advancing gender equality in science, engineering and technology

National HE STEM Programme

Guidance Booklet for Teaching and Professional Staff in HE and FE

Encouraging Gender Equality in STEM

About this Guide

The Guide has been designed to be used as a starting point for teaching and professionals in HE and FE institutions by providing ideas to support, attract and retain female staff and students in STEM disciplines.

The information in this guidance booklet is based on a research project funded by the National HE STEM Programme and undertaken by the UKRC South East Hub in 2010-11. The research included the development and implementation of one-day Gender Equality Training workshops attracting participants from over 25 higher and further education institutions from across the UK. The workshops developed for this project are built upon the experience of industry and education professionals and originated as part of collaboration between Sheffield Hallam University and the UKRC in 1999.

The workshops were targeted at male and female STEM academic and teaching staff, marketing, admissions, HR and training and support staff. In terms of objectives the workshops aimed to help:

- Raise awareness of gender-based attitudes and knowledge amongst staff;
- Improve recruitment, progression and retention of women employees, students and members;
- Produce more inclusive publicity material;
- Develop the academic research base by ensuring female talent is not lost;
- Improve teaching and learning to ensure more inclusivity.

This guidance booklet draws together key material from the workshops and provides an overview of key statistics, a checklist of suggestions and thought-provoking questions and summarises wider resources available.

The UKRC is the UK's lead organisation for the provision of advice, services, and policy consultation regarding the under-representation of women in science, engineering, technology and the built environment (SET).

The UKRC works with employers, professional bodies, education institutions, women's organisations and networks, policy institutes, sector skills council, the government and many others to promote gender equality in SET. It also offers tailored services and support for women and girls at all career stages.

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Who is this guide for?

This guide is for HE and FE male and female teaching staff and professionals who have any level of involvement with STEM (Science, Technology, Engineering and Mathematics) subject areas or those who have a wider remit in terms of attracting staff and students to their institution and ensuring satisfaction in terms of experience, career development and legal obligations. This includes the following functions:

- Academic and teaching
- Admissions
- Marketing
- Human Resources
- Careers and Training
- Student support
- Decision makers/management

How will it help you?

The Guide has been designed to be used as a starting point for professionals in HE and FE institutions who want to support, attract and retain female staff and students in STEM disciplines.

The guide draws together key material from the workshops and provides an overview of key statistics, a checklist of suggestions and thought-provoking questions and summarises wider resources available covering the following four key areas:

1. Embedding gender equality throughout your organisation/department
2. Teaching policies and practice
3. Production of course marketing materials
4. Developing and running promotional events for women and girls

Why gender equality in STEM?

Research shows that underlying culture is a critical factor determining whether women join and remain in STEM sectors. Gender equality training is fundamental to helping improve and embed policies and practices that build gender equality across organisations and benefit the progression of women.

For example, STEM female students are at risk of leaving male-dominated learning environments where the culture is unsupportive. HE and FE academic environments with policies and practices which support female staff and where females are well-represented and visible help minimise the risk of STEM female students leaving. STEM female staff benefit from raised awareness of issues affecting their career development e.g. lack of flexible working, long hours culture, male dominated working environment and initiatives to recruit and retain female staff. All staff benefit from training addressing concerns about dealing with female students e.g. appropriate language and behaviour, barriers to career progression and from awareness of how to create an inclusive workplace and learning environment.

The aim of this guide is to provide a starting point for professionals in HE and FE institutions who want to support, attract and retain female staff and students into STEM disciplines either to teach, research or study

We hope that you find this good practice guide helpful and that it stimulates debate and inspires positive action and ideas in your organisation.

Facts and figures

The UK needs more scientists, engineers and technologists at every level; for economic recovery, to develop innovation capacity, to impact the knowledge economy and contribute to the manufacturing sector. The statistics confirm the need for more attention to culture change within SET organisations (including HE and FE institutions) and businesses and more opportunities for women to enter or return to SET training, education and employment throughout their lives.

