

## **1) Title**

## **2) Purpose: Describe the objectives of the course**

**Notes to expand/explain some of the material presented on the slide:**

### **Objective 1**

- We depend on Information Systems in all areas of live.
- Information Systems Definition: “is a set of interrelated components that collect, manipulate, and disseminate data and information ... to mean an objective” (Stair and Reynolds)
- Examples: banking systems, telecommunication systems, even supermarkets (more later in the lecture and in the next lecture).
- The course focuses on how Information Systems that are used in Business. But principles can be applied to multiple domains.
- This course will discuss – What IS is? How they are used? Why they are used? How people (user) interact at all levels.

### **Objective 2**

- People are involved everywhere! Determining the requirements, clients (stakeholders), working in teams (project groups are more than one). This way it is important to have balance in the field.
- Issues involved with the management of people
- What value is the development project adding to the organisation? Improving quality? Saving money? Etc.

### **Objective 3**

- Once we understand the importance of IS. This course will look at the foundational process of constructing IS (both conceptual and practical)
- Look at the IS development by using the different phases of the SDLC. What is involved? Give you an overview/survey of the whole process.

### **Objective 4**

- Introduction of the broader issues surrounding IS development.

- Ethics and professionalism of software development.
- The many different technologies that support and are used for development of IS (e.g. Web, DIS, networking (including wireless)).
- Hardware – not specifically talked about in this course. But a basic understanding is required.

### **3) Purpose: Introduce how the course is taught (delivered)**

#### **Notes:**

- Provides a good balance of conceptual and practical.
- Some material from lectures is directly applied to practical session, e.g. Application Development
- Some lecture material is more conceptual in nature and the practical more of examples of what can do in the specific area.

**Lectures = 50%**

**Laboratory sessions = 20% + Assignment 10%**

**Midterm + Oral = 20%**

### **4) Purpose:**

- Provide an overview of the topics covered in the different elements of the course
- Course Calendar dates were changeable, but the materials are the same.

#### **Notes:**

- The course is a survey of the field. Introducing a number of topics, but not going into large amount of depth.
- Introducing a number of important terms and concepts
- Highlight 1: Point out number of teaching weeks.
- Highlight 2: Point out practical sessions and tutorial weeks
- Highlight 3: Point out assignments and examinations.

### **5) Purpose: Describe the assessment used in the course**

#### **Notes:**

- **Practical tests (20%)**
  - Based on material presented during the laboratory sessions
  - Held during your scheduled laboratory session.
- **Quizzes and Assignment (10%)**
- **Oral Exam (10%)**
- **Mid-term Exam (10%)**
  - Between week 7-10 based on Tutorials + Lectures
- **Final Exam (50%)**
  - All elements on the course
  - MCQ, Short answer, and modelling questions
  - All material, preparation for the final exam
  - However, focus on the conceptual elements of the course

## 6) **Enterprise may include the following:**

- \* People
- \* Business processes
- \* Information flow
- \* Functions
- \* Ethics/Integrity
- \* Organisational structures
- \* Strategy
- \* Management
- **Information Systems : Examples**
  - \* Enterprise Management Systems (EMS)
  - \* Transaction Processing Systems (TPS)
  - \* Geographical Information Systems (GIS)
  - \* Virtual Reality Systems

- \* and more ...
- **Technologies**
- \* Architectures
- \* Networks
- \* Internet
- \* Hardware
- \* Security
- \* Languages (e.g. visual basic, C#, Java)
- \* Environments
- \* and more ...

## 7) Overview

## 8) Supporting Enterprises

**Purpose:** Describe how information systems are used to support enterprises. Start with a definition of information systems and move on the main functional area of enterprises that they are used.

### Notes:

Describe the different functions within enterprises that can be supported by IS. Divided into main functional units. Included are some examples of types of IS that are used within the specified functional units.

### **Marketing:**

- Planning, promotion, sale of existing products/services, development of new products/services and new markets
- Customer Relationship Management (CRM): “covers methods and technologies used by companies to manage their relationships with clients. Information stored on existing customers (and potential customers) is analyzed and used to this end.” (wikipedia, 1/12/06)
- Sales force automation: Enabling sales teams using ICT (i.e., laptops, mobile phones, smart devices, PDAs. ...). All activities are conducted electronically and therefore more efficiently.

