CSC 405 – ETHICAL ISSUES IN ICT ENVIRONMENT

Brief Overview of the Course

- The course teach the basic operating concepts in ICT environment and adopting the best practices as ICT professionals.

- Also, the course expose students to professional ethics and code of conduct of the profession and the need to be conscious of it and be advocate.

Course Objectives

- To introduce students to the basic operating concepts in ICT environment and the role expected to play
- To expose students to the professional standards and ethics of the profession
- To teach students how to handle the various ethical issues in ICT environment
- To teach students how to relate among different actors in the ICT environment

COURSE CONTENT

Module 1 Introduction to ICT Environment

- Week 1&2: Information system hardware and software requirements, specification, procurement, installation, operation and maintenance. ICT personnel carrier structure, function, training and development.
- Weeks 3& 4: ICT environment technical and administrative controls, standards, reference manuals, user guide, operation manuals and maintenance manual. Privacy and security.

COURSE CONTENT Cont'd

Module 2: Ethical Issues in ICT Environment

- Weeks 5& 6: Relationship among IT user departments, computer vendors, manufacturers and software houses. Professional ethics and code of conduct.

- Weeks 7&8 : Study of the policy issues that relate to the use of information systems such as personal privacy, right of access, security, trans-border data flow and confidentiality.

COURSE CONTENT Cont'd

- Weeks 9: Copy rights and privacy of computer software.

- Weeks10-11: Introduction to cyber crime, prevention, law and justice.

- Week 12: Revision

INFORMATION SYSTEMS (IS)

- An information system is composed of five (5) major resources that are logically designed to produce information for decision-making.
- That is, it is an organized collection of people, hardware, software, data and network resources that are used for producing, disseminating, and consuming information.
- The resources can be described as follows:

Information System Cont'd

1. Human Resources (Humanware)

- The human resources include both the **information workers** and the **end-users**. The Information workers are the people that are saddled with the responsibility of creating, collecting, processing, distributing and utilizing information.
- They are largely information technology specialists: Systems Analysts and Designers. These are knowledge workers whose responsibilities include: developing systems that meet the specific needs of the user based on their specialized body of knowledge. The end-users on the other hand are the clients or the users of the developed systems or the information produced. In this class are the accountants, clerks, engineers, managers and marketers.

Information System Cont'd

2. Hardware Resources (Hardware)

- These are the physical equipment of the computing system alongside the materials used in processing information. They include all tangible devices that can be touched and moved from one place to another. They can largely be subdivided into two namely:
- The central processing unit (CPU) and the peripheral devices. The central processing unit is the main processing engine of the computing system, which is composed of the arithmetic and logic, main memory and the control units.
- The peripherals are all other physical components of the system such as the printer, storage media (flash, CD, tape and disc drives), the monitor, mouse and modem.

Information System Cont'd

3. Software Resources (Software)

- This is a set of programmes that run on the hardware to direct its activities to produce information. It can be categorized into two: System software and Application software. The system software controls and drives the operations of the computer systems: the hardware and software inclusive.
- The applications software are the programmes that are used to accomplish specific applications by the user. These includes: payroll, word processing, spreadsheet etc.

Information System Cont'd

4. Data Resources

- Data is the raw material that is processed by both the hardware and software resources to produce information, which is the main product of the information system.
- Data in itself is meaningless and cannot be used for decision-making but when processed into a meaningful form called information, it becomes a veritable tool for effective decision-making.
- Data types can be categorized into numeric, alphabetic, alphanumeric, audio (sound) and images (graphics). These are organized into files, which is a collection of records about personnel, an entity or a customer of a firm, and the various files build up to the database of the firm.

Information System Cont'd

5. Network Resources

- The primary product of an information system is information. This is disseminated across the various levels within and out of the organization.
- Therefore the network resources are the tools used for information transmission in the organization.
- These resources include some specialized hardware and software, the computing system and media through which information is sent (cables, radio wave, and satellite).