The following statistics have been taken from the UKRC's 2010 Statistics Guide; Kirkup G, Zavelski A, Muryama T and Batool I (2010) Women and Men in Science, Engineering and Technology: The UK Statistics Guide 2010, Bradford: The UKRC. This statistics guide can be downloaded from the UKRC website free of charge.

The statistics selected are illustrative of the current trends in STEM education and highlight the scope for action for HE and FE professionals at all levels of recruitment and retention of female staff and students into STEM disciplines.

Pre Higher/Further Education – STEM Subjects 2009

- Girls and boys enter exams in STEM GCSEs in almost equal numbers with girls accounting for 48.8% of all STEM exam entries.
- Girls do well in STEM GCSEs. In 2009, girls outperformed boys in grades A* to C (pass rate) in six out of twelve STEM GCSE exams.
- Girls are a smaller proportion of entrants to most STEM subjects at A level than they are in STEM GCSE exams.

- Girls perform well in A level STEM subjects. In 2009, girls outperformed boys in A grade attainment in all but two A level STEM subjects.

Key Statistics on SET Vocational Training

- In 2007/08, only 8.7% of all NVQ/SVQ awards given in engineering and manufacturing technologies were to women.
- ICT was the only SET NVQ/SVQ subject with a gender balance: women obtained about 52.5% of all awards given in this subject area in 2007/08.
- The most extreme gender differences were in construction, planning and the built environment and in engineering and manufacturing technologies, with a female proportion of apprentices and advanced apprentices at roughly 1%.

Key Statistics on HE Students in STEM 2007/08

- 33.2% of undergraduates and 34% of postgraduates in STEM disciplines were female.
- Women were under-represented in all undergraduate and postgraduate STEM subject groups with the exception of subjects allied to medicine and biological sciences.
- Computer science and engineering and technology had the lowest proportions of women undergraduates (19.4% and 14.9% respectively) and postgraduates (20.7% and 20.8% respectively).
- More than half of all women undergraduates in STEM were in biological sciences, physical sciences and subjects allied to medicine, while just over half of all male undergraduates in STEM were in engineering and technology and computer science.
- Women postgraduates tend to be evenly distributed across most STEM subject groups, while 70.4% of all male postgraduates were in engineering and technology, computer science and physical sciences.

Key Statistics on the First Destination of STEM Graduates in 2007/08

- On graduation almost the same proportions of male and female STEM graduates enter employment or further study or become unemployed or inactive.
- Twice the proportion of men graduating with undergraduate degrees in STEM enter SET professional or associate professional occupations (41.8%) compared with women (21.0%).
- 43.4% of women graduating with STEM undergraduate degrees go to work as non-SET professionals and associate professionals, and another 35.6% are in 'other occupations'.

Key Statistics on STEM HE Career Progression

- There were 2,065 female lecturers (26.1% of all full time lecturers) and 1,790 senior researchers/lecturers (18.3%) in STEM full time employment. Among part time STEM academics there were 1,410 female lecturers (39.5%) and 355 senior lecturers/researchers (43.3%).
- There were only 540 women full-time professors, accounting for 9.3% of all full-time professors in STEM departments. In addition 55 women professors accounted for 8.0% of all part time professors in STEM.

- In 2007/08, 5,375 women worked as full time researchers in STEM academic departments accounting for 30.3% of all full time researchers. About 1,045 women worked part-time as STEM researchers, accounting for 56.6% of all part time researchers.

Who's behind this guide?

This guide is one of the outcomes from the National HE STEM funded research project 'Gender Equality in STEM – Training for HE and FE STEM Academics in STEM Departments' which was undertaken by staff in the UKRC's South East Hub, based at the University of Reading.

The UKRC works to improve the participation and position of women in science, engineering and technology (SET) occupations, to benefit the future productivity of the UK and the lifetime earnings and career aspirations of women. The UKRC is the UK's leading centre for gender equality in SET. It provides information and advisory services to businesses and organisations in SET sectors. It also works with women entering, returning and progressing in these fields and publishes a range of guides, reports and briefings on gender equality in science, engineering and technology. These can be ordered from the UKRC, and are also available online.

