (resignations and expiry of contract). In 2011/12, the proportion of female staff was higher than the HE sector average of 15.5%. However, the 2012/13 female proportion is significantly lower than the HE sector and the Russell Group average. It is also lower than the average female proportion across the College of Engineering and physical Sciences in the University of Birmingham of 17% in 2012/13. At national level (based on 2010/11 HESA data) 15.5% of Professors and 48% of non-professorial academic staff in SET are female, (ECU, Equality in Higher Education: Statistical Report 2012, p.46). This averages out at 40%, which seems quite high.

Overall, however, female members of staff are underrepresented in the School at all levels with no female staff employed above lecturer grade. With this low female staff proportion compared to the postgraduate research female proportion, the transition to academic career is a second key attrition point for the School. We recognise that raising the overall number of female academic / research staff is a key issue for the School. Recently and within the five new academic staff appointments made, one female lecturer was appointed with a starting date of October 2013. We propose to monitor the female research/academic staff **(Action plan sections 2.3 and 2.4)** and introduce various means to support them. The support include improving the staff induction process (**Action Plan section 6.1**), disseminating career development and training courses (**Action plan 6.2**) and developing stronger career support for post-doctoral researchers (**Action plan section 6.4**).

All academic and research staff by gender

Figure 9a: Female Mechanical Engineering academic and research staff (%)

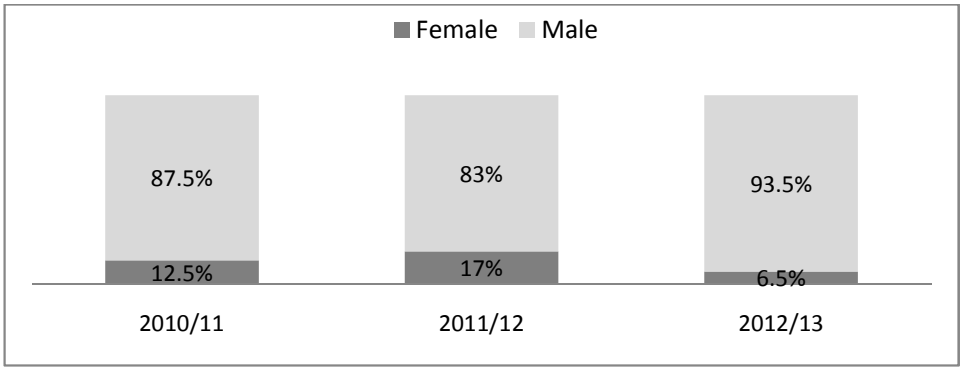

Table 12: Academic and research staff

Academic and research staff			
Year	**Female**	**Male**	**Total**
2010/11	4	28	**32**
2011/12	5	25	**30**
2012/13	2	29	**31**

- **HE sector average** female academic population in Mechanical Engineering 2011/12 is **15.5%**
- **Russell Group average** female academic population in Mechanical Engineering 2011/12 is **15.5%**

All academic and research staff by gender and grade

Figure 9b: Proportion of female Mechanical Engineering staff per grade (%)

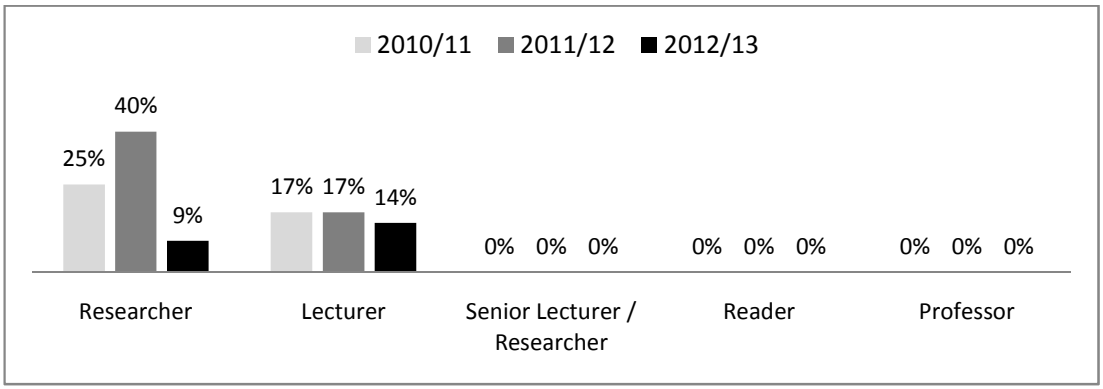

Table 13: Research and academic staff by gender and grade

Female staff by grade						
Year	**Researcher**	**Lecturer**	**Senior Lecturer**	**Reader**	**Professor**	**Total female**
2010/11	3	1	0	0	0	**4**
2011/12	4	1	0	0	0	**5**
2012/13	1	1	0	0	0	**2**

Male staff by grade						
Year	**Researcher**	**Lecturer**	**Senior Lecturer**	**Reader**	**Professor**	**Total male**
2010/11	9	5	8	2	4	**28**
2011/12	6	5	8	2	4	**25**
2012/13	10	6	6	2	5	**29**

(viii) **Turnover by grade and gender** – comment on any differences between men and women in turnover and say what is being done to address this. Where the number of staff leaving is small, comment on the reasons why particular individuals left.

The majority of turnover in the School results from expiry of fixed-term contracts, which predominately affects research staff and accounts for the majority of male and female leavers. For example, in 2012/13 15 staff left the School, of which 8 were researchers with expired contracts, 5 were resignations (see table below) and 2 were for other reasons.

The tables below show voluntary turnover, i.e. by resignation, by gender and grade. During the last three years, the School has lost 4 of its 6 female staff, with 3 Researchers and 1 Senior Lecturer. Mrs Aspinwall a Senior Lecturer and Director of Education between 2006 and 2010, resigned after taking an early retirement. The researchers left to take excellent offers from industry and / or other Institutions. For the males, the senior lecturer left to take a chair position at other Institution. We propose to monitor the departure of research/academic female staff **(Action plan section 2.5)** and make effort to support the existing ones. This support include communicating clearly the criteria for promotions and encourage them to apply **(Action plan section 6.3),** develop stronger career support for post-doctoral research assistants to enable them to develop and take academic positions **(Action plan section 6.4)** and develop the school into a family friendly environment **(Action plan sections 7)**.

