

Codes of Practice

Discuss the social; moral and ethical issues associated with the introduction and use of information and communication technology systems, which affect a professional working within the industry.

- *Understand that 'codes of practice' exist which are separate from any legal requirements with which professional organisations are expected to comply.*
- *Understand the need for a code of practice for ICT users in an organisation.*

Employee code of conduct

- *Understand what is meant by an employee code of conduct, e.g. responsibilities; authorisation; security; penalties for misuse.*
- *Describe the contents of such a code of conduct.*

A reminder of the personal skills required (studied in ICT 2)

Have **good oral communication skills** in order to be able to tease out end-user requirements

To have **good written communication skills**, in order to requirement to write exact specifications, the proposed method of solution and to produce documentation

Be able to **provide training** to others

Be able to attain a certain level of **educational qualifications**

Interpersonal skills must include the ability to work with others in a team. Information systems are often large thus often work is often split into modules. Even where tasks are fairly small there will be a need to liaise with experts

Other personal skills will include patience, common sense, initiative, punctuality, being able to work under pressure, be able to take on responsibility, not be afraid of 'sticking' your neck out.

Problem solving skills

The ability to cope with change and be able to pick up new ICT skills

1996 and 1994 (4 marks) A firm is recruiting staff to work within its IT department. In addition to technical skills what other qualities should the firm be looking for, and why are these important to the effective working of an IT department?

1997 and Exemplar 2000. 4

Professional progression within the IT industry requires more than just technical skills. Give **THREE** other necessary qualities and explain why they are important.

<i>Each attribute 1</i>	<i>Why important 1</i>
<i>Oral communication skills (1)</i>	<i>ability to 'tease out' end-user requirements (1)</i>
<i>Written communication skills (1)</i>	<i>requirement to write specifications, methods of solution, produce documentation (1) [this could be considered a technical skill]</i>
<i>Interpersonal relationships...team-work (1) systems are large, often work is split, even if small there will be the need to liaise with experts.</i>	<i>General disposition - <u>must relate to the task</u> - max (1) e.g. logical reasoning skills</i>

Professional and ethical behaviour within ICT

Professional workers, by the nature of their work, often meet situations where it may be difficult to decide between right and wrong. Should a doctor, for example, give a drug to a patient that will relieve some immediate pain while shortening their life?

What is **Ethical/Responsible Behaviour**?

- Charlie Chaplin “ Man is an animal with primary instincts of survival. Consequently, his ingenuity has developed first and his soul afterwards. Thus the progress of Science is far ahead of man’s ethical behaviour.”
- Ethics are a set of personal beliefs; we are concerned with ethics as they affect a professional working within the IT industry. **The professional must consciously monitor and assess his/her own behaviour and report on computer crime**

Ethical behaviour might include the following: -

- Respecting other people’s computers and private files
- Honouring the copyright laws by not making unauthorised copies of programs. “Would I steal a book from a library?” “Would I read someone’s private mail?”
- Using the computer in responsible ways such as not connecting to another computer without permission to do so
- Keeping your password private
- Not leaving your computer on for others to use in your absence
- Reporting security breaches when you see them

Responsibility to Society

IT systems can have considerable implications for society in terms of employment prospects and quality of life. Complex systems may fail, putting lives at risk or causing environmental damage. They can be used to infringe or deny human rights - such as the right to privacy - and they can also be used for criminal purposes. The following situations are cases where these sort of ethical questions may arise:

- A foreign police state hires an IT firm to create a system to monitor the activities of political dissidents - does it make any difference if the dissidents are engaging in terrorist activities or if the government has been democratically elected?
- The Government hires IT professionals to work develop systems to crack encryption codes used for digital telephone networks. Initially this is to allow phone tapping of suspected criminals.
- A large chemical company is installing a computer controlled process but is unwilling to pay for the detailed safety backup systems that you, as an IT professional, think are needed.
- A company wants to introduce an IT system that will allow it to become so efficient that it will be able to put its competitors out of business and which will eventually lead to massive unemployment.