Organisation of an Information Systems Department

- Recent advances in the field of information and communications technology (ICT) has brought about a dramatic change in the organization of the IS department as well as the various categories of IS specialists.
- Traditionally, the department used to be known as data processing department (DPD), and composed basically of three units namely: Analysis, Programming and Operations.
- Presently, with the recent developments in ICT, particularly, the ways and manner the department is organized in order to meet the dynamic needs of businesses, the Internet has become the life-wire of most businesses, thus bringing about the concept of:

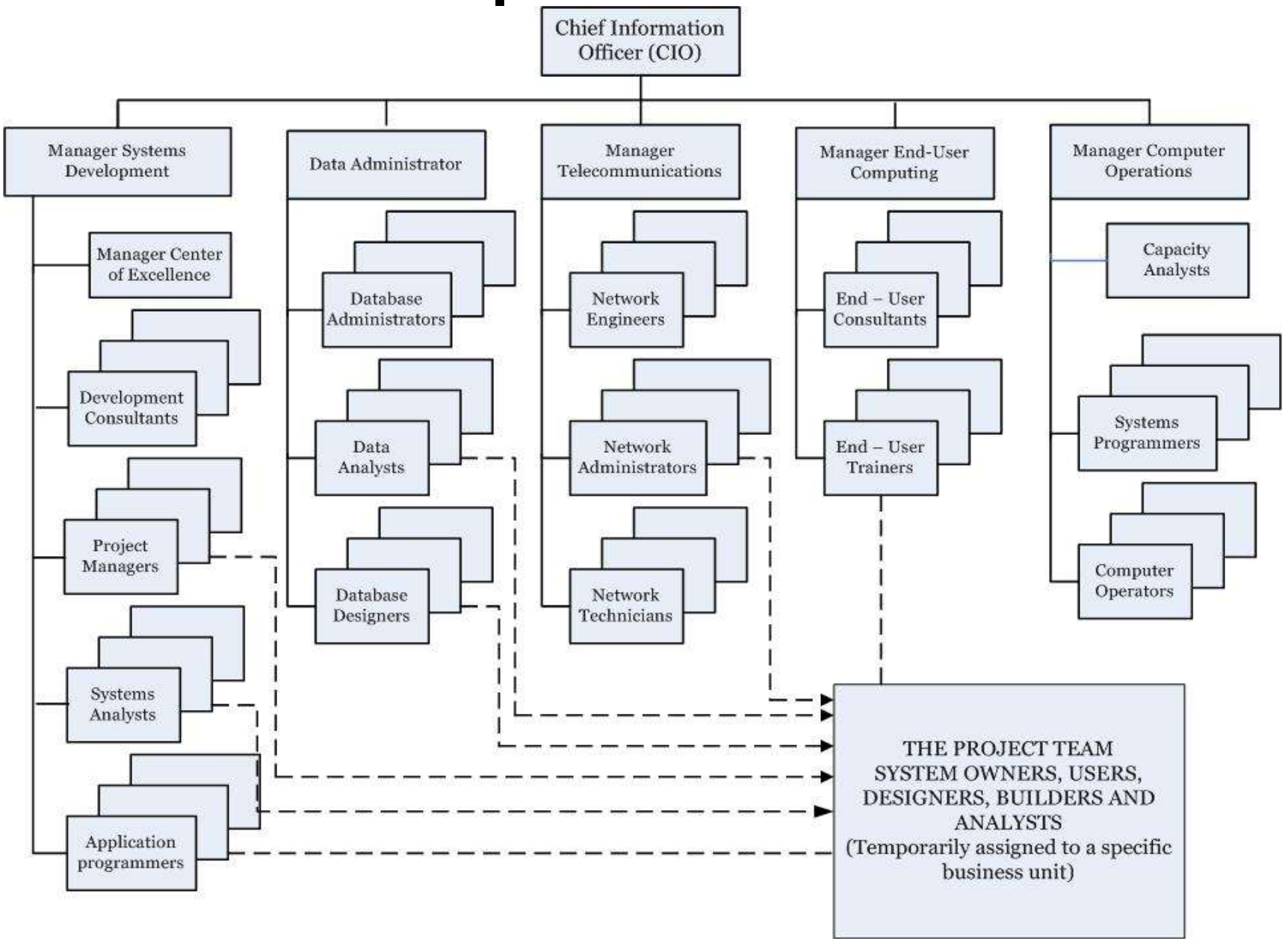
Organisation of an Information Systems Department Cont'd

1. **eCommerce**: This means carrying out business transactions on the Internet. eCommerce involves virtual marketplaces across international boundaries, devoid of physical presence and outright elimination of middlemen. Thus, it leads to reduced cost of goods.
2. **Telecommuting**: The Internet has brought about the concept of virtual workplace where workers are not confined to the central office or place of work. Workers work anywhere, anytime and stay connected to other people all over the place for whatever information they need.
3. **Others are**: eBanking, eLearning and ePayment to mention but a few.