Table 14: Research and academic staff resignations

Female resignations by grade						
Year	**Researcher**	**Lecturer**	**Senior Lecturer/ Researcher**	**Reader**	**Professor**	**Total female**
2010/11	-	-	1	-	-	**1**
2011/12	-	-	-	-	-	**-**
2012/13	3	-	-	-	-	**3**

Male resignations by grade						
Year	**Researcher**	**Lecturer**	**Senior Lecturer/ Researcher**	**Reader**	**Professor**	**Total male**
2010/11	2	-	-	-	-	**2**
2011/12	2	-	-	-	-	**2**
2012/13	1	-	1	-	-	**2**

Section 4 - Supporting and advancing women's careers: maximum 5000 words

Key career transition points

a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

(i) **Job application and success rates by gender and grade** – comment on any differences in recruitment between men and women at any level and say what action is being taken to address this.

Figures 10a and 10b show that there is a disproportionately low number of female applicants, with the overall application rate ranging from 8% to 15.5%. The overall proportion of female appointments is in line with these application rates. However, there are significant variations in application to appointment rates at different grade levels, with success confined to Researcher roles and no female appointments at either Lecturer or Senior Lecturer grade, despite females making up 14.5% and 21.5% of applications for these posts. This highlights the need to consider means of attracting female research / academic staff. Within the higher education sector, the average female academic population in Mechanical Engineering in 2011/12 is 15.5%. This is double the current female population in the School of Mechanical Engineering of the University of Birmingham. This again shows that there is a need to take action to increase the female staff in Mechanical Engineering through the actions listed in **Action plan sections 4, 6 and 7**.

Figure 10a: Job applications and appointments by gender and year (%)

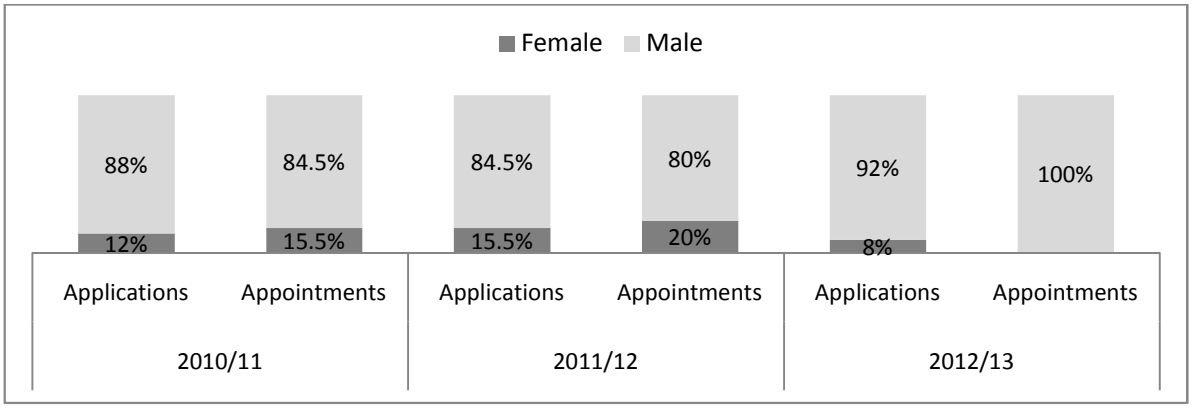

Figure 10b: Total 2010-2013 applications and appointments by grade and gender (%)

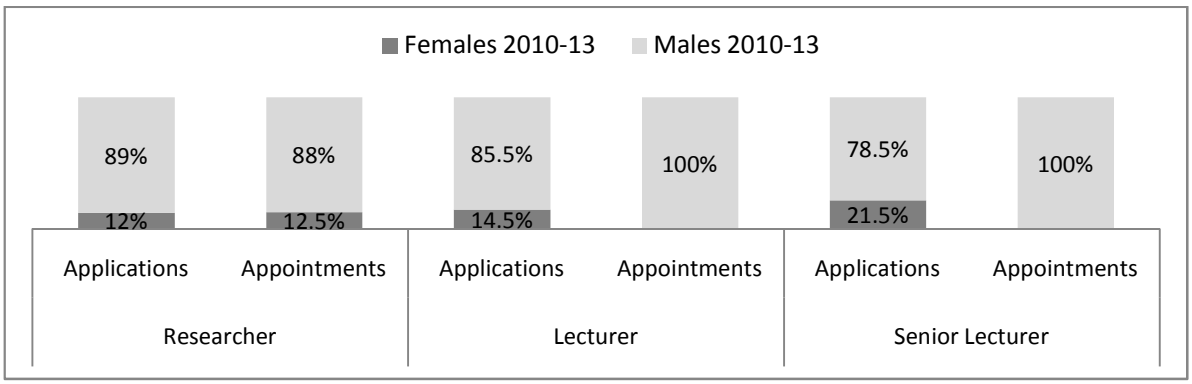

Table 15: Job applications and appointment by gender and grade

Job applications and appointments						
Year	**Applications**			**Appointments**		
2010/11	**Female**	**Male**	**% Female**	**Female**	**Male**	**% Female**
Researcher	8	59	**12%**	1	7	**12.5%**
Total	**8**	**59**	**12%**	**1**	**7**	**12.5%**

2011/12	**Applications**			**Appointments**		
	Female	**Male**	**% Female**	**Female**	**Male**	**% Female**
Researcher	11	70	**13.5%**	3	10	**23%**
Lecturer	11	64	**14.5%**	0	1	**0%**
Senior Lecturer	9	33	**21.5%**	0	2	**0%**
Total	**31**	**167**	**15.5%**	**3**	**12**	**20%**

2012/13	**Applications**			**Appointments**		
	Female	**Male**	**% Female**	**Female**	**Male**	**% Female**
Researcher	6	68	**8%**	0	12	**0%**
Total	**6**	**68**	**8%**	**0**	**12**	**0%**

(ii) **Applications for promotion and success rates by gender and grade** – comment on whether these differ for men and women and if they do explain what action may be taken. Where the number of women is small applicants may comment on specific examples of where women have been through the promotion process. Explain how potential candidates are identified.

Table 16: Promotions applications and appointments

2009/10	**Applications**			**Promotions**		
	Female	**Male**	**% Female**	**Female**	**Male**	**% Female**
Senior Lecturer	0	1	**0%**	0	1	**0%**
Reader	0	1	**0%**	0	0	**0%**
Professor/Chair	0	3	**0%**	0	1	**0%**
Total	**0**	**5**	**0%**	**0**	**2**	**0%**

Promotions applications and appointments						
Year	**Applications**			**Promotions**		
2010/11	**Female**	**Male**	**% Female**	**Female**	**Male**	**% Female**
Reader	0	2	**0%**	0	1	**0%**
Professor/Chair	0	2	**0%**	0	0	**0%**
Total	**0**	**4**	**0%**	**0**	**1**	**0%**

2011/12	**Applications**			**Promotions**		
	Female	**Male**	**% Female**	**Female**	**Male**	**% Female**
Senior Lecturer	0	2	**0%**	0	2	**0%**
Reader	0	1	**0%**	0	1	**0%**
Professor/Chair	0	1	**0%**	0	0	**0%**
Total	**0**	**4**	**0%**	**0**	**3**	**0%**

In 2012/13, no promotion cases were put forward (male or female).

