



Women in Engineering

The University of Manchester & Athena SWAN

5th Dec 2017

Overview

- Introduction
- The University of Manchester
- Athena SWAN
- Athena SWAN and EEE
- Personal Anecdotes

Heritage



25 Nobel Prize Winners

- Rutherford split the atom
- Arthur Lewis became Britain's first black professor
- Kilburn & Williams built the world's first stored-program computer – The Baby
- Alan Turing created modern computing
- Jevons formulated the principles of modern economics
- Lovell built the largest steerable radio telescope
- Geim & Novoselov isolated graphene for the first time

Heritage



Understand well as I may, my comprehension can only be an infinitesimal fraction of all I want to understand.

~ Ada Lovelace

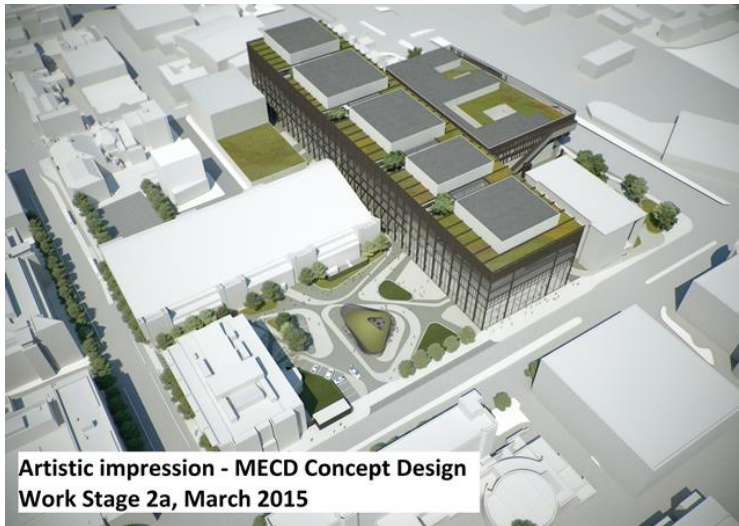
Heritage



The University in numbers

<p>#41 World</p> <p>#8 Europe</p> <p>#5 UK</p>	<p>38,590 Students</p> <p>12,000 Staff</p>	<p>10,600 Most International students of any UK university</p>	<p>£1bn Annual Income</p>
<p>£342m Research Income</p>	<p>100 More than 100 spin-out companies</p>	<p>285 K Alumni in 200 countries</p>	<p>245 buildings</p> <p>270 hectares</p>

Manchester Engineering Campus Development



Artistic impression - MECD Concept Design
Work Stage 2a, March 2015

- Over **£300m**
- More than 78,000m² (11 football pitches)
- 6yr project to complete 2020
- Large central hall
- Will house more than 1,300 staff and 6,700 students
- Part of **£1bn** 10yr campus masterplan

Research Beacons



**Industrial
biotechnology**

**Advanced
materials**

Energy

Cancer

**Addressing
global
inequalities**

Manchester Energy

What does Manchester Energy do? Synergy!

Manchester Energy helps to build on areas of existing research strength by bringing together a critical mass of expertise from across UoM

Interdisciplinary coordination across the energy spectrum

- Research
- Skills
 - Education of future generations
 - Professional development
- Impact
 - Government advisers
 - Key opinion leaders
 - Industrial partnerships
 - Increase revenue by commercialisation of energy research outputs
 - Collaboration – internal & external



Energy Research Areas

- Bioenergy
- Cities & Urban energy use
- Climate Change
- Energy Networks
- Energy Storage
- Multi-energy Systems
- Nuclear
- Off-shore Renewables
- Oil & Gas
- Solar

Beacon Areas:

- Bioenergy
- Energy Materials
- Energy Networks
- Energy Transitions
- Nuclear



Covering:

- Generation
- Distribution/Supply
- Storage
- Use/Consumption

Manchester Energy is 'the university wide network that creates and manages synergy within the energy domain'.

Core goals



**World
class
research**



**Outstanding
learning &
student
experience**



**Social
Responsibility**

Networks

- Black & Minority Ethnic Staff
- Catholic Staff
- Christian
- Disabled Support
- International Staff
- LGBT
- Maternity /Paternity
- Muslim Staff
- PA
- Staff with Caring Responsibilities
- TEaM
- Persian Staff
- Women in BMH
- Women in Cancer
- Women Physics
- Women Profs
- Women Researchers
- Women in S E&T

Key Staff



Nancy Rothwell



Gillian Easson



Danielle George



Julia King,
Baroness Brown
of Cambridge

Zhongdong
Wang



Alumni



Wendy Mayall



Lisa Ronson



Alison Horner



Leena Gade



Athena SWAN



The Athena SWAN Charter was established by the Equality Challenge Unit (ECU) in 2005 to encourage and recognise commitment to advancing the careers of women in science, technology, engineering, maths and medicine employment in HE & research.

Recognising advancement of gender equality: representation, progression and success for all.

The beliefs underpinning the Charter are:

- The advancement of science, engineering and technology (SET) is fundamental to quality of life across the globe.
- It is vitally important that women are adequately represented in what has traditionally been, and is still, a male-dominated area.
- Science cannot reach its full potential unless it can benefit from the talents of the whole population, and until women and men can benefit equally from the opportunities it affords.

Athena SWAN



The Athena SWAN Charter covers women (and men where appropriate) in:

- Academic roles in STEMM
- Professional and support staff
- Trans staff and students

In relation to their:

- Representation
- Progression of students into academia
- Journey through career milestones
- Working environment for all staff

Athena SWAN



In Physics & Maths only 20 of researchers are women

In Chemistry only 1 in 14 professors is a woman

People, Science & Policy Report (2009):

- There is a pay gap
- HERA Grades 1` or 2 women paid more than men
- Grades 5 and up women paid less than men

Women have to perform 50% better than men to receive the same credit

Across the world, students rate male professors higher than female professors in every subject.