Organisation of an Information Systems Department Cont'd

- The current demands are technology-motivated and therefore require expertise in the areas of networking, client/server computing, database, operations as well as modern software development paradigms. Consequently, the IS department has been redesigned to reflect this trend of events.
- Like any other department of the organization the IS department is headed by a Chief Information Officer (CIO), who oversees the various units in the department namely:
- (i) Systems Development, (ii) Database Administration, (iii) Telecommunications, (iv) End-User computing, and (v) Operations. Each of the units is headed by a manager who is responsible to the CIO.

Organisation of an Information Systems Department Cont'd



Functions of IS Department

i. Systems Development

- The analysis and programming units in the traditional setup are combined here as one unit.
- Both the programmer and the analyst co-exist. A single person with sufficient knowledge in the area doubles as both analyst and programmer.
- The analyst or systems analyst is responsible for analysing and designing new systems, while the programmer or systems programmer builds, or develops the system by coding following the specifications laid down by the analyst.
- Generally, the unit is responsible for:

Functions of IS Department Cont'd

- Carrying out requirements elicitation for the systems and development
- Developing system modelling or prototyping
- Developing the actual system
- Testing the system against the laid down objectives
- Carrying out system implementation and conversion
- Carrying out post-system implementation and maintenance

Functions of IS Department Cont'd

ii. Database Administration

- The current working arrangement has necessitated the need to deploy applications on the Internet, or over a network or to create enterprise resource software for the organization deployed on the firms intranet (within the office) and extranet (other branches of the firm). This demand requires a client/server computing to manage the request and process demands efficiently. Thus, at the front-end, the client requests for information from the server which is at the background (back-end).

- Generally, the database administrator is responsible for:

Functions of IS Department Cont'd

a. Installing, configuring and optimizing SQL server

b. Creating and managing databases and their files

c. Transferring data from other database management systems into SQL server

d. Replicating data

e. Managing security

f. Maintaining backups

g. Automating management tasks

h. Optimizing performance of SQL server.

Functions of IS Department Cont'd

A database developer is responsible for the following tasks:

a. Defining database

b. Creating and managing databases objects

c. Working with data in the databases

d. Testing and optimizing the application that accesses the database

e. Optimizing database performance

Functions of IS Department Cont'd

iii. Telecommunications

- Modern business requires a collapse of the barrier of time and distance and this is achieved through telecommunications. Firms are able to communicate with individuals, branches, and other firms over a geographically dispersed area. This is achieved through networking of resources.
- In this unit, we have network engineers who are responsible for setting the layout of cables (for wired network) or setting up the radios (for wireless network); the network administrator is responsible for managing and administering the network by assigning rights and privileges; while the network technicians carry out preventive and corrective maintenance as well as responding to the diverse requests of the users. The specific responsibilities include:

Functions of IS Department Cont'd

a. Creating and managing user account
b. Maintaining adequate security
c. Training and supporting users as needed
d. Updating existing software and implementing new ones
e. Preventing data loss
f. Tuning network to achieve maximum performance
g. Data backup
h. Protecting the network against viruses
i. Trouble shooting
j. Preventing system downtime

Functions of IS Department Cont'd

iv. End-User Computing

- The major responsibility of this unit is to attend promptly to the diverse needs and requests of end-users or clients. The clients are systems users and may not necessarily have the wherewithal technically or otherwise to make optimum use of the system. Thus, this unit is saddled with the responsibility of offering:

a. Help-desk (call-in help) services to users.

b. Training users on the use of the system.

c. Installation services.

d. Consultancy services to users.

Functions of IS Department Cont'd

v. Computer Operations

- The unit sees to the general operations of the Computer Systems (hardware and software). It is concerned with the general operation and execution of jobs. The specific responsibilities include

a. Ensuring the smooth running of the entire systems

b. Ensuring minimal system down-time

c. Maintaining records of systems utilization

d. Maintaining records of resource utilization

e. Meeting the demands of users

Review Questions

1. Explain briefly the information systems resources.
2. With the aid of a suitable diagram, describe organizational setup of a typical information system department.
3. List five responsibilities of the following IS professionals:
   (i) Systems Developers
   (ii) Database Administrators
   (iii) Telecommunications Manager
   (iv) Operations Manager
- 4. Distinguish between a knowledge worker and information worker.