Table 16 shows that there have been no female applicants during the last four years. This is due to the low number of female staff currently within the School. We recognise that sample sizes are very small however, there seems to be a problem with getting women to apply for promotions. This will necessary become more problematic at more senior levels as there are currently no women are at senior level, so the pool of potential applicants is virtually not available. Therefore we aim to encourage all our female academic and research staff to attend the promotions workshops organised by the College Athena SWAN working group **(Action plan section 6.3)**.

b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.

(i) **Recruitment of staff** – comment on how the department's recruitment processes ensure that female candidates are attracted to apply, and how the department ensures its short listing, selection processes and criteria comply with the university's equal opportunities policies

The School of Mechanical Engineering comply with the university's equal opportunity policies during all stages of recruitment. All adverts remind applicants that the University of Birmingham is an Equal Opportunities Employer and the Schools are guided by central University Human resources team. However, at present, we have no specific initiatives in place to attract female applicants. Also it is recognised that the number of female Mechanical Engineers who continue to postgraduate research degrees is very limited. Therefore we will begin to address this with **action plan sections 4**. It is proposed to encourage excellent undergraduate and postgraduate taught female students to undertake postgraduate research degrees **(Action plan section 3.5)** and encourage existing postgraduate research female students to apply for post doctorate research fellowships **(Action plan section 4.3)** through effective mentoring and offering adequate training and career development courses **(Action plan sections 3.5 and 4.1).**

We recognise that we need to do more within the School to attract more female applicants to posts at all levels from researcher to professor, and we will specifically address this issue in the action plan **(section 4).** For example all adverts for new positions will include the Athena SWAN logo and highlight the school commitment to the Athena SWAN Charter and will include statements about flexible working hours **(Action plan sections 4.2).**

(ii) **Support for staff at key career transition points** – having identified key areas of attrition of female staff in the department, comment on any interventions, programmes and activities that support women at the crucial stages, such as personal development training, opportunities for networking, mentoring programmes and leadership training. Identify which have been found to work best at the different career stages.

The School of Mechanical Engineering has very limited number of female staff. Also, record shows that the number of females has been declining with researchers and staff leaving. Attrition occurs at all levels; therefore we recognise that we have a lot of work to do.

Currently, the School benefits from the various activities offered by the College of Engineering and Physical Sciences that enable women to address the various reasons that result in reducing the number of women in the College. Examples of the college activities are

(i) focus groups discussion sessions run by Ms Liz Mansfield (from the Learning-processes ltd for developing people and processes) to identify the main barriers to female career development and progression and to gain wider insight into the experiences of female academic staff, (ii) assertiveness and time management workshops and (iii) promotions workshop. We will continue to integrate / benefit from the activities held by the college but we will develop our own steps to address these issues at all levels **from PGR upwards as outlined in sections 2.4, 3.5, 6 and 7 of the action plan.**

PhD to Postdoctoral research (PDRA)

It is recognised that the percentage of females in the postgraduate research population is lower than the national average of the higher education sector, therefore the potential applicants for postdoctoral researchers is limited. Therefore future initiatives are outlined in **section 3.5 of the action plan**. It is proposed to allocate at least one School scholarship for female PhD applicants. This will be communicated to staff to encourage targeting excellent female students.

Postdoctoral (PDRA) to permanent academic

Currently, the School has no initiatives to support postdoctoral researchers and guide them on ways of enhancing their personal development and help them find an identity within the academic community. Therefore and for the purpose of increasing the number of PDRAs who can succeed in getting permanent academic positions, a number of **actions are outlined in section 6.4.**

Lecturer to Senior lecturer, Senior lecturer to Reader, Reader to Professor

No gender specific initiatives are in place at present. However as the number of female staff in the School is very low, the School will focus on recruitment of female staff **(Action plan section 4)** and encouraging existing female research/academic staff to apply for promotions **(Action plan section 6.3)**.

Career development

a) **For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.**

(i) **Promotion and career development** – comment on the appraisal and career development process, and promotion criteria and whether these take into consideration responsibilities for teaching, research, administration, pastoral work and outreach work; is quality of work emphasised over quantity of work?

At present, the School of Mechanical Engineering have no gender-specific initiatives in place for promotions and career development. The School implements the Performance Development Review (PDR) scheme operated by the University. However, data presented in section 4.a(ii) indicate that there is gender imbalance and female attrition within the School. While it is important to address the female attrition by improving the PDR process and encouraging existing females to apply for promotions **(action plan section 6.3),** the issue of gender imbalance is a more critical one. Therefore, efforts will be made to increase the number of females at all levels **(see action plan sections 3 and 4).**

Promotions

University **promotion criteria and guidelines** are clearly set out on the University website. The guidelines state:

"The University will ensure that staff are not treated less favorably in the promotions process because of the following individual circumstances:

- Absence on maternity, paternity, parental or adoption leave,
- Disability-related, ill health and injury reasons,
- Part-time or other flexible working arrangements,
- Caring commitments.

The University will take into account effects resulting from the above on a staff member's ability to demonstrate sustained performance against contractual requirements, but will still expect the staff member to demonstrate the achievement of the normal quality criteria. Thus, while no dilution of the required quality of inputs and outputs would be accepted, the quantity of inputs and outputs (subject to any appropriate threshold) would be considered in the following contexts, for example:

- A female member of staff who has taken maternity leave may have a 'gap' in input and/or output. In these circumstances a reduction in quantity would be accepted.
- Where a member of staff works part-time, the quantity of their input and output would be considered in relation to their reduced working hours."

However, the findings of the focus groups run by the College highlighted a number of issues that affect the progression of female staff such as: (i) female staff will delay applying for promotion until they are certain they are ready, (ii) female staff tends to say yes for every job they are asked to do and hence they tend to have imbalance between admin, teaching and research duties and (iii) the negative perception of the promotion process where promotion can only be obtained if the academic staff achieved large grants and published large number of papers. These findings informed our action plan and examples of actions to address the above are included in **Action plan section 6.**

Career Development

As mentioned above, the School utilises the new PDR form in monitoring staff achievements, plans and constraints which are discussed with a senior member of professional staff. The School do not run any female-specific career development courses but the University's People and Organisation Development (POD) team run courses that could be relevant to Mechanical Engineering staff such as Diversity in the workplace, Time management, Assertiveness, Delegating for success and many more. Within the College, the human resources team runs regular career development courses/workshops such as promotions workshop. We will continue to benefit from the College and University training courses and disseminate them more widely to all research and academic staff **(Action plan section 6.2)**.

