Sinah Bible

IB.CS-HL 1 & 2

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THE VILLAGE SCHOOL AT HOUSTON, TEXAS

https://github.com/bishan-batel/ibcs-bible

Research done by the IB Moderation bullshit team

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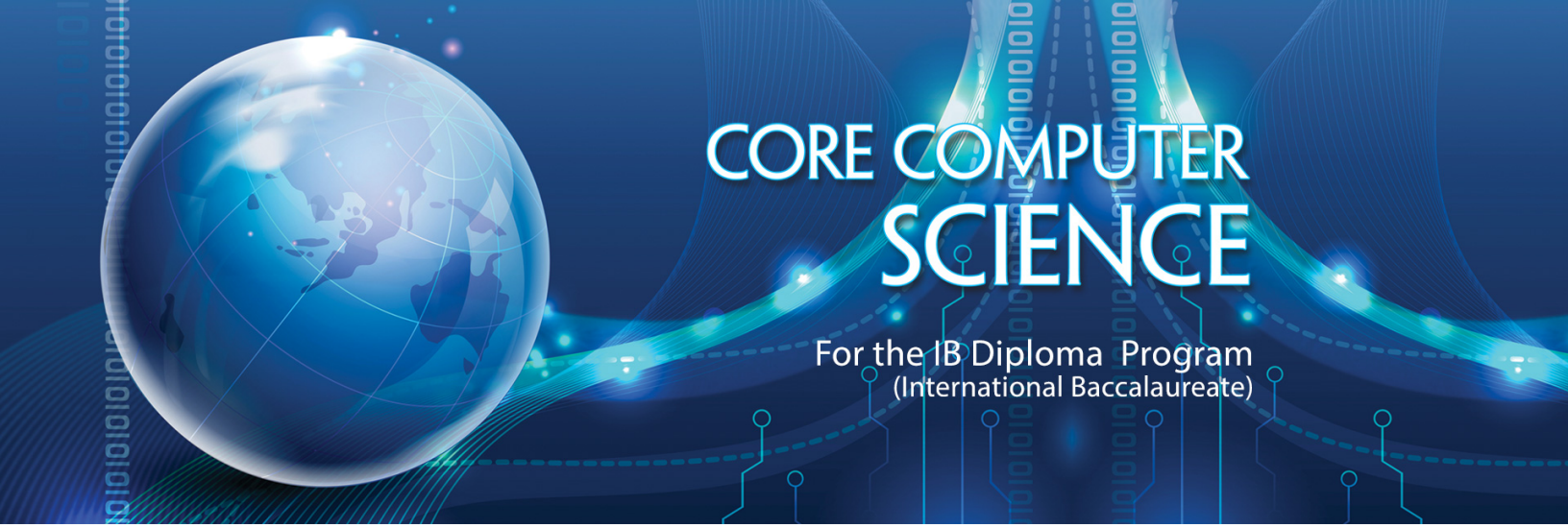
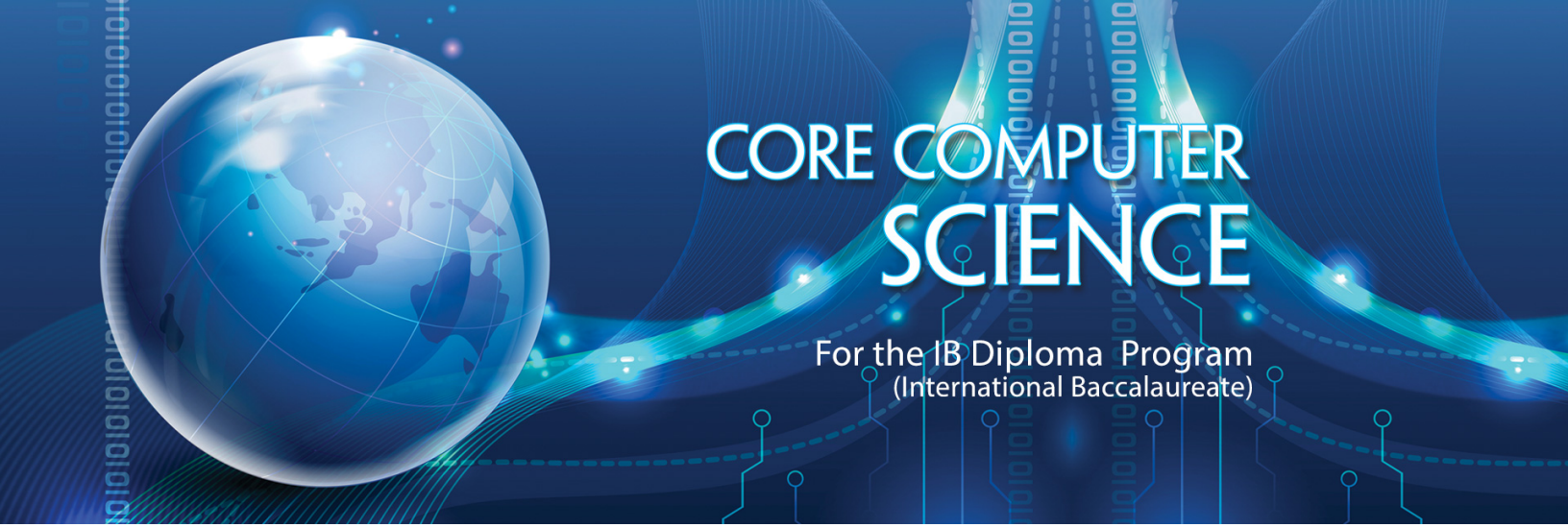