### HR:

- Recruitment, placement, evaluation, compensation, and development of employees of an organisation
- Typical HR information system would be the payroll system (was one of the first business process supported by computers)

#### **Finance:**

- Support financial managers with financing the organisation and the allocation and control of financial resources within an organisation
- Cash management: Forecast and manage cash position by collecting information on cash receipts and disbursements.
- Credit management: Monitor and control creditors information
- Investment management: Manage short-term investments and other securities
- Capital budgeting: Evaluate risk/return of capital expenditures
- Financial forecasting: Forecast financial performance and financing needs

#### **Accounting:**

- Oldest and most widely used information systems for recording and reporting on business transactions → tracking the flow of funds through an organisation
- Typically support by transaction processing systems to support order processing, accounts receivable, accounts payable, and general ledger (consolidate data from other systems) systems
- Financial statements such as balance sheets and income statements are produced
- Management Information Systems are also used to help develop financial budgets and projections

#### **Production/Operations (Manufacturing and logistics):**

- Planning and control of the processes producing goods or services
- Systems required monitoring and controlling inventories (supply of raw materials), purchases, flow of goods and services, etc.

## **9) Types of Information Systems**

**Purpose:** Describe how there are many types of information systems and what each of the types on the slide are used for.

**Notes:**

**Some examples:**

**Enterprise Resource Planning Systems (ERP):**

- Linking multiple applications and databases for different functional areas such as Accounting, Warehouse, and Sales in an organisation together.

**Customer Relationship Management (CRM):**

- Used to monitor and control interactions with customers and use data from this to drive sales and improve customer service

## **10) Data vs. Information**

**Purpose:** Fundamentally information systems are about conferring data into information. Describe the difference between data and information.

**Notes:**

**Data vs. Information** - Terms generally used loosely and often used interchangeably to mean the same thing

**Data** are abstract facts (stored) or observations (typically physical phenomena or business transactions)

Data takes many forms:

- traditional alphanumeric data (numbers and alphabetical)
- text data (sentences and paragraphs - written communications)
- image data (graphic shapes and figures)
- audio data (human voice and other sounds)

Data represents real world things - attributes (characteristics) of entities (people, places, things, and events)

Normally data is Large (big), static and represents a computer input, while Info can be one line (small) and vary according to the user needs and represents the computer output.

**Information**

- Collection of facts organized in such a way that they convey value
- Data converted into something meaningful and useful within specific context of end user

**Example** - boarding pass provide you with essential information, such as the gate number and departure time.

Both present the same stuff, but one is more useful (because it is meaningful and organized)

Remember subjective - if you are not flying on a plane is the information useful? For example, is it information for a person catching a train?

Data is distinct items that don't have much meaning to you without the given context.

Data + process (program) .....-> information

## 11) Data Transformation

**Purpose:** Describe the transformation process that occurs to convert data into information

**Notes:**

Add value to data through some process. Value added will provide significance for the user of the information in their context.

The turning data into information is a process. Set of logically related tasks performed to achieve a defined outcome.

Therefore information is processed data placed in a context that gives it value for specific end users.

Can be transformed (value-added) using computers (information systems)

## 12) Quality Information

**Purpose:** Value of Information is subjective to and linked to how an organisation decision makers used it. But we →

can describe some general characteristics can be used to help define valuable information.

**Notes:**

### 1- Accurate

- Accurate information is error free.
- Common source of inaccurate information is inaccurate data. Garbage In, Garbage Out (GIGO)
- Reliable – Needs to know that the information is reliable (like accurate). For example is the information true (unknown source).

### 2- Complete

- Valuable information contain all the important facts (e.g. (previous example) a boarding pass without the gate number is not much use)

### **3- Economical**

- The value of information has to weight up against its cost (as with everything in business)

### **4- Relevant**

- Relevant for the objective desired for information (no need for extra information). Pertain to the problem at hand only.

### **5- Current (timely)**

- Information needed to be available when it is needed.

### **6- Secure**

- Information is only access by unauthorized users.

### **Others ...**

### **Accessible**

- The right people need to get the information at the right time.

## **13) Information Systems**

**Purpose:** Describe how an information system is a special type of system that takes data and converts it into information.

**Notes:**

### **What is a System?**

Definition– “A set of elements or components that interact to accomplish goals” (Stair and Reynolds, 2003)

Definition – “A set of objects or appliances arranged or organised for some special purpose,

**Examples** of systems:

- A courier business, education systems, transport system, computer systems, telecommunication systems, etc.