The UKRC website has information about our services for business and organisations and our services for women. You can talk to our consultants about practical and tailored ways of encouraging women into leadership roles in your organisation including policy reviews, workplace culture analysis, focus groups, gender equality and unconscious bias training, mentoring schemes and women's networks.

Contact us for more information:

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info@theukrc.org
www.theukrc.org

Checklist: embedding gender equality throughout your organisation/department

Embedding gender equality throughout your organisation/department can help to foster an atmosphere in which female staff, researchers and students can feel included and supported across all levels of their work and study, and in turn contribute to successful recruitment and retention policies and positive working practices. Use the four questions below to consider approaches and actions that you could take in your own institution/department.

What information is needed to inform gender equality decision making?

It may be useful to consider information about, for example:

- Women and men studying, working in and leaving STEM areas.
- Gender issues relevant to the organisation e.g. the factors that impact on girls/women's recruitment, retention and progression in STEM areas.
- Women and men's involvement with/in the organisation/department.
- Information about the organisation's work to date in promoting gender equality

How can the need for, and the benefits of, promoting gender equality be effectively communicated?

It may be useful to consider, for example:

- What information should be communicated regarding gender equality:
    - e.g. commitment, benefits, policies, guidance, targets
- And to whom, e.g.
    - Staff
    - Learners
    - Contractors and suppliers
    - Wider community

What steps can be taken to gain support and build capacity to promote gender equality?

It may be useful to consider e.g.

- Demonstrating reasons to promote gender equality.
- Maximising Board, staff and learners' capacity to promote gender equality.
- Creating a structure within the organisation to embed gender equality.
- Linking with wider equality and diversity actions/strategies.
- Rewarding and celebrating success, for example Athena SWAN recognition.

What specific activities could be taken to promote gender equality?

It may be useful to consider positive action initiatives in relation to for example:

- Policies and practice.
- Partnership working.
- Promoting the image of STEM courses and options on offer.
- Education skills.
- Careers and professional development.
- Business and Industry.

Checklist: enhancing teaching policies and practice

Creating a learning environment in STEM that gets the best out of all students can be challenging at times. Use the checklist below for some suggestions around some of the common problems/concerns raised by teaching professionals in STEM.

Teaching Content

How do you enable girls and boys to understand the relevance of a STEM area such as Physics for example?
How do you emphasise the purpose of concepts?
How do you avoid 'talking equations'?

- Place the learning within a context which demonstrates its relevance.
- Make explicit the links between lessons and topics in order to explain the 'big picture'.
- Use examples that relate to a broad range of day-to-day experiences and wider aspirations for girls and boys.
- Emphasis the social and environmental aspects of STEM alongside the technical principles.
- Encourage students to use their own analogies and ideas.
- Use, and encourage students to use, non-technical language to explain ideas and concepts before introducing specialist vocabulary.
- Use problem-based learning, to enable students to learn through tackling 'real-world' problems.
- Start with applications and then move on to principles to make explicit the rationale for learning.
- Use the internet/newspaper articles to introduce contemporary applications of STEM subjects.
- Encourage students to take part in reviewing and evaluating their work.
- Encourage questions and 'I do not understand'.
- Make links with a range of potential careers.

Learning Environment

How do you avoid and challenge stereotyping?
How do you encourage a 'can-do' approach?

- Agree ground rules that create a supportive, encouraging environment in which all students are treated respectfully.
- Audit resources used to ensure that the examples, images and language used are inclusive to girls and boys from a range of backgrounds.
- Use a range of male and female role models where possible, for example inviting male and female professionals working in industry to come and talk about their careers and work.
- Accentuate the positive and build a 'can-do' approach.
- Recognise the diversity of your student group as a strength and take it into account when planning activities.
- Use resources/posters that promote a broad range of women and men working in STEM.
- Challenge stereotypical comments and behaviour by enabling students to questions and discuss attitudes.
- Offer support and encouragement to all students within the sessions and ensure access to mentors and role models.
- Know your students in order to assess their interests, abilities and confidence.