(ii) **Induction and training** – describe the support provided to new staff at all levels, as well as details of any gender equality training. To what extent are good employment practices in the institution, such as opportunities for networking, the flexible working policy, and professional and personal development opportunities promoted to staff from the outset?

The University has well defined induction and training guidelines for new staff including a checklist of general material that staff are expected to know from practical information on health and safety and locations to diversity in the workplace. All staff are required to complete an on line equality and diversity training. The School also has an induction program for new staff where each new staff will receive a document listing the academic and support staff in the School and their roles, describing the procedures for health and safety and providing links to various University guides regarding staff development, induction checklist and arrangements for honorary staff. The school also organises for new staff to be taken to meet colleagues individually in their offices. Finally, the school will encourage new staff to attend various networking opportunities provided by various units in the University (College, Research and Innovation Services, Business Engagement, etc.). While the above induction provides important information to new staff (male or female), it is also recommended to enhance such induction by including information on the school stance regarding the Athena SWAN and on various means of support for staff with families **(Action plan section 6.1)**.

As for training, recently appointed staff (male and female) are required to attend various development courses provided by the University. Examples of the most relevant training courses are: Presentation skills, Scientific writing, Teaching courses, Leadership development programmes, General management courses, Project management skills, Engaging with industry and understanding intellectual property, writing grant applications and Ethics and research governance.

(iii) **Support for female students** – describe the support (formal and informal) provided for female students to enable them to make the transition to a sustainable academic career, particularly from postgraduate to researcher, such as mentoring, seminars and pastoral support and the right to request a female personal tutor. Comment on whether these activities are run by female staff and how this work is formally recognised by the department.

All our undergraduate students have access to a personal tutor who monitors their progress throughout the degree program and give general advice on career issues. Postgraduate taught students also have access to their degree program director and postgraduate research students have access to their supervisors, the Postgraduate Research Tutor (female) and student mentors. All students have access to a Welfare Tutor, Senior Tutor and the Director of Education. As the number of female staff in the school is low, the logistics of allocating female personal tutor to every female student in the school is not possible. Therefore, it is recommended that the allocation of a female personal tutor can be made based on a request by the student **(Action plan section 5.1)**.

Employability and career advice is also available for all students through the Careers and Employability Centre (http://www.birmingham.ac.uk/careers.aspx). The college of Engineering and Physical Sciences has a dedicated staff for career advice and the school of Mechanical Engineering has an industrial liaison tutor who helps students link with various industrial companies. While all the support mentioned above is available for all students (male and female), it is dominantly directed to enabling students getting employed after completing their degree. At present, there is no formal policy or guidelines to help female or male students make the transition to academic career, rather an ad hoc process which depends on the individual students and /or the supervisor. Therefore it is suggested to encourage all staff to monitor the career progress of their PhD research students and post doctorate research

fellows and offer support and help in applying for academic positions **(Action plan section 5.6 and 6.4)**. Also, to address the issue of advising/encouraging female students to undertake academic career, it is proposed to establish a student led support group for female students in the school that provide a forum for discussion of issues, networking and organising talks/seminars by speakers from within the school, across the college and more widely **(Action plan sections 5.2 and 7.3).**

a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

(i) **Male and female representation on committees** – provide a breakdown by committee and explain any differences between male and female representation. Explain how potential members are identified.

The key committees in the School are:

School Promotions Committee: discusses and approves applications for promotions. Members of this committee are the head of School, deputy head of School and director of education and directors of research centres. Currently there is no direct female involvement.

Industrial Advisory Committee: discusses major strategies/direction of the School. Members of this committee include five representatives from industrial collaborators, head of School, director of education, year directors, industrial liaison tutor, director of quality assurance and enhancement and the deputy director of education. Two females are members of this committee, year 2 director and the deputy director of education.

School Education Committee: discusses and approves new/changes to degree programs and modules for undergraduate and postgraduate studies. Recommend and approve changes to procedures of teaching, learning and support. This committee is chaired by the director of education. Members include the directors of the academic years, director of postgraduate taught programmes, director of quality assurance and enhancement, senior tutor, welfare tutor and deputy director of education, undergraduate admission tutor and invited representative from Schools of metallurgy and materials. Currently three females are members of this committee, year 2 director, deputy director of educations and undergraduate administrator.

Postgraduate Research Committee: discusses issues related to postgraduate research programmes and approves the allocation of the School postgraduate research scholarships. Members of this committee include the head of School, directors of the research centres, the REF director, postgraduate admission tutor and postgraduate research administrator. Two females (the postgraduate admission tutor and the postgraduate admission administrator) are members of this committee.

School Staff Committee: discusses all issues related to the running of the School. All staff are members of this committee.

Staff Student Liaison Committee (PGT/UG): This committee is co-chaired by the deputy director of education and one student representative. Staff representation consists of all academic staff, though usually this is the key relevant post holders (academic year directors, director of quality assurance and enhancement, senior tutor, welfare tutor…). Three female staff are members of this committee, year 2 director, deputy director of education and undergraduate administrator. In 2012/13 26.6% of the student representatives on this

committee were female. For 2013/14, a female student was elected to co-chair this committee.

Staff Student Liaison Committee (PGR): This committee discuss issue related to postgraduate research programmes. It is chaired by the director of research and staff members include the postgraduate admission tutor and the administrator of postgraduate research. Students' representatives are also included. Two female staff and one female student are members of this committee.

School Postgraduate Research Students Progress Committee: This committee discusses the progress of postgraduate researchers and is chaired by the director of research. Staff members include the postgraduate admission tutor and the postgraduate research administrator. Two female staff are represented in this committee as the postgraduate admission tutor and the postgraduate admission administrator.

Membership to the above described committee is based on the administrative roles of the academic staff and it is clear that female staff and students are represented in most committees. As the number of female staff is low, it is predicted that having the one female staff in every committee in the School will overload her. Therefore, the School have already made significant effort to appoint a female academic staff who started in October 2013. Gradually, the new female staff will contribute to female representation on the various School committees. Furthermore, the School will continue to make effort to increase the number of females at various levels through implementing **action plan sections 2.4, 3.5, 6 and 7.**

(ii) **Female:male ratio of academic and research staff on fixed-term contracts and open-ended (permanent) contracts** – comment on any differences between male and female staff representation on fixed-term contracts and say what is being done to address them.

Figure 11 shows that the female staff are overrepresented on the fixed term contracts (40% to 50%) compared to male staff (24%-43%). However, as the number of female staff is small, any changes / movement from one category to the other will affect the figures. It is recommended to monitor this data for long period. Therefore it is proposed to continue monitoring this data **(Action plan section 2.3)**.