### **Basic Components or functions**

- Inputs – capturing and assembling elements that enter the system to be processed. Examples: raw materials, energy, data, and human effort.



- Processing (working together) – involves transformation processes that convert input into output. Examples are a manufacturing process, the human breathing process, or mathematical calculations
- Output – involves transferring elements that have been produced by a transformation process to their ultimate destination. Example: finished products, human services, etc.

### **Types of IS**

Manual – Investment analyst manually draw charts and trend lines

- (input) stock prices
- (processing) analyst developing patterns on paper
- (output) graphs that help to determine what the stock prices are likely to do in the next few days or weeks.
- Computer-based information systems (CBIS). We will focus on this type of system.

## **14) Components of Information System**

**Purpose:** Describe the six major components (activities) that make up an information systems

**Notes:**

### **1-People**

- Essential: People both used and create information systems
- People who manage, run, program, and maintain

### **2- Hardware**

- Computers, input/output devices, storage, processing, etc.

### **3-Telecommunications**

- Communications medium, Networks, and the Internet Support

### **4-Software**

- Two types:
  - System software: programs designed to coordinate the activities and functions of the hardware and various programs
  - Application software: programs designed to help user solve particular problems

## **5-Procedures**

- Strategies, policies, and rules for using the CBIS.

## **6-Database**

- Organized collection of facts and information.
- A database is like an electronic filing cabinet. Databases store (known as persistent data) and organize data
- Examples of Relational databases (range in size)
  - MS Access (DB and Information System), Oracle (2<sup>nd</sup> year), DB/2 – IBM, SQL Server

### **What are they good for:**

- Store large quantities of information
- Retrieve information quickly
- Organise and reorganise information
- Print and distribute information in a variety of ways

## **15) Video Store IS Example**

**Purpose:** Describe the video store information system that students are going to create in the laboratory sessions.

*Refer to the practical sessions for more information about the system.*

### **Notes:**

- Ask the class the following questions: (***These questions will be addressed throughout the course***)
  - How does the IS add value to business?
  - What need does the IS meet? Or what problem is solved?
  - How is it build?
  - How is it design?
  - How is it used?
  - What technologies are involved?

## 16) Start reading the Video Store DB and draw its ERD's as shown bellow

**Purpose:** Describe the database that supports the video store information systems.

**Notes:**

- During the practical session you will be exploring the Video Store Information System – here is a subsection of it database.
- Describe the key elements of a database
  - Tables
  - Row (records)
  - Columns (fields)
  - Relationships

## 17) Types of Application Software

**Purpose:** A large about of the course focuses on the construction of application software and therefore an understanding of the

different types of applications software is required.

**Notes:**

An organisation can either (two main choices)

- Develop a one-of-a kind program (known as a **customised software**)
- Purchase an existing software application (known as a generic or off-the-shelf software)
- It is also possible to modify existing off-the-shelf applications (known as a customized package)

**Customised ( or proprietary) software**

- a large amount of this course will look at the process of development proprietary software
- Can be either in-house developed or contract out (third-party vendor)
- Examples: specialise system such as, air traffic control systems and video store systems

**Generic (off-the-shelf) applications software**

- Can be purchased, leased, or rented from a software company
- Example: MYOB accounting software

### **Customized package**

- Again customized software can be developed in-house or contacted out.
- Some company allow their software to be modified, other don't

### **Customised or proprietary software**

- Advantages
  - Exactly what you need – features, etc.
  - Involved in the development process – further level of control over the results
  - Flexibility making modifications – you are able to change to meet new requirements
- Disadvantages
  - Development: can take a long time and uses significant resources (cost)
  - With in-house development: it can be costly to allocate the time or maintain the expertise of staff
  - Feature and performance risk: unsure of the unknown.

### **Generic (off-the-shelf) software**

- Advantages
  - Lower initial cost (purchase cost is less than development cost)
  - Less likely that the software will fail – can match business need to known existing features
  - Likely to be High quality because many customers tested and identify bugs
- Disadvantages
  - Paying for features that are not required (but come with the package)
  - Costly further development: may lack features or requirements could change – required expensive future changes or customization
  - May not be able to find software that match current requirements, work processes, and data standards.