Contents



1. Systems

1.1 Properties of Systems

Definition 1.1.1 — System. A combination of hardware and software that interact regularly to perform all aspects of managing and processing information, especially within a large organization.

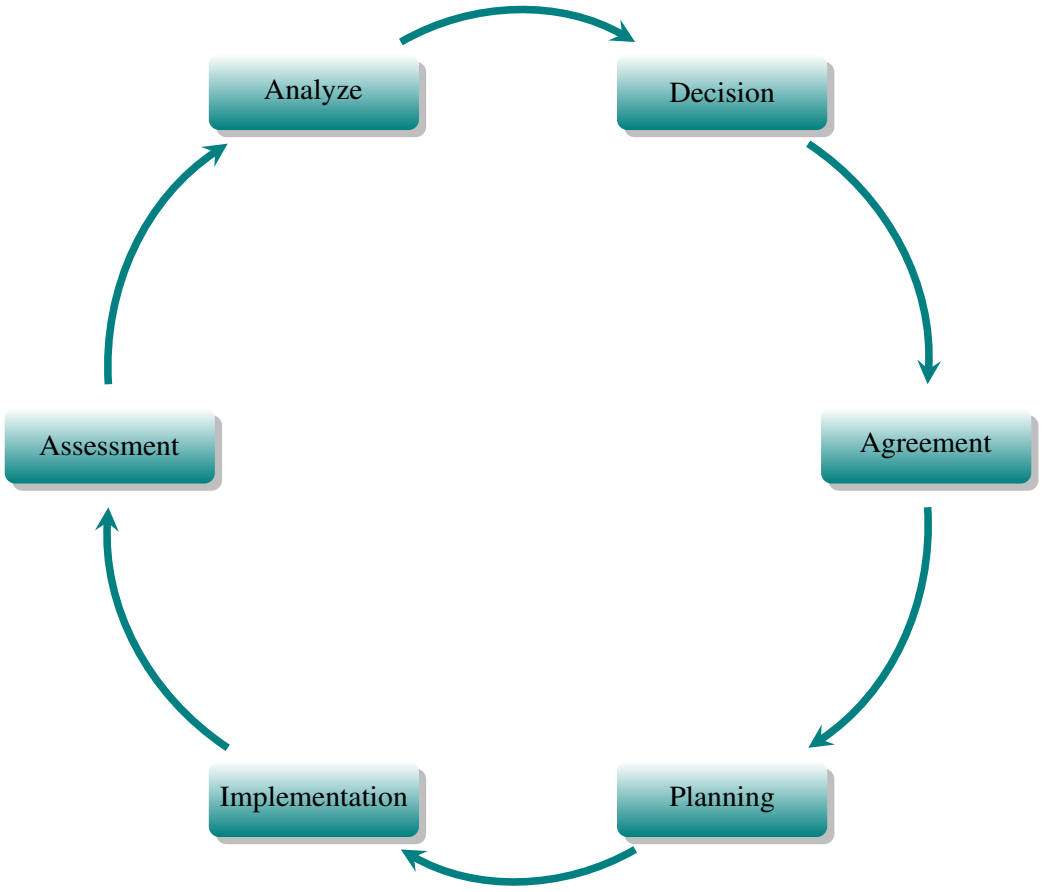
1.1.1 Reasons for a new system

- To replace an existing system
- To improve an existing system
- To provide a new service
- To provide a new product
- To provide a new business

1.2 Change Management

Definition 1.2.1 — Change Management. The process of handling change with the least amount of disruption to the organization.