Responsibility to the Employer or Client

All employees have responsibilities to their employer. Some of these responsibilities are set out in law. The IT professional is in a special position because he or she has been employed to provide expertise that the employer will often have no background knowledge of at all. In many cases the employer will be entirely dependent on the skill and integrity of the IT specialist. The IT expert however talks in technical jargon that can be unintelligible to the non specialist and that will, because of the rapid developments in IT, most probably be outside their range of experience. Ethical issues that arise in this situation are illustrated by the following scenarios:

- A client wants a time/cost estimate but there is no time to perform a proper analysis. If you guess then the project will probably go over time and budget. If you don't then another firm may get the contract. You start work and find the problems are greater than first appeared. The project will go seriously over budget.
- While working for one client you discover information that may be of personal benefit or that you could use to benefit your next client.
- The client is totally ignorant of IT hardware. You need to shift some equipment that that will do the job but that you know is about to be replaced by new stock with a better specification and at a cheaper price.
- You do some part time work for a software company who offer to give you a bonus for every package you sell. You recommend the package to your client but omit to mention your connection with the company.
- A client thinks that the backup provision is over specified and insists that you reduce costs in this area. You know that this could have disastrous consequences in case of a failure but if that's what the client wants then that's what you'll give them.
- You think the client may not pay you. So you leave a logic bomb embedded in the system. This will only activate if you access the system with a special code and you will remove it when you are paid.

Responsibility to the Profession

Professional organisations regulate the behaviour of their individual members. They also take on a responsibility for promoting the good standing of the profession as a whole. The professional is therefore expected to refrain from activities or behaviour that brings the profession into disrepute. In addition the professional member is expected to act with integrity towards fellow members and to support new entrants to the profession. There are fewer moral pitfalls in this area than the last but examples might include:

- You are desperate for a particular contract that you know you can do well. Chatting to the managing director you find out that a rival IT company is likely to be given the work. You drop a hint that they have mishandled a similar installation.
- You have a client who does not pay his bills on time and who demands far more from you than is reasonable. The client is undertaking a major expansion which you know will be a disaster. You recommend a rival firm as having specialist expertise in this area.
- A systems analyst is a poor team worker and is a major source of disruption. He applies for another job and you write a glowing reference.

Personal Responsibility

- The professional worker is responsible for his or her own abilities and actions. He or she has a personal responsibility to have up to date knowledge and skills so that the client is not disadvantaged by an incompetent or out of date implementation. A professional should also recognise then a particular task is beyond their competence and should be prepared to advise a client accordingly. They must be able to give impartial and objective advice and avoid any situation that causes a conflict of interest between them and the client. The professional will also take full responsibility for their work should things go wrong.
- While working for a particular client you are offered a large contract by one of his main competitors.
- A system your company has implemented for a client fails. The client believes that the failure was due to hardware but you know that it was actually due to the way the system was set up by one of your colleagues. The client has lost business and goodwill as a result of the failure.

BCS

Usually a professional body or organisation will be responsible for setting out a code of practice and ensuring that members comply with it. This helps members of the public when they deal with that particular profession because they know what behaviour and standards are acceptable. In the UK the British Computer Society is the professional body that is responsible for maintaining standards of professional behaviour in the IT industry. The society, which was formed in 1957, was granted a Royal Charter for this and other purposes in 1984, so that it is recognised as the official regulatory body for the IT professional. Membership is restricted to those who have passed certain examinations to ensure that professional standards are maintained. In addition the Society helps to keep its members' knowledge up-to-date by organising meetings and training courses.

Codes of Practice and Codes of Conduct

“Codes of practice’ exist separate from any legal requirements with which professionals within the industry are expected to comply

In order to help maintain professional standards of behaviour within the industry, the British Computer Society publishes a code of conduct that comprises twenty-two rules relating to the professional behaviour of its members. See www.bcs.org.uk These rules cover four areas:

- The Public Interest
- Duty to Employers and Clients
- Duty to the Profession
- Professional Competence and Integrity

BCS CODE OF PRACTICE

This code of Practice is directed to all members of The British Computer Society. It consists, essentially, of a series of statements which prescribe minimum standards of practice, to be observed by all members.