Figure 11: Fixed-term and open contracts by gender (%)

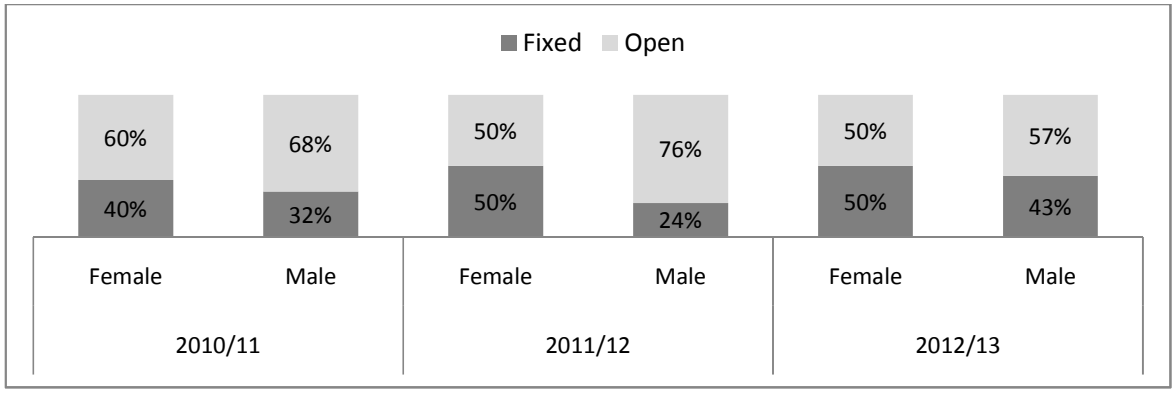

Table 17: Fixed=term and open contracts by gender

Fixed-term and open contracts						
	Female			Male		
Year	Fixed-term	Open	Total	Fixed-term	Open	Total
2010/11	2	3	5	9	19	28
2011/12	3	3	6	6	19	25
2012/13	1	1	2	11	18	29

b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.

(i) **Representation on decision-making committees** – comment on evidence of gender equality in the mechanism for selecting representatives. What evidence is there that women are encouraged to sit on a range of influential committees inside and outside the department? How is the issue of 'committee overload' addressed where there are small numbers of female staff?

Female staff are represented on most of the key committees in the School. Also, female staff represent the School on a number of the College and University committees. For example, Dr. AL-Dadah represents the School on the College postgraduate research committee and on the College and University Athena SWAN working groups. Female staff are also encouraged to take part in relevant national and international committees that develop their career profile. However, due to the low number of female staff, there is a concern to overload the existing female staff with membership of committees. Therefore, female representation on committees will be monitored, discussed through the development review process and linked to the workload of the staff **(Action Plan section 6.3 and 6.6)**.

(ii) **Workload model** – describe the systems in place to ensure that workload allocations, including pastoral and administrative responsibilities (including the responsibility for work on women and science) are taken into account at appraisal and in promotion criteria. Comment on the rotation of responsibilities e.g. responsibilities with a heavy workload and those that are seen as good for an individual's career.

The work load of academic staff includes teaching, administration and research. The teaching load is allocated based on staff abilities and interest and the amount of effort accredited to staff for teaching takes into account the number of students and the module number of credits. Administration duties are also allocated based on who would best fit in what role. A component of the load is also allocated for development and tutoring and whatever left is considered research.

The School is progressing towards establishing a model of the staff workload which will be become transparent to staff and serve as a guide. Also, the head of School meets with staff twice a year on a one to one basis to discuss issues related to achievement, loading and professional development. In these meetings, staff requests for changes in their teaching / administration duties are discussed and are typically accommodated. One of these meetings is formally recorded as Staff PDR.

(iii) **Timing of departmental meetings and social gatherings** – provide evidence of consideration for those with family responsibilities, for example what the department considers to be core hours and whether there is a more flexible system in place.

All School meetings occur after 9:30am and before 3:30pm. Other meetings are arranged based on mutual agreement of the academic staff involved. During the last three years, most of the social gathering in the School have been organised to take place at lunch time. In terms of core operation hours, the School follows the university timetable (9am to 5pm).

(iv) **Culture** –demonstrate how the department is female-friendly and inclusive. 'Culture' refers to the language, behaviours and other informal interactions that characterise the atmosphere of the department, and includes all staff and students.

The staff and students in the School of Mechanical Engineering come from all backgrounds, ethnicities and gender. Around 70% of our staff are from overseas contributing to our international presence and influence. As part of a University-wide initiative, all staff in the School must attend and pass training in Equality and Diversity. In all our teaching and development activities, we make no distinction between students, and all are invited to take part in extra-curriculum activities, industrial placements and social events. The language used in teaching instructions, administration procedures and codes of practice is non-gender specific.

The School encourages students from different ethnicities and gender to become representatives at the student staff liaison committees for undergraduate and postgraduate taught and research degrees. Last year, the student representatives on the student / staff liaison committee for undergraduate and postgraduate taught programmes include eight international students and 5 female students. We propose to enhance the current activities through the actions listed in **Action plan section 7.**

The School is a friendly place for both staff and students. We have regular events that bring members of staff and students together. For undergraduate students, the director of education and his deputy run a series of focus groups in an informal friendly settings to discuss various issues related to their experience in the School.

(v) **Outreach activities** – comment on the level of participation by female and male staff in outreach activities with Schools and colleges and other centres. Describe who the programmes are aimed at, and how this activity is formally recognised as part of the workload model and in appraisal and promotion processes.

The School contributes to all the University outreach activities including open days, head start, girls into STEM subjects, discovery day etc to encourage more diverse student population. The School outreach activities are carried out by a small number of academic staff (male and female) who are responsible for admission, open days and School liaison. The outreach team have also access to the wider staff and student community within the School and female staff and students contribute significantly in most of the admission/ outreach activities held by the School.

The outreach activities include visits by staff to Schools, workshops held at the School highlighting what Mechanical Engineering is for both male and female groups. Recently, Dr. AL-Dadah and postgraduate female researchers ran workshops for Girls into STEM subjects for year 9 female students from Grace Academy (Coventry) and Abbeyfield School (Northampton). However we propose to review our outreach activities to examine ways in which we can use these activities to attract greater number of female students **(Action plan section 3.2)**.

Flexibility and managing career breaks

a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

(i) **Maternity return rate** – comment on whether maternity return rate in the department has improved or deteriorated and any plans for further improvement. If the department is unable to provide a maternity return rate, please explain why.

There has been 1 instance of maternity leave during the 2010-2013 period. The staff member did not return to the University due to the expiry of their contract whilst on maternity leave.

