
Heriot-Watt University Tutor Handbook

BSc Information Technology: Professional Development

Interactive University

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Heriot-Watt University Tutor's Handbook: Professional Development

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Topic 1

Professionalism

This unit is heavily dependent on students sharing information and giving feedback to each other. Each student should be allocated to a small tutorial group of no more than nine students. Each tutorial group should be led by a tutor who maintains regular contact with the students, monitoring their progress and fielding any questions they might have.

The primary means of communication and interaction for the students is expected to be weekly face-to-face meetings of their tutorial group. Secondary mechanisms could include e-mail, newsgroups, bulletin boards, chat rooms, web sites, etc. in support of this.

Each topic in the unit contains one or more assignments. The tutor may allow tutees a free choice of the assignment they wish to complete or allocate the assignments to tutees to ensure that each one is tackled by at least one tutee. Students will learn about the other topics from fellow tutees in their tutorial group meetings.

The tutorial group meetings at which the students present the material from their assigned tasks should be held about two weeks after each topic has been started. Just before the next topic commences is preferable. There will be five such meetings; one for each topic.

There is no examination in this unit.

There are three formal assessments, each carrying one-third of the marks for the unit.

The first two assignments are 2000 word essays and should be submitted at the tutorials associated with Topics 2 and 3 (but at the very latest, before the tutorial associated with Topic 4). Prompt feedback should be provided on the first assignment to inform the students' production of the second one.

The third assignment is a formal presentation which each tutee makes to the rest of their group in one of their last two tutorials (those associated with Topics 4 and 5). About half of the group should present on each occasion. These presentations should be about 15 minutes long and assessed by the tutor.

You do not have to spin the tutorial out to last the whole hour. If the discussion dries up and all of the key points have been covered then let the group go. This first tutorial could well and end early.

This first tutorial is mainly an "introduction to the unit" session.

Invite each tutee in turn to say who they are, where they come from and what they think about the course so far.

The following ideas can be used for discussion at this tutorial.

Being a Professional

What ideas do your tutees have about how a professional could be defined?

Competence-Responsibility-Trust

The online materials suggested that there might be other qualities, besides C-R-T, which a professional should possess.

Can your tutees think of any?

Professional Bodies

The online materials introduced your tutees to the British Computer Society.

Are there other national professional bodies which they should be aware of? Ask them if they know of any. Tell them about those you know of.

Professional Codes

The online materials asked your tutees to familiarise themselves with the British Computer Society's *Code of Conduct* and *Code of Good Practice*, available on the WWW.

What do they know about the BCS Code of Conduct?

What do they know about the BCS Code of Good Practice?

Topic 2

Rights and Wrongs

In this tutorial each tutee should submit their first 2000 word assignment.

Ask each tutee in turn to briefly summarise what they have submitted. Then encourage the group to discuss the topics further. Use the following notes on marking the essays to help you and your group focus on the key issues.

Guidance Notes on Marking Assignment 1

The students have all received instruction in how to approach an ethical problem in a rational fashion. We should not be concerned with what they decide to do in either of these instances but rather with the way in which they have arrived at their decision.

Students should identify all of the stakeholders in this situation and consider the pros and cons of any potential action with respect to each of them in turn.

Stakeholders who should be considered include -

- The offending staff in the screen capture program case
- The public at large in the carcinogenic fertiliser data case
- Other employees
- The company (and its shareholders)
- Oneself

Tests which the candidates should consider deploying to assess their potential actions include -

- **The Golden Rule** - How would I feel if I was being spied upon by my boss?
(Other Person's Shoes Test) - How would I feel if my family was affected by the fertiliser?
- **Legality Test** - Is what I'm proposing legal?
- **Smell Test** - Does what I'm proposing smell right?
- **Parent Test** - What would my parents say about my proposal?
- **Media Test** - Would I be happy to own up to this proposal on TV?

- **Market Test** - Is what I'm proposing so good that I could sell it/me?

Essay topics for Assignment 1

1. Screen Capture Program

You are to imagine that you have recently become a development manager, overseeing a number of programmers and analysts working in project teams.