The Code is concerned with professional responsibility. All members have responsibilities; to clients, to users to the State and society at large.

Those members who are employees also have responsibilities to their employers and employers' customers and, often, to a Trade Union. In the event of apparent clash in responsibilities, obligations or prescribed practice the Society's Secretary-General should be consulted at the earliest opportunity.

The Code is intended to be observed in the spirit and not merely the word.

1 Personal requirements

- 1.1 Keep himself, and subordinates informed of such new technologies, practices, legal requirements and standards as are relevant to his duties.
- 1.2 Ensure subordinates are trained in order to be effective in their duties and to qualify for increased responsibilities.
- 1.3 Accept only such work as he believe he is competent to perform and not hesitate to obtain additional expertise from appropriately qualified individuals where advisable.
- 1.4 Actively seek opportunities for increasing efficiency and effectiveness to the benefit of the user and of the ultimate recipient.

2 Organisation and management

- 2.1 Plan, establish and review objectives, tasks and organisational structures for himself and subordinates, to help meet overall objectives.
- 2.2 Ensure that any specific tasks are assigned to identified individuals according to their known ability and competence.
- 2.3 Establish and maintain channels of communication from and to seniors, equals and subordinates.
- 2.4 Be accountable for the quality, timeliness and use of resources in the work for which he is responsible.

3 Contracting

- 3.1 Seek expert advice in the preparation of any formal contract.
- 3.2 Ensure that all requirements and the precise responsibility of all parties adequately covered in any contract or tendering procedures

4 Privacy, security and integrity

- 4.1 Ascertain and evaluate all potential risks in a particular project with regard to the cost, effectiveness and practability of proposed levels of security.
- 4.2 Recommend appropriate levels of security, commensurate with the anticipated risks, and appropriate to the needs of the client.
- 4.3 Apply, monitor and report upon the effectiveness of the agreed levels of security.
- 4.4 ensure that all staff are trained to take effective action to protect life, data and equipment (in that order) in the event of disaster.

4.5 Take all reasonable measures to protect confidential information from inadvertent or deliberate improper access or use.

4.6 Ensure that competent people are assigned to be responsible for the accuracy and integrity of the data in the data file and each part of an organisation's database.

There is also a great deal of law concerning the interaction between employers and employees. In addition there is an increasing amount of legislation relating to IT matters. The code of conduct is separate from and additional to the obligations imposed by law.

A code of conduct will also specify what happens if an employee breaches the rules. It will give details of the disciplinary procedures that will be followed and the penalties that could be expected. Penalties might be:

- (a) Verbal warning from supervisor.
- (b) Written warning .
- (c) Loss of pay or privileges.
- (d) Dismissal.

<u>Example of an Employee code of conduct</u>	http://www.msu.edu/user/kimyong2/copy.htm
Internet copyright	http://www1.bcs.org.uk
The Association of Computing Machinery's Code of Ethics, which is referred to in the link above.	http://www.acm.org/

1996 (3 marks) “Codes of practice” exist for professionals within the IT industry separate from any legal requirements.

Explain with the aid of an example, the distinction between a legal requirement and a code of practice.

- *1 data protection. Legal requirements are specified within DP act, however a code of practice may specify the response time for personal data*
- *2 hardware/software sales - Any sales subject to Trades Description Act. However a code of practice may prohibit a salesperson from selling hardware/software that is soon to become obsolete.*

1998.5 (4 marks)

Organisations and IT professionals are required to comply with a legal framework when introducing and using IT systems. In addition there will normally be a code of practice.