Recognise the debt women carry

However higher impact papers have a gender balance

Top performing companies have a gender mixed board

Any community of less than 15% is ignored so need 25% on panels, review boards etc

Athena SWAN



Planning



Doing



Sustaining

The University of Manchester awarded
Bronze
status in 2008

Athena SWAN @ UoM

The University of Manchester has an Athena SWAN Bronze Award.

Individual STEMM Schools also hold awards:

7



8



Athena SWAN and EEE

The School of Electrical and Electronic Engineering, just like the University, is steeped in history. We can trace our origins as a teaching institution supporting local industry back to 1824.

As one of the largest schools of its type in the UK, we possess proven strength and depth in both research and teaching. This balance has led to both excellent research impact and consistently high undergraduate student satisfaction.

Professor Simon Rowland
Head of School

200+ staff
of which 79 are research academics
and 55 are PSS
1000+ students
Includes 796 UGs



Awarded 2014

Athena SWAN and EEE



Awarded 2014

Renewal submitted April 2017

One year extension to re-submit within Nov 2018 round

Athena SWAN Self Assessment Team

13 members, incl HoS

Brings together male and female members at all levels

Compiled & submitted the bid for award

SAT currently working on preparing our re submission and on an action plan that will address all detected gender-related issues.

Call for more academics

Call for PhD representative ??????

Application Process

AT application: sections and subsections

- 2. Description of the Department
- 3. Self-assessment process – 3 sub-sections
- 4. A picture of the Department
 - ✓ 4.1 Student data – 5 sub-sections
 - ✓ 4.2 Academic and research staff data – 3 sub-sections
- 5. Supporting and advancing women's careers
 - ✓ 5.1 Key career transition points: academic staff – 4 sub-sections
 - ✓ 5.3 Career development: academic staff – 5 sub-sections
 - ✓ 5.5 Flexible working and managing career breaks – 7 sub-sections
 - ✓ 5.6 Organisation and culture – 8 sub-sections
- Action plan

Application Process

AT application: sections and data

- 2. Description of the Department
- 3. Self-assessment process
- 4. A picture of the Department
 - ✓ **Student data** (UG, PGT, PGR data on course applications, offers, and acceptance rates, and degree attainment by gender. Full- and part-time by programme. Progression pipeline between undergraduate and postgraduate student levels)
 - ✓ **Academic and research staff data** (Academic staff by grade, contract function and gender: research-only, teaching and research or teaching-only; Academic and research staff by grade on fixed-term, open-ended/permanent and zero-hour contracts by gender; Academic leavers by grade and gender and full/part-time status)

Application Process

Sections of the application and data

- 5. Supporting and advancing women's careers
- 5.1 Key career transition points: academic staff
 - ✓ **Recruitment** (data by gender and grade for applications to academic posts including shortlisted candidates, offer and acceptance rates)
 - ✓ **Induction** (uptake)
 - ✓ **Promotion** (data on staff applying for promotion and comment on applications and success rates by gender, grade and full- and part-time status)
 - ✓ **Research Excellence Framework (REF)** (data on the staff, by gender, submitted to REF versus those that were eligible. Compare this to the data for the Research Assessment Exercise 2008)

Application Process

Sections of the application and data

- 5.3 Career development: academic staff
 - ✓ Training (uptake by gender)
 - ✓ Appraisal/development review (uptake by gender)
- 5.5 Flexible working and managing career breaks
 - ✓ Maternity return rate (professional and support staff and academic staff data separated)
 - ✓ Paternity, shared parental, adoption, and parental leave uptake (professional and support staff and academic staff data separated)

Application Process

Sections of the application and data

- 5.6 Organisation and culture
 - ✓ Representation of men and women on committees (data for all department committees broken down by gender and staff)

Athena SWAN and EEE



Awarded 2014

Renewal submitted April 2017

One year extension to re-submit within Nov 2018 round

Good Points:

Maternity leave generous

Flexible working for all staff

Equality & Diversity Training 85% (31% 2014)

Unconscious bias training

Positive female images and quotes in MSc publicity materials

Two women in senior leadership positions

Manchester Gold

Examples of good practice from a Silver awarded School

- Staff with key roles have equality and diversity commitments written into their role descriptors and are required to provide an annual report to the E&D committee.
- Admissions data are analysed by the Director of UG Admissions.
- The process of examining gender differences in exams is embedded at the resolution of individual modules.
- In order not to have male only decision making committees a new role of "Academic Appointment Committee Chair" was created to lead the search for new academics (opposite gender to the Head of School).
- Three members of staff act as "Dignity at Work" advisors.
- New annex would either have a room (or the annex itself) named after a female physicist/astronomer.
- Division chairs were asked to nominate a male and female researcher from their area to sit on the E&D committee.

Next steps for EEE

- Appoint one specific person responsible for data collection and sending out Athena Swan survey.
- Appoint another person to produce consistent tables/graphs
- Assign each data type to analyse to one person, who should try to get feedback from relevant people (for instance, UG data - Director of UG Admissions).
- Assign sections/sub-sections to revise based on feedback.
- Include reflection by one or more key senior roles (e.g., Head of School Administration, Director of Teaching, Director of Research).
- Include “silver” elements in the applications or plans for them (e.g., reflection, case studies: impact on individuals, career development for PSS staff, data on the proportion of staff remaining in post XXX months after return from maternity leave).
- One more academic as member of SAT.

Personal Anecdotes



Personal Anecdotes



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