Teaching Approaches

How do you encourage girls to participate equally in practical work?
What question and answer techniques can you use to ensure equal participation of girls?
How can you address students' different learning styles?
How can you help students to overcome their fear of making mistakes?

- Use inclusive language for example '*morning all'* rather than *'morning lads'*; use examples of female and male scientists and engineers; use she/he; avoid non-essential technical language; define essential terminology; use everyday language where possible.
- Question/analyse how you allocate time and tasks between male and female students – do you give similar tasks to males and females in your groups? Are boys and girls as likely to ask questions and offer answers? Do you have equally high expectations of all students in your group?
- Manage the selection of roles to challenge stereotyping and ensure that both genders are encouraged in all roles for example by allocating roles randomly/having single sex groups/each student tries a range of roles/job-share roles.
- Ensure that all students are participating and are encouraged to stretch their experience for example, ask yourself, who is leading activities? Who is note-taking? Who is most active in the hands-on activities? Who is gaining most attention?
- Encourage collaboration and sharing knowledge in groups.
- Address different learning styles by including a range of individual and group activities and feedback mechanisms for example decrease the use of hands-up rapid response questions and include discussion-based activities.
- Encourage the view that there is not always a unique correct answer.
- Ask a colleague to watch you teach and give feedback on students' learning and particularly the participation of male and female students.

Checklist: production of course marketing materials

Course marketing material can be very influential in terms of encouraging or discouraging female students onto a STEM course. Look at your course marketing material and use the series of questions below to check that it is sending out the correct messages to the groups you want to attract to your course, department or institution.

Images

- Are there positive images of women including black and Asian women?
- Do the images look posed and unrealistic?
- Do the women look interested and engaged in their work?
- Do the images show people, including women, applying learning or using engineering (for example) products rather than just focusing on buildings or objects?

Material Content and Language

- Does the material highlight technical and social skills and interests e.g. good communicators, multi-tasking, social and environmental concerns?
- Does the material refer to women applying their learning or using STEM products in a range of technical and social areas?
- Are there positive case studies or statements from female students?
- Can you see statements that are particularly encouraging to women?
- Is gender neutral language used?
- Does the material stereotype men and women?

Career Options

- Does the material promote the advantages for girls and women of pursuing STEM careers, for example career prospects, comparable levels of pay, making a difference, serving the community and positive environmental impact?

Teaching Methods and Studying Options

- Is there indication that a range of teaching methods is used e.g. pair work, group work, discussions, problem solving and 'hands-on' activities?
- Is there an indication that flexible studying is possible?

Support Available

- Is there any in-house provision indicated that will offer positive support for women in their career choice, for example, mentoring?
- Is there any reference to promoting equality and equal opportunities particularly in terms of active support from management?
- Is there any information on childcare with contact name and number from whom to seek further information?

Checklist: developing and running promotional events for girls/women

Running a promotional event for girls/women for a STEM subject is a 'Positive Action' that an organisation/department can take to encourage and nurture interest in a STEM subject area and/or to encourage applications to a particular programme.

It is important to emphasise that such an event can be lawfully undertaken – please see the explanation below of the differences between lawful 'Positive Action' and unlawful 'Positive Discrimination'.

Positive Action

The term 'Positive Action' covers a range of measures which organisations can use where those with 'protected characteristics' (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation):

- experience some sort of disadvantage because of that characteristic;
- have a particular need linked to that characteristic; or
- are disproportionally under-represented in a particular activity.

In relation to women in STEM, 'Positive Action' refers to a variety of measures designed to counteract the effects of past discrimination and to help eliminate sex stereotyping. Positive action activities may include initiatives such as the introduction of non-discriminatory selection procedures; encouraging women to apply for roles, on to courses etc; and women only open-days or mentoring schemes. For further information see The Equalities Act 2010.