Three weeks ago, whilst browsing through a directory of materials which you have inherited from your predecessor, you discovered an application that lets you capture and view a snapshot of any of the screens used by the staff for whom you are responsible. Tactful enquiries on your part over the following weeks reveal a number of facts -

- Nobody knows about the existence of the screen capturing program
- About a year ago there had been a problem with productivity when certain staff had devoted a not inconsiderable amount of their working time to solving puzzles which they circulated amongst each other via e-mail
- Your predecessor had, apparently coincidentally, caught many of the offenders with these puzzles open on their screens and had reprimanded them
- Puzzling then dropped off and productivity picked up
- Productivity seems to have declined again since your predecessor left

You must now decide what to do about the screen capturing program. Discuss the ethical issues involved and come to a reasoned decision which you can justify to others.

2. Carcinogenic Fertiliser Data

You are to imagine that, at some point in the not too distant future, you have taken up a position as a systems analyst with a major agro-chemical company. After an initial period of fairly trivial work your employers entrust you with the processing of confidential data concerning a very promising new fertiliser for wheat. This you regard as a great accolade; since you are aware of the tremendous importance your company places on secrecy. Indeed, only some six or seven people in the whole enterprise have access to the data you have been charged with handling.

Three years later you have progressed well within the company and have been given much responsibility. You have been amply rewarded by your employers for the many evenings and weekends which you have devoted to your work. You have married and now have two children as well as a large mortgage and two nice cars bought with a loan from the bank - your assets are all invested in your house.

Then, the following year, disaster strikes; mortgage rates shoot up, house prices plummet, your partner (whose income has been on a par with yours) loses his/her job and, in the course of your work, you learn that the company has discovered that at least 70% of the people who have consumed the wheat grown with that promising fertiliser of four years ago have contracted cancer.

On questioning your supervisor of four years ago about the fertiliser you are informed that nobody outside the company is likely to discover the connection and you realise that the company is planning a cover-up. Anybody within the company who breathes a word

about the scandal will be sought out and peremptorily dismissed.

You must now decide what to do about what you know. Discuss the ethical issues involved and come to a reasoned decision which you can justify to others.

Topic 3

Risks and Threats

In this tutorial each tutee should submit their second 2000 word assignment.

Ask each tutee in turn to briefly summarise what they have submitted. Then encourage the group to discuss the topics further. Use the following notes on marking the essays to help you and your group focus on the key issues.

Guidance Notes on Marking Assignment 2

1. Detailed Working of Biometrics

The essay should demonstrate that the student has researched further information than that supplied in the online materials. Details beyond those supplied in these materials are expected. One freely chosen example from each of the two main categories of biometric; physiological and behavioural, is required. You should endeavour to guide students towards biometrics for which full information is easy to obtain present. The following would be most suitable -

Physiological biometrics

- Examples of physical characteristics are -
 - DNA
 - Fingerprint
 - Iris
 - Retina Behavioural biometrics
- Examples of involuntary actions are -
 - Signature
 - Voice

2. Reliability of Biometrics

The following key points should be considered -

1. The authenticity of the original data might be questionable.

If it is possible to abuse the procedures from the start the biometric data is no more reliable than any other identification techniques. For instance, if measures to prevent an individual from associating his/her biometric data with a fictitious/dead person are not in place then fraudulent personalities can be created.

2. Stored biometric data can be modified.

If the integrity of a stored biometric can be compromised then the correct identification of an individual can be invalidated or one individual might be able to pass themselves off as another - identity theft.

3. Body parts can be separated from the person they belong to.

It is a macabre fact that in some parts of the world there has been resistance to using the fingerprint biometric for cash machines because of concerns that criminals might amputate people's fingers in order to gain access to their accounts.

Marks should be awarded for appreciating the above points and for suggestions as to how these problems might be reduced/eliminated - the security measures which could be put in place for points 1 and 2 and the potential susceptibility of different biometrics to point 3.

You should also be prepared to award marks for a thoughtful discussion of the dangers of treating biometrics as a panacea for identity verification.

It should be possible to obtain full marks by adopting either of the above approaches.

Essay topics for Assignment 2

1. Detailed Working of Biometrics

Research and describe the detailed working of one example from each of the two main categories of biometric; physiological and behavioural.