(iii) **Paternity, adoption and parental leave uptake** – comment on the uptake of paternity leave by grade and parental and adoption leave by gender and grade. Has this improved or deteriorated and what plans are there to improve further.

All staff whose partners have babies are encouraged to take advantage of the 2 weeks paternity leave offered by the University and the School supports all staff who needs parental leave to manage their childcare responsibilities. During the last three years, at least three members of academic staff and two research staff have taken paternity leave of two weeks.

(iv) **Numbers of applications and success rates for flexible working by gender and grade** – comment on any disparities. Where the number of women in the department is small applicants may wish to comment on specific examples.

In the School, it is recognised that academic staff manage their time and work flexibly to manage their job commitments and caring responsibilities by for example working longer or shorter hours on particular days.

b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.

(i) **Flexible working** – comment on the numbers of staff working flexibly and their grades and gender, whether there is a formal or informal system, the support and training provided for managers in promoting and managing flexible working arrangements, and how the department raises awareness of the options available.

The University has a flexible working policy, and “staff with 26 weeks' continuous service have the right to request a flexible working pattern to care for a child aged 16 or under, or a disabled child under the age of 18; or to enable them to provide support to an adult in need of care”.

HR does not formally monitor requests for flexible full-time working in the School, which are arranged on a one-to-one basis for academic/research staff via the Head of School or Principal Investigator. It is also recognised that academic staff have greater flexibility than other staff groups and that many staff work flexibly as a matter of course or as an informal arrangement, without making a formal application under the University’s policy.

At present only 1 member of academic staff (male) works part-time on a formally agreed basis (Figure 12). To our knowledge, no requests for part-time working have been turned down. There is also a recognizable amount of flexibility for staff to timetable their activities according to personal preference. Working at home is also treated positively as long as contact remains possible.

Figure 12: Full-time and part-time staff by gender (%)

Full-time and part-time staff						
	Female			Male		
Year	Full-time	Part-time	Total	Full-time	Part-time	Total
2010/11	4	1	5	28	0	28
2011/12	5	1	6	24	1	25
2012/13	2	0	2	28	1	29

(ii) **Cover for maternity and adoption leave and support on return** – explain what the department does, beyond the university maternity policy package, to support female staff before they go on maternity leave, arrangements for covering work during absence, and to help them achieve a suitable work-life balance on their return.

Currently, the School follows the University maternity leave guidelines, which include 18 weeks full-paid leave for eligible academic staff. In the last three years, there was only one case of maternity where the staff member was on a fixed term contract which expired during the maternity leave and hence the staff did not return back. However, when I have taken maternity leaves in 1999 and in 2002, the following process was followed. I had a meeting with the head of School who was supportive but unaware of any regulation / process for taking the maternity leave. Therefore he suggested meeting with human resources to find out the allowable length of maternity leave and seek advice. I have undertaken the responsibility to arrange my teaching responsibilities to my colleagues who were very supportive. After returning from maternity leave, I resumed my duties (teaching, research and administration) fully and was unaware of any help to enable supporting my research work. However, the flexible working hours system adopted in the School helped me managing my time to accommodate the responsibility of caring for my children and performing my duties.

As awareness of regulations / support before, during and after maternity leave is not well established within the School, the action plan includes the following:

Facilitate access to information on maternity leave, flexible working hours and support that could be made available to staff through the School Athena SWAN website **(Action plan section 7.4)**.

Encourage open discussions between staff and the School management team to enable them coping with full time work after long period of absence (maternity, illness) **(Action plan section 6.5)**.

Section 5 - Any other comments: maximum 500 words

Please comment here on any other elements which are relevant to the application, e.g. other SET-specific initiatives of special interest that have not been covered in the previous sections. Include any other relevant data (e.g. results from staff surveys), provide a commentary on it and indicate how it is planned to address any gender disparities identified.

The Athena SWAN self-assessment team of the School of Mechanical Engineering realised that the number of female academic staff is very low and that existing female staff are not progressing to high positions in a similar manner to male staff. The team also realised that the number of female students decreased significantly from 13.5% for undergraduate and 26% for postgraduate taught to 12.5% for postgraduate research and very low number of post doctorate female research fellows (only one female research fellow). The team realises that they have a lot of work to do but they believe that they have started to make some small steps forward. This application to the Athena SWAN Bronze award will provide the means for a change of culture and communication within the School enabling us to better support women from undergraduate students to academic positions.

Therefore the action plan is centred largely on the following areas:

1. Raising the visibility of Athena SWAN and its aims at all levels within the School
2. Updating all admission literature to increase the visibility of women
3. Raising the profile of post doctorate research fellows within the School
4. Additional data gathering
5. Improving staff induction
6. Improving the promotion process
7. Make work load models more transparent
8. Facilitate networking between women within the School, the college and outer world
9. Run training courses / workshops to develop specific knowledge, skills and behaviours.

Section 6 - Action plan

Provide an action plan as an appendix. An action plan template is available on the Athena SWAN website.

The Action Plan should be a table or a spreadsheet comprising actions to address the priorities identified by the analysis of relevant data presented in this application, success/outcome measures, the post holder responsible for each action and a timeline for completion. The plan should cover current initiatives and your aspirations **for the next three years**.

The action plan does not need to cover all areas at Bronze; however the expectation is that the department will have the organisational structure to move forward, including collecting the necessary data.

School of Mechanical Engineering, University of Birmingham

Athena Bronze Action Plan, November 2013-October 2016

Action no.	Description of action	Action already taken and outcome at November 2013	Further actions planned from November 2013 onwards	Start date	Responsibility	Success measure
1.0	**Raising awareness of the Athena SWAN across the school and International and Industrial partners**					
1.1	Introduce the Athena SWAN to undergraduate, postgraduate taught and postgraduate research students, academic and research staff in the School.	The goals of the Athena swan were introduced to (i) undergraduate/postgraduate student representatives at the SSLC meeting held in February 2013 (ii) postgraduate research committee held in October 2013 and (iii) staff committee meetings held in February 2013 and in October 2013	Continue to update the students and staff of any activities related to Athena SWAN at the various student/staff liaison committees and at the staff committee meetings	January 2013	Dr. R. K. AL-Dadah in collaboration with the chairs if the various committees	The Athena SWAN agenda becomes part of the business as usual across the school activities.
1.2	Raise awareness of the School Athena SWAN agenda to Industrial partners		The Schools industrial advisory committee and wider industrial contacts are aware of activities on Athena SWAN	April 2014	Head of School and Athena SWAN Lead	Raised awareness of Athena SWAN activities externally.