Positive Discrimination

Positive Action is frequently confused with 'Positive Discrimination'. Positive discrimination, which generally means employing somebody because they come from a disadvantaged group regardless of whether they have the relevant skills and qualifications, is unlawful. For further information see The Equalities Act 2010.

The checklist below provides some suggested ingredients/approaches for running such events.

Decide on the Main Purpose

For example: promoting the idea of engineering/construction to girls by challenging sterotypes by:

- Giving girls the opportunity to get hands-on experience by participating within a supportive and inspiring environment.
- Letting them meet positive female role models.
- Engaging them in interesting and stimulating activity.

Key Elements for a Successful Girls/Women's Day

- Practical, hands-on.
- Fast moving, no hanging about, action packed.
- Freebies.
- Role models.
- Links with employers, site visits involving female staff.
- Learning what college/university life is like – involve student services.
- Future careers opportunities – involve a motivating speaker on careers paths.
- Follow-on activities for those interested and if under 16 ask the school for their continued involvement.

- Build in a presentation by the girls to parents.

Planning Girls/Women's Day

- Dedicated staff/champion.
- Links with a range of organisations who work with you.
- Health and Safety, risk assessments for visits and activities.
- Forward planning.
- Build the event into the annual business plan of the department so it becomes a regular event.

Recruiting

- Target schools either through prior links or scattergun approach. It is useful to identify a contact in the schools.
- Send out exciting flyers/posters with images of young women portrayed.
- Engage interested staff at school e.g. careers teachers.
- Visit schools, prepare the girls, and invite role models to talk about the day and how they got interested in their career.
- Identify schools that have gone for relevant specialist status.

Using Role Models

- **Qualities:**
  - Close to the age of the audience.
  - Enthusiasm for their work.
  - A degree of confidence.
- **Where to find Role Models:**
  - Ambassadors Scheme.
  - Alumni and female staff.
  - Contacts.
  - Current Apprentices/Students.
  - Networking and contact building.
  - Professional Associations, for example your regional Royal Institution of Chartered Surveyors will have contact with women surveyors.
- **Consider Ways of Helping Role Models Engage Participants**
  - Brief the role models well.
  - Ask them to bring a prop from their work along.
  - Run activities related to the work of the role models.
  - Ask role models to support activities which are happening during the event.
  - Allow the participants to talk to the role model in a small group.
  - Give the participants a task e.g. interview the role model and report back.

Activities

- Pitched at an appropriate level for the audience.
- Enough support around for participants not to be left floundering or getting bored.
- Positive non-threatening experience.
- Fun, interesting and relevant.

Industrial Visits

- Meet female role models in their work environment.
- Link it with earlier activities.
- Where there are likely to be mainly men on site consider ways of taking the focus away from that to the process of what is happening.
- Female employees to accompany on visit.
- Help the girls indentify with the process.
- Make clear to the visit providers beforehand the purpose of the visit and what is required.

Other Organisational Issues

- Meals and refreshments.
- Overseeing the safety of the participants.
- Parental permission, for attendance, health and safety, permission to photograph.
- Emergency contacts.
- Briefing others in the organisation.

Further resources

A summary of additional resources is provided under the following headings:

1. Articles and press releases
2. Engineering and Technology Board (ETB)
3. Equality law
4. Higher Education Funding Council for England (HEFCE)
5. HEI Equality Schemes and action plans
6. Institutions and societies
7. Careers
8. Athena SWAN
9. Case studies
10. National Skills Forum
11. The UKRC

