2014 NAPP Project

Teaching the *new* course: MAM3085F ‘Computing for Chemical Engineers’

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Introduction

- **Course's scope:**
  - ✓ **Introduce the basic principles of scientific programming.**
  - ✓ **Utilize the SCILAB computing environment for solving scientific problems (with emphasis to chemical engineering).**
  - ✓ **Present and implement several methods of numerical analysis.**
- **Challenges:**
  - ✓ **New course.**
  - ✓ **Many different (although related) subjects have to be covered.**
- **Objective:**
  - ✓ **Teaching approaches for maximizing the effectiveness of the educational procedure.**

Actions

- **Knowing my students:**
  - ✓ **Initial Poll**
    - **72% had NO KNOWLEDGE of computer programming! (3rd year students of applied sciences!)**

- **Being aware of my students needs, problems and thoughts:**
  - ✓ **2 intermediate student evaluations.**
  - ✓ **Final course and lecturer evaluation.**

- **Evaluating my performance:**
  - ✓ **Teaching observation from HAESDU members.**

Reflection (I)

- **Content and organizational issues:**
  - ✓ **It is difficult to satisfactorily cover the initially scheduled material in the provided time for lectures and tutorials.**
    - **The pace in many cases was too fast.**
    - **Lectures were continued in tutorials.**
    - **The students did not have enough time to digest the presented material.**
  - ✓ **Tutorials were in some cases tiring: lasted for 3 hours and contained many, long examples.**
- **Lecturing:**
  - ✓ **Select questions to be answered during lectures.**
  - ✓ **Improve student's involvement.**
  - ✓ **Better management of teaching, practicing and reflecting time.**

Reflection (II)

- **General problems:**
  - ✓ **The venue is not appropriate for this course (especially for tutorials).**
    Note that the students use their own laptops.

Reactions (I)

- **Content and organizational issues.**
  - ✓ **Redesign several aspects of the course:**
    - **Increase the number of lectures (already scheduled for next year).**
    - **Have shorter tutorials.**
    - **Emphasize on the parts of the syllabus that are more important for the students.**
    - **Increase the number of tests and make them shorter (this year we had 3 tests that lasted 3 hours each and corresponded to the 50% of the final mark).**
    - **Improve the quality (and quantity) of provided notes.**

Reactions (II)

- **Improving lecturing.**
  - ✓ **Better connection with previous lectures and tutorials.**
  - ✓ **Slower pace.**
  - ✓ **Discussion of ‘small’ questions with the involvement of more students.**
- **Monitoring the effectiveness of teaching procedure.**
  - ✓ **Intermediate and final student evaluations.**
  - ✓ **Teaching observation.**
- **General problems.**
  - ✓ **Try to find a better venue for the course, like a computer lab.**