



## Menu of London Engineering Project Pilot Activities

### 1. Ambassadors

At the LEP, ambassadors assist at most of our events and are fundamental to the work done at LSBU. Ambassadors get involved in a number of ways:

- Act as a role model
- Share personal experiences
- Support students with their work
- Provide career presentations
- Assist students with LEP activities
- Act as an expert on an LEP challenge
- Provide information on and promote careers in engineering

The LEP works with two types of Ambassadors.

- a) **Student Ambassadors** are students of the Faculty of Engineering, Science and Built Environment at LSBU. They are trained by the LEP to help us organise and run different events at LSBU or local schools.
  - The details can be seen on the following link  
<http://www.thelep.org.uk/ambassadors/studentambassador>
  - There is also a Research Paper published in this area called 'Training student ambassadors in diversity to increase impact' which can be downloaded from the following link  
<http://www.thelep.org.uk/national/papers>
  - The evaluation of this approach can be found in LEP Evaluation Report December 2009 –Pages 12-13 and in LEP Evaluation Report Appendices – Appendix F. This can be downloaded from the following link:  
<http://www.thelep.org.uk/national/lepreport>
- b) **STEM Ambassadors** are volunteers from a variety of STEM professions. The LEP STEM Ambassadors programme is part of a national scheme run by STEMNET.
  - Details can be found on  
<http://www.thelep.org.uk/ambassadors/stemambassadors>
  - Two Case studies are developed in this area
    - i. 'The Transport for London Ambassador Scheme'
    - ii. 'Tube Lines, Improve and Upgrade: A Case Study of an Integrated Science and Engineering Project'They can be downloaded from the following link:  
<http://www.thelep.org.uk/national/casestudies>
  - The evaluation of this approach can be found in LEP Evaluation Report December 2009 –Pages 14 and in LEP Evaluation Report Appendices – Appendix F. This can be downloaded from the following link:  
<http://www.thelep.org.uk/national/lepreport>

For further details, please contact - [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **2. E-mentoring**

As part of the pilot work, we developed an e-mentoring site, 'live journals' with the Brightside Trust. Live Journals e-mentoring was an effective tool to help, support and encourage students to make informed choices about school, university life and possible career choices. Through providing this information, Live Journals plays an important role in helping to raise aspirations for university and engineering of non-traditional HE entrants.

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Pages 15-18 and in LEP Evaluation Report Appendices – Appendix D. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/leporeport>

For further details, please contact - [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **3. HE Focused Outreach - STEM days**

Science Technology Engineering and Maths (STEM) days provide short introductory sessions for Years 7 to 11 students to enhance their understanding of, and aptitude for, problem solving, creativity, design, and engineering. Through the LEP, we offered a series of engineering activities for both primary and secondary school pupils.

London South Bank University (LSBU) continues to offer these activities as part of their widening participation activity involving engineering academics whilst maintaining close links with the engineering departments.

For more details of the days the LEP team continues to run at LSBU go to:

<http://www.thelep.org.uk/teachers/stemdays>

<http://www.thelep.org.uk/events>

For details of the types of activity they offer to the schools go to:

<http://www.thelep.org.uk/teachers/opportunitiesmenu>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Pages 8-11 and in LEP Evaluation Report Appendices – Appendix D. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/leporeport>

For further details, please contact - [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **4. HE Focused Outreach - STEM clubs**

Science, Technology, Engineering & Maths (STEM) Clubs were set up and supported by two LEP fieldworkers during the pilot phase of the project. Schools now run their own clubs working with a variety of partners including STEMNET, Young Engineers and The British Science Association.

Schools can work in partnership with their local HEI to set-up and support clubs in their area through provision of resources, access to expertise they may not have in school, STEM days for club members and/or training session designed to help and support the clubs in school.