1. Articles and Press Releases

- Research and Intelligence – Juno and Athena rise up, Paul Jump,THE (Times Higher Education), 11/11/10 http://www.timeshighereducation.co.uk/story.asp?storycode=414170
- Lack of women in science, engineering and technology is a huge problem for UK economy, says equality minister, David Woods, 19 July 2010, HR Magazine http://www.hrmagazine.co.uk/news/1016860/Lack-women-science-engineering-technology-huge-problem-UK-economy-says-equality-minister/
- UK needs 'better engineering careers advice service', The Engineer, www.theengineer.co.uk, 14 July 2010, Stephen Harris http://www.theengineer.co.uk/news/uk-needs-better-engineering-careers-advice-service/1003588.article
- RAE: Women still under-represented in science and technology, Nicola Dandridge, The Guardian, December 2008 http://www.guardian.co.uk/education/2008/dec/18/rae-equality
- Commanding positions: Universities show they can wrench themselves out of the dark ages when it comes to gender equality, Jessica Shepherd, The Guardian, June 2008 http://www.guardian.co.uk/education/2008/jun/17/educationsgendergap.highereducation
- Women scientists face discrimination, says study, Natasha Gilbert, Education Guardian, March 2008 http://www.guardian.co.uk/education/2008/mar/20/highereducation.uk5
- The crazy attitudes that push women out of science, Susan Greenfield, The Observer, Sunday July 2007 http://www.guardian.co.uk/commentisfree/2007/jul/01/science.comment

2. Engineering and Technology Board (ETB) / EngineeringUK and Department for Innovation Universities and Skills (DIUS)

- Briefing paper: Where do Engineering Graduates Go?, Engineering UK 2009 http://www.engineeringuk.com/_db/_documents/Where_do_Engineering_Graduates_Go_Dec_09.pdf
- Engineering UK 2011 Report http://www.engineeringuk.com/viewitem.cfm?cit_id=383715
- Briefing paper on the gender imbalance in SET occupations, ETB 2008 http://www.engineeringuk.com/_db/_documents/5818_Gender_Paper_AW_20091124041707.pdf
- Gender Gaps in Higher Education Participation, DIUS 2008 http://www.bis.gov.uk/assets/biscore/corporate/migratedd/publications/d/dius_rr_08_14.pdf

- Women in Engineering and Technology , Engineering UK, 2010 http://www.engineeringuk.com/_db/_documents/Women_in_Engineering_and_Technology_FINAL.pdf
- An informed choice: A roadmap for improving careers IAG across the UK, Briefing Paper, ETB, 2009 http://www.engineeringuk.com/_db/_documents/Careers_Paper_September_2009_20091124031525.pdf

3. Equality Law

- EHRC briefing notes on positive action (July 2009): http://www.equalityhumanrights.com/uploaded_files/Equality%20Bill/postive_action_briefing.pdf
- *What equality law means for you as an education provider- further and higher education,* Equality Act Guidance for FE and HE providers, Equality and Human Rights Commission, 2010 http://www.equalityhumanrights.com/uploaded_files/EqualityAct/fehe_nsg_2.doc
- Equality Bill Factsheet, Government Equalities Office, 2008 http://www.equalities.gov.uk/pdf/Equality%20Bill%20fact%20sheet.pdf
- The Gender Equality Duty (GED) and Higher Education Institutions, Equal Opportunities Commission, 2007 http://www.york.ac.uk/admin/eo/gender/GED_and_Higher_Education_%20guidance.pdf
- GED Code of Practice (England and Wales) Equal Opportunities Commission, 2006 http://www.equalityhumanrights.com/uploaded_files/gender_equality_duty_code_of_practice_england_and_wales.pdf
- GED Code of Practice for Scotland, Equal Opportunities Commission Scotland, 2007 http://www.equalityhumanrights.com/uploaded_files/gender_equality_duty_code_of_practice,_scotland.pdf
- Guidance on the duty for Post-16 Education Providers in Scotland, Equal Opportunities Commission Scotland, 2007 http://www.equalityhumanrights.com/search-results/?q=Guidance+on+the+duty+for+Post-16+Education+Providers+in+Scotland%2C+Equal+Opportunities+Commission+Scotland%2C+2007

4. Higher Education Funding Council for England (HEFCE)

- HEFCE Equality Scheme and Annexes http://www.hefce.ac.uk/pubs/hefce/2007/07_01/

