

# Integrated Learning through an Intensive Course on User Experience

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## ABSTRACT

This paper describes the core values and approaches in designing and implementing a course on User Experience (UX) in accordance with CDIO Standard 7, “Integrated Learning Experiences”. The UX course was delivered to non-expert students at Helsinki Metropolia University of Applied Sciences. In the spirit of CDIO, the course focuses on wholesome development, including personal and interpersonal skills, product, process and system building skills. The course incorporates best practices in the context of industrial partners, team building and preparation, and product analysis.

## KEYWORDS

User Experience, Intensive course, Integrated Learning, Standard: 7

## INTRODUCTION

The purpose of integrated learning is not only to teach students in discipline-based programs, but also to engage them in the subject work with a focus on relationship among concepts. There are different aspects to integrated learning (Malnarich et al., 2003):

- Emphasis on backward planning based on students’ interests
- A combination of subjects
- Emphasis on projects and tasks
- Flexible student groupings
- Use of study material beyond standard textbooks

Such an integrated learning course was designed for the students of Metropolia University of Applied Sciences. The course taught was about the principles of User Interface and User Experience (UI/UX) design. The students were from different backgrounds but they were not familiar with the theory of User Interface Design. This paper describes the salient points of how CDIO principles were applied in designing of this course. The outcome of the course showed positive results, as evidenced by feedback from students and their grades.

## DESIGN PRINCIPLES OF THE COURSE

The concept of user experience involves three components: the user, the interface and the product. The user interacts with the product and thus the experience of it must be pleasant and intuitive. The aim of integrated learning is maximizing student engagement. The students act as creators of the product. The product can be anything from a prototype to a

real-world problem-solving. In this course, students had to work with companies to get hands-on experience, which is one of the targets of CDIO.

CDIO Standard 7 deals with integrated curriculum plan. The course must be interdisciplinary and engage students' personal skills (CDIO, 2010). The development of self-management skills in students and graduates will enhance lifelong employability. The potential for career management skill development has proven to be generally unrealized in universities (Reddan et. al., 2012). Therefore, CDIO Standard works to create and certify courses according to the following criteria, on a scale from 0 (lowest) to 5 (highest) are given in Table 1 below (CDIO, 2010):

Table 1: CDIO Standard 7 criteria

5	Courses are regularly evaluated and revised regarding their integration of learning outcomes and activities.
4	There is evidence of the impact of integrated learning experiences across the curriculum.
3	Integrated learning experiences are implemented in courses across the curriculum.
2	Course plans with learning outcomes and activities that integrate personal and interpersonal skills with disciplinary knowledge has been approved.
1	Course plans have been benchmarked with respect to the integrated curriculum plan.
0	There is no evidence of integrated learning of disciplines and skills.

In order to satisfy the above criteria, the UI/UX course was designed as follows:

- Short duration, but intensive course.
- More practical examples, less of theory.
- Pairwise group work in lecture sessions.
- Assignments involve reading academic papers.
- Project work with industrial companies

The course was intensive due to the short timeframe as required by the students. Hence, there were only few lecture sessions, but their duration was adjusted to cover all the significant material required for fulfilling an industry project. The course content was split into five parts: (a) Introduction to UI/UX, (b) Usability and usability evaluation (c) Contextual enquiries and modeling (d) Report writing and (e) Soft skills (Lidwell et. al., 2010). Figure 1 summarizes the course contents.

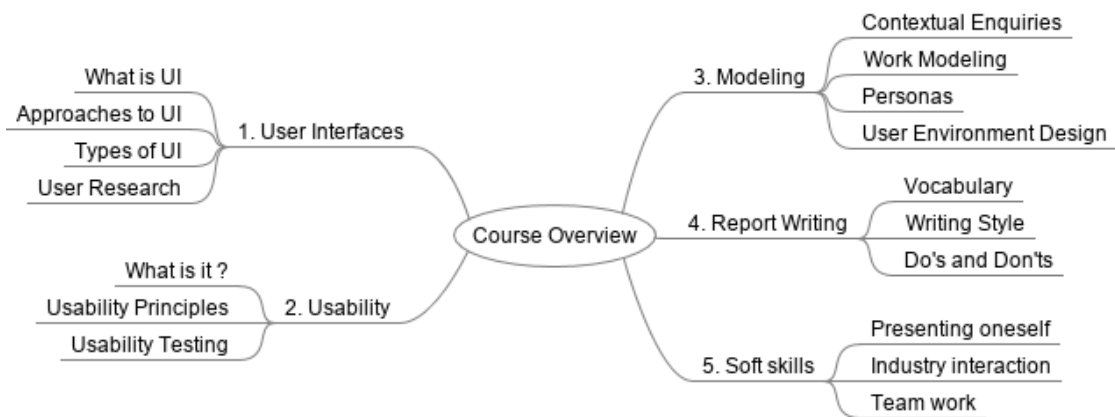


Figure 1: Course Overview

The aim of the course is two-fold: to act as a ready reckoner for non-expert *students*, and to provide a reference for *teachers* who wish to pursue a similar course for their own perusal.