			The School requests female representation on the Industrial advisory Committee.			
1.3	Raise awareness of the School Athena SWAN agenda to International Academic Institute Partners		Inform the International Institutes with whom the School has agreements for direct intake of students to our programmes	April 2014	The College International Marketing director	Raise awareness of the School and College Athena SWAN activities externally.
2.0	**Monitoring of the School female population and improved knowledge base**					
2.1	Monitor UG, PG and PGR student and applicant data by gender for each of the degree programs. Annual report to (i) Athena Swan Self-Assessment Team, (ii) Staff Committee and (iii) Student/ Staff Liaison Committees.	System for collection of data was setup and fit for purpose.	Monitor UG and PG application / offer/accepts and actual arrival data and pinpoint any changes to the female population for discussion at the Athena SWAN meetings. Monitor Student Attrition Rate and attainment by gender. The Athena SWAN subcommittee for undergraduate studies	Nov. 2013 January 2014 for postgraduate taught programmes and July 2014 for undergraduate programmes.	HR and Athena SWAN UG and PG Subcommittees and report annually to the Athena SWAN Committee meetings	Attain or increase above national figures / previous year's figures.

			will analyse the results of undergraduate students after each June exam board to highlight differences due to gender. Similarly the subcommittee for postgraduate studies will analyse the results of the Masters taught programmes after the January exam board meetings.			
2.2	Monitor national data for all student groups	Data for the last three years were collected	Introduce means of improving the School female numbers in view of the national data (see sections 3 and 5)	Nov. 2013 onwards	HR and Athena SWAN UG and PG Subcommittees	Attain or increase above national figures / previous year's figures.
2.3	Monitor staff appointments. Annual report to: (i) Athena Swan Self-assessment Team and (ii) Promotions Committee.	Data for the last three years were collected Through the latest round of staff appointments, the School succeeded in recruiting a female lecturer who started in October 2013.	Continue to monitor staff appointments. Investigate means of increasing the number and quality of female applicants at various grades. Monitor the female proportion on	Nov. 2013 onwards	Head of School and Athena SWAN Staff Subcommittee	Increased female academic/research staff to be close to the national data.

			fixed/open contracts.			
2.4	Monitor the promotion rates by gender to be reviewed by Promotions Committee.	Data for the last three years collected. The head of School supported the existing female lecturer in submitting an application for promotion on the first of October 2013.	Continue to monitor staff promotions. Investigate means of enhancing the success rate of female applicants for promotions (see section 6).	Nov. 2013 onwards	Head of School and Athena SWAN Staff Subcommittee	Increased female numbers at the various grades.
2.5	Monitor Staff departure/resignations by grade and gender	Data for the last three years collected.	Continue to monitor staff departure / resignations. Investigate the reasons for departure and introduce support mechanism for existing staff (see section 6).	Nov. 2013 onwards	Head of School, Athena Swan Staff Committee	Reduce staff departure
3.0	**Student (UG, PGT and PGR) Recruitment**					
3.1	Updating Admission / marketing material for various degree programs to feature the School commitment to Athena SWAN and to feature	Undergraduate admission literature was updated in August 2013	Postgraduate taught and research marketing materials will be updated soon to be ready for the postgraduate day to	June 2013 to June 2014	Undergraduate, postgraduate taught and research admission tutors	Attain or increase above national figures / previous year's figures.

	female students		be held on the 14th of November 2013 Update the marketing literature for direct entry applicants.			
3.2	Enhance outreach activities to include visits to schools/colleges and give talks on what is it like to be a Female Mechanical Engineer.	Collected some data on female engineers who graduated with mechanical engineering degree from University of Birmingham and include their biography on the School Athena SWAN webpage.	Use the data in the talks given at open days and talks during visits to schools/colleges. Develop specific partnerships with a number of girls' schools as part of our outreach activities. Currently Ms Sharon Green and Miss Vashti Bejai in consultation with our outreach tutor are designing a competition poster for girls' schools as a mean of introducing Mechanical Engineering. This competition will be published in January 2014. Involve current	Sept. 2013 Jan. 2014 Jan. 2014 Jan. 2014	Undergraduate Athena SWAN subcommittee. Ms Sharon Green, Miss Vashti Bejai and Dr. Rustam Stolkin (Outreach Tutor)	Attain or increase above national figures / previous year's figures.

			students in outreach via the WISEatBham student network			
3.3	Ensure female staff and students are visible and accessible to potential applicants on open and interview days.	Our undergraduate female students contribute extensively to the School open and interview days. Also, last year, we made commitment for a female staff to interview most of the female applicants. Female staff always participates in open days.	We will continue to ensure female students and staff visibility and accessibility on open and interview days.	Ongoing	Undergraduate admission team and Undergraduate Athena SWAN subcommittee Ms Sharon Green	Attain or increase above national figures / previous year's figures.
3.4	Gain information on the career plans and choices of female UG, PGT and PGR to understand possible reasons for the shortfall of female students continuing to academic career.	A survey of UG, PGT and PGR female students was conducted in May/June 2013 regarding the reasons for choosing Mechanical Engineering degree and what career path they are aiming for.	We will continue to survey UG, PGT and PGR about career choices and investigate means of encouraging female students to choose research/academic career.	Ongoing	Isaline Lefort, Jenny Freij with support from undergraduate and postgraduate administrators	Attain or increase above national / figures from previous year's figures Improved experience of existing female student and staff population
3.5	Encourage undergraduate and postgraduate taught female students to apply	Encourage academic staff to explain their research work to undergraduate students regularly.	Plan a series of talks by female research and academic staff to enhance female	February 2014	Postgraduate admission tutor for research degrees and	Increase the number of female postgraduate research students

	for postgraduate research degrees in the school	Invite female students to the postgraduate open day Invite female students to the mechanical engineering research symposium. Encourage excellent female students to apply for the school scholarships	networking and attract new female applicants for research degrees.		Athena SWAN Subcommittee for Postgraduate Programmes	
4.0	**Staff recruitment**					
4.1	Remind all members of recruiting panels of recruitment and selection training courses		Circulate information on training courses regarding recruitment to all academic staff.		Head of School	
4.2	Increase the number of women applying for academic/research vacancies at all levels	In 2012/13, the school was given the opportunity to appoint 4 new members of staff in the field of Manufacturing. Through rigorous advertising of the posts, it was possible to attract a number of female applicants and one Female was appointed and started in October 2013.	Advertising jobs through Women in Engineering networks. Including a statement on the School stance regarding the Athena SWAN. Implement family friendly job adverts and monitor the effect on applications from women during the next three years.	Develop the advert wording within the next 6 months (1-6 of year 1). Roll out the new advert to all academic staff during months 6-12 of year 1. Monitoring male-female of all applications to research/academic	Head of School, College HR and Athena Swan Staff Subcommittee	Increased female applicants