5. HEI Equality Schemes and Action Plans

- Keele University Gender Equality Scheme 2010 – 2013 http://www.google.com/cse?q=gender+equality+scheme&cx=011218742334291947815%3Avfecqspb0sa
- University of Bradford Gender Equality Scheme and Action Plan http://www.brad.ac.uk/admin/equalopp/policies/ges.php

6. Institutions and Societies

- Project Juno Code of Practice, Institute of Physics (IoP) 2007 http://workspace.imperial.ac.uk/chemistry/public/files/file_31623.pdf
- Women in University Physics Departments: A Site Visit Scheme 2003 – 2005, February 2006 IoP http://www.iop.org/publications/iop/2006/file_42616.pdf
- Best Practice in Career Break Management, IoP 2006 http://www.iop.org/publications/iop/2006/file_43368.pdf
- Good Practice in University Chemistry Departments, Athena Project and the Royal Society of Chemistry (RSC) http://www.rsc.org/images/chemdeptsreport_tcm18-16919.pdf
- Recruitment and retention of Women in Academic Chemistry, RSC 2002 http://www.rsc.org/images/Recruitment%20and%20Retention%20of%20Women%20in%20Academic%20Chemistry_tcm18-12807.pdf
- The chemistry PhD: the impact on women's retention. UKRC and the Royal Society of Chemistry (RSC), October 2008 http://www.rsc.org/images/womensretention_tcm18-139215.pdf

- A degree of concern? UK first degrees in science, technology and mathematics, 2006 Royal Society http://royalsociety.org/A-degree-of-concern-First-degrees-in-science-technology-and-mathematics/
- Planning for Success: Good Practice in University Science Departments (RSC) 2008 http://www.rsc.org/images/GoodPractice_tcm18-127915.pdf
- Inspiring Women Engineers, 2009, Royal Academy of Engineering (RAEng) http://www.raeng.org.uk/news/publications/list/reports/Inspiring_Women_Engineers.pdf

7. Careers

- Closing the Gender skills Gap, National Skills Forum 2009 http://www.skillsdevelopment.org/pdf/Closing%20the%20Gender%20Skills%20Gap%20Final%20Report.pdf
- Briefing paper: An informed choice: a road map for improving Careers IAG across the UK, ETB 2009 http://www.engineeringuk.com/_db/_documents/Careers_Paper_September_2009_20091124031525.pdf
- Women and Work Commission: Shaping a Fairer Future, DTI 2006 http://www.equalities.gov.uk/pdf/Shaping%20a%20Fairer%20Future%20report.pdf

8. Athena SWAN

- Athena Good Practice Guidance http://www.athenaswan.org.uk/html/athena-swan/good-practice/
- Athena SWAN Awards Guidance http://www.athenaswan.org.uk/html/athena-swan/awards/guidance-and-application-forms/
- Athena Swan Factsheet 1: Organisational Culture *http://www.athenaswan.org.uk/downloads/1741_Athena_SWAN_Factsheet_single_sheets.pdf*
- Athena Swan Factsheet 2: Work-life Balance http://www.athenaswan.org.uk/downloads/Work_life_balance_Factsheet.pdf
- Athena Swan Factsheet 3: Supporting Researchers http://www.athenaswan.org.uk/downloads/Supporting_researchers_factsheet.pdf
- Athena Swan Factsheet 4: Promotion http://www.athenaswan.org.uk/downloads/Factsheet_4_01-05-09.pdf
- Athena Swan Awards 2009 - highlights the innovative work going on in institutions. http://www.athenaswan.org.uk/downloads/1907_Athen_SWAN_Citations_Book.pdf