- (a) Define what is meant by a 'code of practice'. (2)
- (b) Describe two ways in which institutions, such as the British Computer Society, promote professionalism for individuals within the IT industry. (2)

- (a) Organisations will have their own policy/set of rules.
This policy/set of rules governs the behaviour and actions of employees within the organisation*
- (b) Academic achievement and experience governs membership
BCS has its own Professional codes of conduct
BCS promotes exchange of expertise through seminar programmes and training*

2000.4 (9)

Many companies now have a code of practice for employees working with information technology systems.

- (a) Explain what is meant by a code of practice. (3)
- (b) Explain **three** benefits to a company of having a code of practice. (6)

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New employees joining a company are each asked to sign an agreement to adhere to a code of practice for using the organisation's computer system

Explain **four** issues that such a code of practice should address. (8 marks)

Max 4 x (2, 1, 0) but if answer written from user point of view then 1 mark per point maximum. First mark for the issue, then second mark for either an example, or a good expansion or a penalty for misuse point.

- *Responsibilities for use of company hardware*
- *Responsibilities for use of company software*
- *Responsibilities for use of data*
- *Responsibilities for correct use of time*
- *Responsibilities for use of the internet or intranet*
- *Authorisation paths / levels, access rights / job related security, passwords / ids / physical aspects*

- *Company's implementation of legislation eg. DPA*
- NOT*
- *General responsibilities to public*
 - *Plagiarism*
 - *Locked out when leave company*

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Discuss the social, moral and ethical issues for a professional working within the industry that might arise when introducing and using information and communication systems. **(6 marks)**

*This answer should be in continuous prose - question is Discuss. (No penalties if not)
Points made must be expanded to get a single mark. Expansion must be descriptive or by use of a pertinent example, using both will get a second mark for that point made.*

- *De-skilling of employees, e.g. taking decision-making tasks off staff and changing their jobs to recipient of results or information*
- *Flexibility of workforce, e.g. introduction of on-line ordering or enquiry systems mean that the working day is extended, so staff may have to go*
- *onto shifts.*
- *Hacking*
- *Un-licensed software use*
- *Privacy of data*
- *Security/accessibility*
- *Property & copyright*
- *Abiding by legislation*
- *Need for a Code of Practice/Conduct*
- *Introduction of virus/logic bombs*
- *Provision of a safe working environment for ICT users/workers*

THE INDUSTRY STRUCTURE MODEL

This will no longer be specifically mentioned in any ICT1 question but we would like you to be aware of its existence and refer to it in answering questions.

The BCS set up the Industry Structure Model as an external performance standard which sets out for each of the jobs or roles commonly found in IT,

- The appropriate academic background,
- The level of experience required at entry,
- The major tasks performed,
- The personal attributes required,
- The training and development
- Which should be undertaken to attain full proficiency.

The Industry Structure Model provides a possible career path within IT profession. The flexible framework is specified and is a nationally recognised scheme. There is mapping from the level to the current task of employment relating to job description.

It is a ten point scale (But goes from 0 to 9). You should be aware of

Level 0 Unskilled Entry	Level 0 is the base entry level to IS related work for those with minimum entry qualifications. These will often be direct entrants from the secondary education sector.
Level 1 Skilled Entry	Level 1 is the entry level to a technical role within information systems. It will often be the appropriate level for adequately educated trainees but should not be seen as only applicable to new entrants
Level 4 Fully Skilled Practitioner	Level 4 will normally only be achieved after clear evidence is available of full competence in a specialised technical role. At this level full technical accountability for work done and decisions taken is expected. The ability to give technical or team leadership should be present as well as a high degree of technical versatility and broad industry knowledge.
Level 9 Senior Manager/Director	Level 9 is the level occupied by the most senior of managers actively associated with information systems in organisations where operating effectiveness (and possibly survival) is heavily dependant on the use of such systems and where large numbers (at least 50) of information systems practitioners are deployed. A wide and deep practical information systems knowledge base is called for accompanied by mature management qualities, an understanding of business and evidence of a professional attitude to all responsibilities.