Details of the STEM Club organisations can be found at:

<http://www.thelep.org.uk/teachers/engclub>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Pages 8-11 and in LEP Evaluation Report Appendices – Appendix D. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

For further details, please contact [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **5. The LEP Approach to issues around Gender & Diversity in Engineering (including gender awareness training)**

### **a. Gender & Cultural Guidelines/Checklist**

The LEP team developed two sets of Gender & Cultural Guidelines to help focus their work on the project. For our outreach work, we developed a set of Gender & Cultural Guidelines, which were adopted as part of the DRIVE process and were produced to ensure each outreach activity was gender and culturally inclusive.

Examples of the guidelines, the DRIVE process and case studies can be found at:

<http://www.thelep.org.uk/about/thelepapproach/thelepoutreachtoolbox>

Two case studies called:

I. 'Gender and Cultural awareness in engineering outreach - an approach to changing perceptions'

II. 'The London Engineering Project: Getting girls into engineering'

are developed in this area and can be downloaded from the following link:

<http://www.thelep.org.uk/national/casestudies>

Academic colleagues at LSBU also developed a similar set of guidelines to promote the delivery of inclusive engineering teaching and learning. They have produced their own guidelines and a supporting research paper called '*Delivering Inclusive Engineering Courses: A practical tool to promote best practice when developing and enhancing engineering courses*'. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/papers>

### **b. Getting girls into engineering**

*Getting girls into engineering...a practical guide* was an event run at the Royal Academy of Engineering on the 8th May 2008 for colleagues in the engineering outreach sector, industry and academia to share good practice and ideas on this hot topic. The London Engineering Project, UKRC, WISE, WES and the Royal Academy of Engineering worked together to organise the event.

For details of the event and conference report, go to:

<http://www.thelep.org.uk/about/girls>

The LEP team also produced a publication prior to the conference of the same name '*Getting girls into engineering...a practical guide*' available as a PDF and can be downloaded from:

<http://www.thelep.org.uk/about/girls>

A short LEP guide on how to encourage girls to participate in STEM activities is available at:

<http://www.thelep.org.uk/about/thelepapproach/encouraginggirlstoparticipate>

### **c. Gender Awareness Training**

As part of the commitment to the LEP, all our fieldworkers were required to attend UKRC Gender awareness training, this was also offered to colleagues in academia and our partner organisations. This promoted understanding of the issues affecting women

and girls in STEM and the positive actions that can be taken to address them. The Gender & Cultural Guidelines/checklist and the review process named 'DRIVE' were developed with the fieldworkers and academics after the training, to provide them with a tool to check that their work was inclusive.

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Pages 19 & 20 and in LEP Evaluation Report Appendices – Appendix H. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

For further details, please contact us on: [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **6. Engineering Activity Seminars**

In partnership with the Higher Education Academy Engineering Subject Centre, the Royal Academy of Engineering will be running a series of seminars to disseminate and share effective practice from the London Engineering Project.

For details of up and coming seminars and other forums for sharing effective practice please go to:

<http://www.thelep.org.uk/national/engactivityseminars>

or

<http://www.engsc.ac.uk/nef/events/index.asp>

or

contact us on: [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **7. Engineering Diploma engagement**

The LEP supported diploma engagement through delivering engineering activities as part of the engineering diploma schools diploma provision. LEP activities also helped to promote engineering as a career and therefore recruit students onto the courses in some LEP schools.

The LEP team at London South Bank University continues to support the engineering diploma schools in this way offering engineering activities at LSBU and in school, as well as, supporting the development of the students extended projects.

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Page 7. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

The Royal Academy of Engineering also supports the delivery of the engineering diploma in schools and college in England. For further details of the support offered please go to <http://www.raeng.org.uk/education/diploma/default.htm>

For further details, please contact [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## **8. Employer engagement in HE curricula**

This area of the LEP, focused on the projects developed by our partners at University College London, London South Bank University and the University of Sussex.