9. Case Studies

- University of Bristol, Department of Biochemistry, SWAN Silver Award 2007 http://www.athenaswan.org.uk/downloads/Athena/24_Bristol_Biochemistry_Case_Study_Sep_07.pdf
- University of Edinburgh Chemistry Department, SWAN Silver Award 2006 http://www.athenaswan.org.uk/downloads/Athena/14_Edinburgh_Chemistry_Case_Study_May_06.pdf
- Heriot -Watt University, SWAN Bronze Award 2007 http://www.athenaswan.org.uk/downloads/Heriot_Watt_May_07.pdf
- Imperial College London, SWAN Silver Award 2006 http://www.athenaswan.org.uk/downloads/Athena/13_Imperial_Case_Study_May_06.pdf
- Queen Mary, University of London, SWAN Bronze Award 2007 http://www.athenaswan.org.uk/downloads/Athena/26_QMUL_Case_Study_Sep_07.pdf
- University Of York, Department Of Chemistry, SWAN Gold Award 2007 http://www.athenaswan.org.uk/downloads/Athena/20_York_Case_Study_Oct_06.pdf
- University of Nottingham, School of Mechanical, Materials and Manufacturing Engineering (M3): Athena SWAN Silver Award May 2008 http://www.athenaswan.org.uk/downloads/Nottingham_M3_Silver.pdf
- University of Reading: Athena SWAN Bronze Award May 2008 http://www.athenaswan.org.uk/downloads/Reading_Bronze.pdf
- University of Manchester: Athena SWAN Bronze Award May 2008 http://www.athenaswan.org.uk/html/athena-swan/good-practice/case-studies/

10. National Skills Forum

- Closing the Gender Skills Gap: A National Skills Forum report on skills and productivity, National Skills Forum, 2009.
  http://www.skillsdevelopment.org/pdf/Closing%20the%20Gender%20Skills%20Gap%20Final%20Report.pdf

11. The UKRC

The UKRC offers a wide-ranging set of resources relating to gender equality in science, engineering, technology and the built environment, which can be downloaded from its website. Here is a small selection.

- Girls do well in SET 'A' Levels, UKRC 2009
  http://www.setwomenstats.org/downloads/2009_A_level_results.pdf?PHPSESSID=b5ce272f71657bf0f0ebe6173d14d765
- Research briefing no. 11: Tomorrow's Women, Tomorrow's World, UKRC 2009
  http://www.theukrc.org/files/useruploads/files/resources/statistics/88116_ukrc_(research_briefing_no11).pdf
- Research briefing: Encounters with Engineering: First Experiences of Women Students, UKRC
  http://www.setwomenscotland.org/html/resources/ukrc-publications then please select the 'research' tab and source relevant publication to download (from 30 Oct 2006)
- Women in Engineering survey 2006 UKRC / EPCglobal
  http://www.setwomenscotland.org/html/resources/ukrc-publications then please select the 'Women and Girls' tab and source relevant publication to download (from 7 Mar 2006)
- The Chemistry PhD: the impact on women's retention, UKRC / RSC
  http://www.theukrc.org/files/useruploads/files/the_chemistry_phdwomensretention_tcm18-139215.pdf
- Women Mean Business: why gender equality is essential in SET, 2010 UKRC
  http://www.theukrc.org/files/useruploads/files/organisations/1997_gpg_womenmeanbusiness_v6.pdf
- Women and men in SET; the UK statistics guide 2010, UKRC
  http://www.theukrc.org/files/useruploads/files/final_sept_15th_15.42_ukrc_statistics_guide_2010.pdf
- A Critical Analysis of the Development of Women Professionals in SET Research in the UK: A Research Agenda, *Sarah Barnard, Abigail Powell, Barbara Bagilhole and Andrew Dainty,* International Journal of Science and Technology, Vol 2, No 3 (2010) http://genderandset.open.ac.uk
  http://genderandset.open.ac.uk/index.php/genderandset/article/view/65/175
- Mentoring Good Practice Guide 2009, UKRC
  http://www.theukrc.org/files/useruploads/files/organisations/mentoring_gpg_2009.pdf
- Role models in the media: an exploration of the views and experiences of women in science, engineering and technology, UKRC research briefing, March 2008
  http://www.theukrc.org/files/useruploads/files/no_4_role_models_in_media.pdf
- SET for Work: Inspiring female students in science, engineering and technology: case studies from higher education, UKRC
  http://www.theukrc.org/files/useruploads/files/catalogue/ukrc_set_for_work_booklet.pdf

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