PROFESSIONAL COMPUTING

Lecture 1: Introduction

Dr. Mark Lee | *m.g.lee@cs.bham.ac.uk*
School of Computer Science, University of Birmingham
Autumn 2014

Question

You are a computer system manager. An employee is out sick and on behalf of the entire development team, another employee requests that you copy all files from the sick person's computer to theirs so that they can do some work due to an urgent deadline which if missed will have serious financial implications for the entire company.

What do you do?

Learning Outcomes

- After the end of this module, you should be able to:

Identify, demonstrate an understanding of and describe **ethical, social, legal and professional** issues in computing.

- Discuss these issues in a balanced and lucid way.

- Make good presentations of views in a formal report format.

Assessment

- Exam (50%) in May.

- Continuous Assessment (50%)
  - 15% CV
  - 15% Group Presentation
  - 20% Essay

- This module is repeat only.
  1. you really don't want to be repeating this module in your final year
  2. failing "professional computing" might seriously affect your career opportunities … so work hard!

Syllabus i

- Week 1
  - Module Introduction
- Week 2
  - Lecture English Law & Computer Misuse Act
- Week 3
  - Lecture Data Protection Act & Freedom of Information
- Week 4
  - Lecture How to give a presentation
- Week 5
  - Lecture Contracts and Liability
  - Presentations
- Week 6
  - Lecture How to write a CV
  - Presentations

Syllabus ii

- Week 7
  - Lecture Intellectual Property
  - Presentations
- Week 8
  - Lecture The Internet
  - Presentations
- Week 9
  - Lecture Human Resource Management
  - Presentations
- Week 10
  - Lecture Ethics
  - Presentations
- Week 11
  - Lecture Closing Remarks and Module Summary
  - Presentations

An ethical interlude

You are the driver of one of a new line of computer controlled trolleys. Unfortunately lack of funding has meant that the software hasn't been fully tested and the trolley has a fatal flaw – when you brake, you actually accelerate!

The trolley is speeding to a split in the road – the left route means you will crash into a group of 5 workmen. It's certain you'll kill them. The right route means you'll crash into a lone workman – again killing him.

What do you do?

Timetabling

- You might have noticed that your timetable is still in a state of flux.
- Weeks 1-5 we will have ONE lecture per week as per the syllabus.
- Weeks 6-11 we will have a lecture (this slot) and presentations from 4 – 6 pm.

Presentations

- You will be allocated to one of two groups
  - Group A (4-5 pm Tuesdays)
  - Group B (5-6 pm Tuesdays)
- And then you will be allocated into groups of (roughly) 5 to 6 students for a group presentation. I'll randomly assign topics (to be done in week 3).

- Please make sure you attend other students presentations in (at least) your group. Not only will this help you with your studies but it will help your fellow students. Nobody likes talking to an empty room.

- Also attend your own talk! Not doing so will result in 0% being awarded unless Welfare convinces me otherwise.

Lateness & Plagiarism

- Given the module's title and content, professional behaviour isn't optional.
- Late submitted work will be subject to a 5% penalty per working day.
- Any suspected plagiarism will be passed to the Senior Tutor for investigation and action.
- (I apologise to everybody for having to write the above. Unfortunately this is one of the less pleasant aspects of University life).

Referencing

- More positively – you will be taught to use academic references in technical writing (using Harvard style)
- This should help you in the remainder of your degree and future career.
- Good academic scholarship isn't difficult (though can be hard work) but it is amazing how many students lose silly marks in things like their final year projects …
- Don't be one of them!

Other Tools

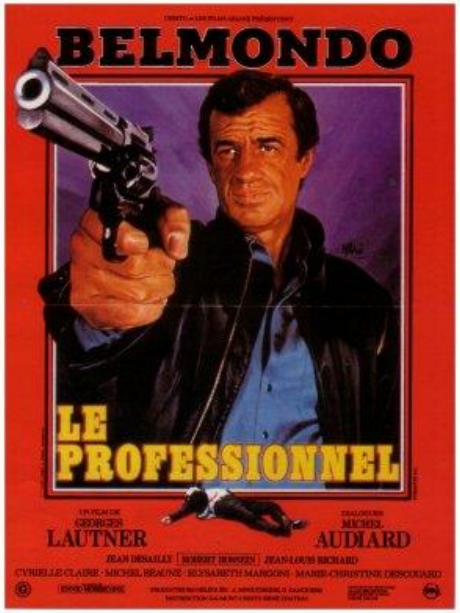
I expect you to use:

1. LaTeX for technical report writing (but maybe not your CV)
   - markup/programming language for typesetting.
   - lingua franca for scientific writing (and mathematics).
   - Extremely powerful (and flexible) use of references/chapters/multi-file documents etc.
   - What you *really* want to write your FYP dissertation in (not word!)

2. Subversion
   - Open source versioning control software
   - Widely used in industry and research
   - Designed for coding but works well with multiple author writing
   - Easy to track who does what on a document (or presentation)

What does “Professional” mean?

- A wide range of meanings
- Recognised Professions: medical doctor, lawyer, teacher, dentist, engineer etc.



- Most require:
  - Substantial Education/Training
  - Members of the profession decide the nature of the training required.
  - The profession has one or more professional bodies
  - The profession lays down standards of conduct which members must comply.

Professional Bodies

- Establish a code of conduct to which members of the profession must abide.
- Establish mechanisms for the dissemination of knowledge & good practice to members
- Set standards of education (for example degree accreditation)
- Advise government and regulators (for instance in the drafting of new law)

(Adapted from Bott, 2005)

Reservation of membership

- Reservation of title
  - To call yourself a member of the profession you must be recognised by the professional body.
  - E.g. to advertise yourself as an architect is illegal without permission of the ARB (Architects Act, 1997)

- Reservation of function
  - To carry out the functions associated with the profession, you must be recognised by the body.
  - E.g. to audit the accounts of any public company, you must be recognised by Assoc of Certified Accountents.

Engineers

- In the US most types of engineer have reservations on both title and function associated with a professional body.
  - It is illegal to call yourself an engineer without registration
  - It is illegal for a company to use the word “engineer” without employing registered engineers
  - Academic programmes which use the word “engineer” must be mostly taught by registered engineers.
  - It is illegal to carry out engineering work without the supervision of a registered engineer.

    (These are all state rather than federal law so differ across the country.)

What about Software Engineers?

BCS

- The term “engineer” is unrestricted in the UK
- The IT industry is unregulated but we do have a professional body
- Our professional body does not have regulatory powers
- But it does –
  - Accredit degree programmes (ours!)
  - Advise the government on IT related issues
  - Disseminate good practice and attempt to define “Professional Behavior”
  - Code of Conduct http://www.bcs.org/category/6030
- Should the term “software engineer” be restricted?
  - London Ambulance Scheduling Service
  - Therac-25 disaster

Another ethical problem …

Most days you have your lunch overlooking a bridge with a wonderful view over the city. Today however you notice an automated trolley speeding towards five men working below (possibly piloted by a panic stricken computer science student)

The men will certainly be killed if you don't do something. Fortunately there is a very fat man sitting with his legs dangling over the bridge. If you push him to the road below, it's certain to stop the trolley and save the five men working in the road. Unfortunately this will also kill the man.

What do you do?

Summary

The content on this module will focus on

- Legal, ethical and social issues in Computer Science
- Some of this will be dry (but useful to know!)
- Where possible I'll refer to real life events

I'll also base most of the content on

- Frank Bott (1914) Professional Issues in Information Technology (BCS Press)

And YOU will be presenting to the rest of the course (so make it interesting!)

https://birmingham.instructure.com/courses/9569