				positions in years 1-3.		
4.3	Encourage the existing postgraduate research female students to apply for post doctorate research positions in the school.		Encourage academic staff to maintain excellent female postgraduate research students and offer them post doctorate research positions.	Ongoing	Heads of Research Centres	Increase the number of female post doctorate researchers.
5.0	**Student Experience (UG, PGT and PGR)**					
5.1	Personal tutoring of female students by female staff	Every UG student has access to a personal tutor for help and support. The school also is open to students approaching any member of staff for help and support.	As the number of female staff is low, it is logistically impossible to allocate female students a female personal tutor. Therefore it is that the female students can have the option of choosing a female personal tutor. Assess the benefits of such option after one year from its starting date.	January 2014	UG admission tutor and Athena SWAN undergraduate subcommittee	Number of students making use of this option and positive feedback from students.
5.2	Encourage female student networking	Mechanical Engineering female students are active members of	Promote the WISEatUoB network	Nov. 2013	Athena SWAN Lead	Increase the number of students

		the University's WISEatUoB (Women in Science and Engineering) network.	during the welcome events for UG, PGT and PGR students.			participating in the WISEatUoB network. Increased visibility of the WISEatUoB through holding wide range of activities.
5.3	Encourage female students to become representatives of their cohorts on student / staff committees and Athena SWAN self-assessment team subcommittees.		Investigate means of increasing female representation on student/staff liaison committees. Invite PGT female student to join the Athena SWAN self-assessment team.	Nov. 2013	Deputy Director of Education and Athena SWAN Lead	Achieve equal representation.
5.4	Encourage female students to undertake leading roles such as the leadership of formula one racing car team	Mechanical engineering female students participating in the formula one racing car team are encouraged to lead the team.	Continue to support female students	Nov. 2013	Dr. Karl Dearn, Formula one team tutor	Enhanced female students' leadership skills.
5.5	Enhance female attainment of high degree classifications		Introduce means of supporting undergraduate and postgraduate taught female students to enhance their attainment like	Nov. 2013	Director of education, directors of postgraduate taught programmes.	Enhanced female students' attainment to be in line with their counterpart male ones.

			offering extra tutorial support.			
5.6	Enhance postgraduate female research students profile	Encourage female researchers to publish and present their work at international conferences. Female students are encouraged to apply for the PGR student development fund to allow them travelling to conferences. Last year 2 out of the six researchers awarded fund for travelling were female.	Encouragement and support will continue	Ongoing PGR development fund was obtained recently and will be advertised to all students in Jan. 2014	All academic staff PGR admission tutor	Enhanced postgraduate female researchers' experience
6.0	**Supporting and advancing women's careers**					
6.1	Enhance our induction process	The School has a document giving information on personnel within the School, procedures for fire, health and safety, links to University documents… The induction process also include one to one introduction to existing staff	Enhance the induction document to include information on Athena SWAN and Support available to staff with families. Apply the induction process to new post doctorate research staff. Undertake a review of	The induction document will be updated within the next 3 months (December to February, months 1-3 of year 1) and applied thereafter. A review of the staff experience will be	PA to Head of School and Athena SWAN Lead	New staff feel welcomed Positive feedback from staff on their experience of the induction process

			staff experience of the induction process to inform further changes	carried out after one year of implementation (March 2015) and the induction process will be updated if needed.		
6.2	Highlight University career development courses particularly suitable for women	During the development review, the Head of School encourages staff to attend various training courses that aid their development.	Advertise University wide POD career development courses	Nov. 2013	Head of School	Raise awareness of courses useful to female career development
6.3	Consider ways to encourage promotion of our existing female staff and attract new talent.	Currently, promotions are discussed during the PDR meeting on one to one basis between the head of School and staff.	To enhance staff awareness of the promotion process, the head of school will discuss promotion metrics at school committee meeting and encourage staff (male and female) to attend promotion workshops held by the college / university. For female staff, the development review process needs to take into account points in their career when they might need	An agenda item for the next staff committee meeting (Feb. 2014) is to discuss promotions metrics. Monitor promotion applications from women, and their success rate, over the next three years.	Head of school	Increased female applications for promotions and increased success rate.

			additional support to enhance female staff performance e.g. following maternity leave or when moving from full time to part time working. This will be communicated to the head of School for implementation with immediate effect. The development review should also take into account membership to committees.			
6.4	Develop stronger career support network for post doctorate research staff		Enable post doctorate research students (male and female) to lead their research work. Inform all academic staff who are employing post doctorate researchers to support and encourage their professional development and to implement research	Ongoing Implementation of research staff development review will be discussed in the postgraduate research meeting to be held in February 2014. Implementation of the review will start in September 2014. The impact will be	Head of School and, heads of research centres	Enhanced post doctorate research fellows experience

	Develop stronger female support network for female post doctorate researchers		staff development review Implement and advertise informally female support to female post doctorate researchers who they can talk to about female specific career issues	assessed annually in September 2015 and September 2016 Currently, there is one female post doctorate research in the School. Dr. AL-Dadadh will communicate with her directly and offer support immediately.	Dr. AL-Dadah	
6.5	Support staff after long period of absence		Encourage open discussions between staff and the School management team to enable them coping with full time work after long period of absence	Currently no staff are on long leave and this action will be implemented as soon as it is required.	Head of School	Enhanced staff experience
7.0	**Organisation and Culture**					
7.1	School activities are within family friendly hours	All School meetings are held within family friendly hours. Also, special small group or one to one meetings are organized based on mutual agreement.	Investigate timetabling of lectures to take into account caring responsibilities	Sept. 2014	Timetabling officer and Dr. R. Cripps (Director of Education0	Timetable formally considers requests and accommodates them where possible.

7.2	School invited speakers to include female	Various research groups in the School run research seminars with invited speakers.	Encourage invitation of female speakers	Nov. 2013 onwards	Heads of Research Centres	Increased visibility of female scientists.
7.3	Organise sessions with interesting/influential female speakers to help networking and to provide both academic and non-academic input	The University Athena SWAN working group organized a talk by Athene Donald on 9th of October 2013 which was well received.	Continue to organize such talks and publicise widely through the School's Athena SWAN webpages	Jan. 2014	Athena SWAN Team in collaboration with WISEatBham network	Increased awareness of influential female scientist and to attract new members
7.4	University and School family friendly activities are promoted widely	The school already has a number of staff with caring responsibilities and has an informal family friendly environment.	Using the school's Athena SWAN webpage, publicise the various sources of support available to staff with families including nurseries, childcare vouchers and holiday clubs. Hold social events to create a sense of community	Nov. 2013	Athena SWAN Lead	Staff with caring responsibilities are aware of the support available. Staff feel part of a school community and that the school recognizes their roles and responsibilities outside of the school.