Key challenges in introducing portfolios into engineering programs

Fredrik Georgsson, Krister Wiklund
Umeå Institute of Technology
Umeå University, Sweden

Abstract

We propose a round-table session on the subject of introducing portfolios into engineering programs. Part of this discussion should be devoted to trying to reach a consensus on what portfolios in an engineering context should be. We also aim at discussing key implementation issues associated with portfolios in engineering programs.

Keywords: Portfolios, personal and professional skills, skills assessment

Background

Portfolios have been used for a long time by artists and architects as a mean of accumulating work samples in order to be presented at job interviews. In elementary school, portfolios have been used as a tool for children to plan and reflect upon their learning. In the following of this abstract we define a portfolio to be a collection of work samples (texts, images, videos etc) and reflections upon these primarily gathered in order to document and promote a development of personal and professional skills and the progress shown by the student.

In a CDIO context it can be claimed that the usage of the portfolio concept is this sense is interesting since it, to a varying extent, aids in meeting the following standards: Standard 2 (CDIO syllabus outcomes), Standard 3 (Integrated curriculum), Standard 7 (Integrated learning experience) and finally Standard 11 (CDIO skills assessment).

We are about to implement portfolios into two of our engineering programs with the aim that the benefits will be the following:

- The students will have better generic skills and the experienced progression observed by the student might boost his/her self-esteem.
- The student will have work samples to show at his/her first job interview.
- The student will have an improved ability to assess his/her own work.
- The program director will know that all graduated students will have a high lowest level of generic skills.
- The industry can expect engineers to be more experienced in personal and interpersonal skills.

Of course, portfolios have been implemented in parts of engineering programs around the world during the last decade, but as far as we can tell, the major breakthrough in implementing portfolio programs en-masse has still to come. It is reasonable to raise the question: Why is this?

Several possible explanations have been put forward:

- In order to be really interesting, portfolios have to be implemented over entire study programs, causing a huge effect over many courses and large numbers of faculty-members.
- The workload of reviewing portfolios can be overwhelming.
- Students and faculty might not understand, or believe, that the time spent on portfolio work is well invested time when it comes to improving the quality of the graduated students.

In this round table discussion we aim at discussing the pros and cons of using portfolios in engineering programs.

We also hope to discuss implementation issues such:

- At what level should we control the content of portfolios as to what work samples should be included? Do we specifically demand certain work samples or is it up to the student to present a good, well balanced portfolio?
- How many work samples should there be in a portfolio?
- Should the portfolios be reviewed and how should such a review be financed?
- Who should have access to the portfolio? Should it be just the student or should it be made public.
- Other questions raised at the table during the discussion.