The course involved many practice sessions. Students were required to form groups and encouraged group discussion. This was done in order to enhance soft skills and debating skills. This will prove handy when students want to present their arguments in a logical manner. Some of the exercise sessions were also graded by students themselves. This gives them perspective to have empathy and put oneself in another's shoes. This is indeed motivated by CDIO standard 7.

Three different companies were involved in this endeavor: Morrr®, Frosmo and Pandia. Morrr required students to perform a website evaluation and find common problems with the user interface. Frosmo required students to do usability testing on segmentation creation UI and navigation testing. Pandia required students to deduce usability problems in their reporting tool. The students learnt the skills of requirement analysis, drawing up problem specification, iterative feedback with the company and finally arriving at mutually-agreeable solution.

## RESULTS AND EVALUATION

The course proved to be a success with majority of the students giving positive feedback. The biggest takeaway was that integrated curriculum enabled faster learning which would otherwise take longer time to complete. In a sense, this being the intensive course, was a perfect ground for trying out CDIO principles.

A feedback survey was held among the participants. The findings are shown in Figure 2. Students were enthused about the overall experience of the course and the lecture contents. They were happy about the interaction with the companies, meaning the practical work was doable in a short, intensive course, if the CDIO principles are followed. Similarly, group discussion and the bonding between teachers and students was a good motivator to encourage inter-personal communication. The hands-on training obtained at companies was a reflection on how the course design can accommodate varying needs of the students.

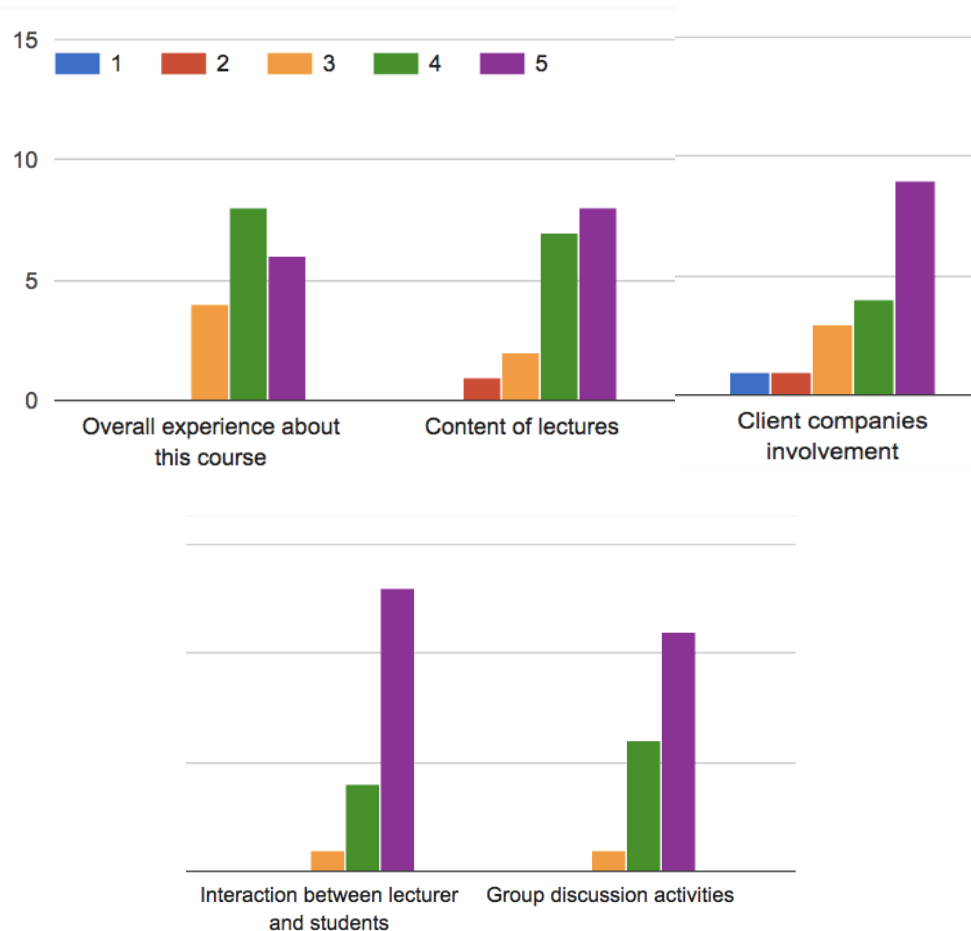


Figure 2: Feedback from student survey

## CONCLUSION

It can be summarized the teaching principles laid out in CDIO Standard 7, when implemented, provided good-to-excellent results among the students. It provides a balanced curriculum between theory and practice, at the same time, stresses the importance of soft skills and overall development.

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## BIOGRAPHICAL INFORMATION

**Markku Karhu** is the dean of the degree programmes in ICT and Media at Metropolia University of applied Sciences. He has adapted the work-based learning and prior learning evaluation in practice for mature engineering students. His professional interest is based on Software Engineering, Usability, and Accessibility issues of the ICT era, including CDIO (Conceive – Design – Implement – Operate) and Innovation Plaza concept.

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