2. Reliability of Biometrics

Physiological biometrics identify bodies or, more specifically, parts of bodies. They do not identify people directly. Furthermore, all biometric data must be stored for subsequent comparison and it is a match between the presented and the stored data, which might not be the correct data, that is used for identification. Discuss the problems which these two levels of indirection might create.

Topic 4

Dependence and Change

In this tutorial half of your tutees should make their 15 minute presentations which will be assessed as Assignment 3.

Guidance Notes on Marking Assignment 3

1. Computer Games

Students should clearly identify the stereotypes which they believe are relevant here. Obvious stereotypes include -

- Sex and Sexual Orientation
- Age and Maturity
- Ethnicity and Social Background

Educational value and the stimulation of imagination are key properties which Provenzo suggests were limited in games (and limiting to players). Students should be focussing on these characteristics throughout their discussion.

I would expect students to take issue with applying Provenzo's description to today's computer games. In doing so they should make sure that they counter the individual statements that he makes.

2. Open Source

The key ideas to discuss are -

- The merits of openness and the sharing of ideas
- Fair and just rewards for intellectual effort
- How best to encourage the development and exploitation of new ideas

The Presentations

Here is a reminder of some good things to look out for -

- **Introducing oneself** An audience needs to know who the speaker actually is
- **Speaking clearly** Essential to audience understanding

- **Good positioning** Lets the audience see/hear all that they should
- **Smiling** Gives a friendly impression
- **Cracking the odd joke** Helps to create an informal atmosphere (can overdo it)
- **Looking at the audience** Helps to make the audience feel that they matter
- **Using props** Use of visual aids and objects increases interest
- **Using anecdotes** Helps relate the presentation to real-world experiences
- **Inviting questions at the end** Encourages the audience to ask them
- **Asking questions during** Encourages audience participation

Do get each tutee to attempt a presentation. Start with the most confident tutees so that their experience can be used to encourage the less confident. Be ready for problems with the less confident tutees when their turns come.

Here is a reminder of some of the problems you might have to handle -

If a tutee dries up try feeding them a word or a line.

If a tutee starts stammering try turning the presentation into a conversation between them and you by asking questions to help them along.

If a tutee breaks down (or looks like they are on the verge of doing so) step in immediately. Explain that it can be very stressful making presentations if you are not used to it and suggest that they resume their seat. Try to keep talking until they get back to it so as to keep the focus of attention away from them. Then tell the tutee you'll go through their points with them at the end. When the time comes do this in a simple one-to-one conversation with both of you seated.

Presentation topics for Assignment 3

1. Computer Games

Eugene Provenzo has compared computer games unfavourably with more traditional toys as follows -

"In the case of [computer games] the child has almost no potential to reshape the game and its instrumental logic. There is literally one path down which the player can proceed. The machine and its program impose an instrumental logic on the play situation and the activities of the child. In the light of evidence ? concerning the violence, aggression, and stereotyping found in these games, this fact is particularly disturbing."

Eugene Provenzo, "Video Kids"

Harvard University Press, 1991

Computer games have advanced considerably since this was written but should we be any less concerned than Provenzo? Are there reasons to be even more concerned now?

2. Open Source

The protagonists in the open source versus proprietary software debate have made the following statements -

"Digital information technology contributes to the world by making it easier to copy and modify information. Computers promise to make this easier for all of us. Not everyone wants it to be easier. The system of copyright gives software programs "owners", most of whom aim to withhold software's potential benefit from the rest of the public. They would like to be the only ones who can copy and modify the software that we use ... What does society need? It needs information that is truly available to its citizens - for example, programs that people can read, fix, adapt, and improve, not just operate. But what software owners typically deliver is a black box that we can't study or change."

Richard Stallman, Founder of the Free Software Foundation

"Why Software Should Not Have Owners", 1994

"It [the GNU General Public Licence] also fundamentally undermines the independent commercial software sector because it effectively makes it impossible to distribute software on a basis where recipients pay for the product rather than just the cost of distribution ... Two decades of experience have shown that an economic model that protects intellectual property and a business model that recoups research and development costs can create impressive economic benefits and distribute them very broadly."

Craig Mundie, Senior Vice President, Microsoft Corporation

"The Commercial Software Model", May 2001

To what extent do you agree with each of them? Are there elements of truth in both statements?