The work focused on three particular areas, these are:

- How to take an already established curriculum and develop new and innovative ways of delivery to enhance the student experience acknowledging the changing student profile due to widening participation successes
- Developing new degree programmes that maintain the required technical knowledge to deliver competent engineers, whilst expanding to embrace emerging technologies relevant to our changing society

- Promoting and nurturing links with key employers in the engineering sector and encouraging them to help in the development of new foundation degree programmes

All the work has been externally reviewed and in some cases, research papers have been presented at international conferences and published in peer reviewed journals.

### **EDF Foundation Degree at London South Bank University**

More information can be found on:

<http://www.thelep.org.uk/hei/foundationdegrees>

Case study - '*Building collaboration for an engineering foundation degree in power distribution*' can be downloaded from:

<http://www.thelep.org.uk/national/casestudies>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 –Pages 22, 24, 25 and in LEP Evaluation Report Appendices – Appendix J, M, O & P.

This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

### **HE Curriculum Innovation at University College London (ULC)**

More information and related research papers can be found at:

<http://www.thelep.org.uk/national/papers>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 –Pages 22, 24, 25 and in LEP Evaluation Report Appendices – Appendix K, M & N. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

### **Engineering for Society at University of Sussex**

More information and related case study can be found at:

<http://www.thelep.org.uk/national/casestudies>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 –Pages 24 & 25 and in LEP Evaluation Report Appendices – Appendix L & M. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

All the papers published around this work include;

- ***Delivering Inclusive Engineering: A practical tool to promote best practice when developing and enhancing engineering courses***  
Research Paper on developing inclusive engineering teaching materials.
- ***The London Engineering Project – A Higher Education Institution Model***  
This paper looks at the LEP as a model for change in HEI's.
- ***Using weblabs as a tool to support a culturally diverse student cohort***  
This paper looks at potential issues that may be encountered by engineering departments in the delivery of their curriculum to a more diverse student base.
- ***Reviewing the Effects of Revision Packs and Streaming on First Year Engineering Maths***  
This paper describes how one engineering department reorganised its maths provision in order to better support current and future students.
- *Transitions Issues Report March 2007*

- *WP Perceptions Report July 2008*
- **Remote Laboratories in the Curriculum**  
Reviews the use of remote laboratories
- **A Remote Access Laboratory for Collaborative Learning**  
A review on how remotely operated laboratories can be used to encourage the students to collaborate.

They all can be found at: <http://www.thelep.org.uk/national/papers>

For further details, please contact us on: [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## 9. **Employer Engagement**

There are a number of employers who are currently engaged with the LEP. Their involvement ranges from engagement in curriculum enrichment to providing STEM Ambassadors to help out at our events.

Employers can get involved in HE STEM activity in a number of ways, for detail of how we engaged employers in the pilot, please have a look on the following case studies:

- 'Building collaboration for an engineering foundation degree in power distribution'
- 'The Transport for London Ambassador Scheme'
- 'Tube Lines, Improve and Upgrade: A Case Study of an Integrated Science and Engineering Project'

They all can be downloaded from:

<http://www.thelep.org.uk/national/casestudies>

The evaluation of this approach can be found in LEP Evaluation Report December 2009 – Pages 14 & 16 and in LEP Evaluation Report Appendices – Appendix F4 & O. This can be downloaded from the following link:

<http://www.thelep.org.uk/national/lepreport>

For further details, please contact us on: [HESTEM@raeng.org.uk](mailto:HESTEM@raeng.org.uk)

## 10. **The Welsh Engineering Project (WEP)**

The WEP was delivered as a partnership between The Royal Academy of Engineering and Technology Alliance Wales (TAW). TAW took responsibility for selecting the range of activities undertaken and under the governance system set out for the project, TAW was held responsible for safe and efficient delivery.

In addition, the Engineering Education Scheme Wales (EESW) and the Technology Enhancement Project (TEP) were drawn into specific strands of the project.

The evaluation of the WEP can be found at:

<http://www.thelep.org.uk/national/wepreport>