

Internships and Placements in the Faculty of Engineering - Stage Two

Overview

Summary

The Engineering Academy (EA) at the University of Strathclyde provides a widening access transition route for students from a partner Further Education college into second year of a BEng honours/MEng stream within a range of engineering disciplines across six faculty of engineering departments. The EA is currently unique within the Faculty of Engineering in that all Engineering Academy students are provided with the opportunity to undertake a placement or internship during the summer months. There is a clear opportunity to maximise the learning and benefit from these placement experiences and integrate them as a core part of the student experience both within the Engineering Academy and in the wider faculty of engineering and university context.

This project was completed in two phases which were undertaken in the summer of 2016 and 2017 respectively. The main and overall aims of this project were:

1. To understand the Engineering Academy student placement/internship experience
2. Together with the EA students co-develop mechanisms for maximising the benefits of internships
3. Integrate key learning experiences in to the Engineering Academy student experience.
4. Investigate and identify key opportunities for transferability across the faculty of engineering and wider university

This report focusses on the findings from the 2017 study covering objectives 3 & 4. Objectives 1&2 were addressed in the summer of 2016 with the findings being reported in a previous SPELT study (<http://spelt.strath.ac.uk/display/SPELT/Internships+and+placements+in+the+faculty+of+engineering>)

This study aims to embed findings from stage 1 of the study carried out in summer 2016 within the Engineering Academy and widen opportunities for the impact of these findings across the faculty of engineering and beyond. Findings from the initial project stage included identifying strengths, benefits, challenges, barriers and areas for improvement in the existing engineering student placement experience. An interactive tool which guides students through the placement experience from application to returning to university was developed. This tool highlights how students can harness benefits and opportunities in addition to strategies and tips for overcoming common challenges and barriers.

Key learning strategies from stage 1 that were identified for integration in to the Engineering Academy and transferability across the Faculty of Engineering were:

- Providing opportunities for reflection on placement experiences on return to university through provision of a feedback learning loop
- Implementation of a peer mentoring scheme to facilitate the reflection and feedback learning look opportunities
- Investigate opportunities to collaborate with clubs and societies to help launch a peer mentoring scheme and facilitate the reflective learning loop.

The first stage of this work was reported in an earlier SPELT case study: <http://spelt.strath.ac.uk/display/SPELT/Internships+and+placements+in+the+faculty+of+engineering>

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Context

Faculty of Engineering

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Themes

Student Transitions

Rationale

Student internships and placements are an important part of engineering education. The experiences gained are broad and varied with engineering placements and internships covering a spectrum of industries. Often the key learning experiences from these internships and placements are not reflected upon, fully understood or integrated in to the student experience when they return to university.

Methodology

- A qualtrics survey was used to capture student opinion and requirements for a student mentoring scheme
- Co-design of an Engineering Academy Society with engineering academy students

- Investigation of how Incorporated Engineering Standard might be used to create a Feedback Learning Loop. Student focus groups and research to gain a detailed understanding of the Incorporated Engineering Standard.

Challenges

Peer Mentoring Requirements

- A total of 44 students responded to the survey.
- 73 % were interested in having a mentor
- 97 % of students believed a mentor in Year 2 of the Engineering Academy would help their transition into university
- 44 % of students who wished a mentor believed that having an Engineering Academy Student as a mentor would be the most appropriate and another 44 % of students did not think it mattered whether the mentor was an Engineering Academy or Non-Engineering Academy student.
- The mentor should be AT LEAST one year above the mentee.
- 40 % of students believe that mentors should communicate with their mentor on a casual basis as and when they want to meet e.g. in a social area, over coffee. There must be an initial e-mail or induction message sent to the student by the mentor.
- 19% of students believe that the mentors should communicate via social media.
- 65% of students primarily would want to discuss the mentor's university experience (their hurdles, tips and additional advice) with their mentor, with 22.5% believing general advice by e-mail would be sufficient.
- 50% want to meet with their mentor on a 1-1 meeting basis although 25% would prefer meeting with their mentor in a group environment and another 25% of students partially agreeing by wishing to meet in a social space/environment.
- 25% of students wish to gain helpful discussion regarding their university projects when involved in a mentoring scheme and 25% want to progress in a specific area of university study e.g. software packages (Solidworks, CREO, Photoshop, InDesign), Exam Preparation and Report Writing. Face to face time with a mentor is important to 17% of students and 21% of students wanting the scheme to provide a mentor who will primarily only listen and support.
- The majority (78%) of the students wish to develop an Engineering Academy Society.
- 59% of students are already involved in their own engineering faculty's society or another University of Strathclyde club/society.
- 80% of these students believe it has made them feel more included within the university.
- 23% of EA students want to be mentors to give back to the EA and its future students and 20% wish to improve the EA scheme in general.
- When becoming a mentor, 18% of the students wish to gain skills they could apply to their Curriculum Vitae and 15% of students wish to gain professional engineering qualifications. 13% of EA students acknowledge that becoming a mentor will increase their employability.

Co-establishment of Engineering Academy Society

9 students from the Engineering Academy engaged with the student intern to develop a structure, strategy and logo for a new Engineering Academy Society.



Feedback Loop based on Incorporated Engineering Standard

The Incorporated Engineering Standard was identified as a framework to form a feedback loop allowing students to reflect, integrate and capture learning experiences from placements and university study. Students also benefit through recording learning experiences and working towards Incorporated Engineer status during their time at university. Focus groups with current students identified that most students struggle to understand the intended meaning of some of the Incorporated Engineering criteria and requirements. Students felt using examples would enlighten their understanding.

A demonstrator interactive on-line tool was developed. The tool is personalised allowing students to build their own personal assistant to guide them through the Incorporated Engineering Standard providing explanations and examples for Incorporated Engineering Standard criteria. Some screenshots of the demonstrator are provided below:

This could be an ability to:	By, for example:
<ul style="list-style-type: none"> > Identify the limits of own personal knowledge and skills > Strive to extend own technological capability > Broaden and deepen own knowledge base through new application and techniques 	<ul style="list-style-type: none"> <input type="checkbox"/> Engaging in formal learning <input type="checkbox"/> Learning new engineering theories and techniques in the workplace, at seminars, etc. <input type="checkbox"/> Broadening your knowledge of IGEN and other engineering codes, standards and specifications <input type="checkbox"/> Attending IGEN and other engineering meetings and conferences and seminars

Recommendations

The intention is to establish a strong peer support and mentoring community working in collaboration with clubs and societies. The interactive Incorporated Engineering Standard tool should be used by individuals alone and in conjunction with peer mentoring as a basis for personal development. Fully integrating placement, work and study learning experiences.

Next steps

The next steps are to use the demonstrator to develop a functional on-line interactive tool for the Incorporated Engineer Standard reflective learning feedback tool.

Student involvement

Students were involved at the core of all aspects of the project. A current student Kate Murdoch undertook the work as a student intern i.e. developing the methodology, collecting and analysing data, developing the interactive tool.

Attachments

File	Modified
PNG File Engineering Academy Society logo.png	Nov 24, 2017 by Alex Buckley
PNG File Demonstrator screenshot.png	Nov 24, 2017 by Alex Buckley

[Download All](#)