1.2.1 Stages of Change Management

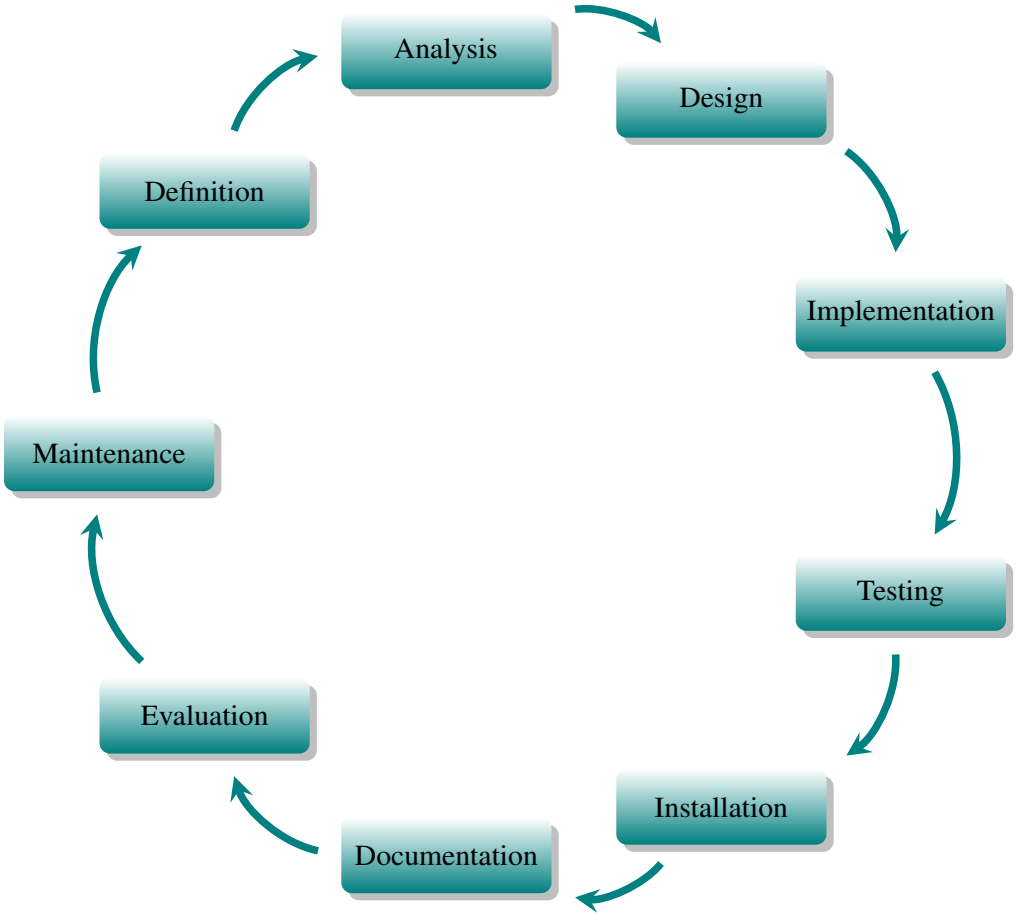


1.2.2 Considerations in Change Management

- Staff Training
- Data migration
- Switching over
- Recovery Software in case of a Disaster
- Help Systems
- Business Process

1.2.3 System Life Cycle

Definition 1.2.2 — System Life Cycle. The stages that the development of a new system goes through.



1.3 Stakeholders

Definition 1.3.1 — Stakeholder. Inidividuals who stand to gain or lose something from the success or failure of an existing or proposed system.

▪ **Example 1.1** Types of Stakeholders:

- System Owners
- System Users
- Project Managers
- External Service Provider
- Investors

▪

Definition 1.3.2 — End User. The person or group who will use the product.

1.3.1 Role of End Users

- In planning stage you are able to identify problems
- Create simpler methods/systems
- User involvement leads to more reliable ways to organize features

- Enables system developers to know and understand user's lexicon, so developers can communicate using the same language
- Eliminates misunderstandings and reduces errors
- It can gain user agreement

Definition 1.3.3 — Consequences of not involving end users in the design process. User frustration when using system, developer could create useless solution, company losses productivity.

■ **Example 1.2 — Roles end users can have during the process of creating a *new* system.**

- Development (end users can tell developer what they want the progarm to do
- Can Help in the design process by telling the developer what they want to see in the program
- Testing (beta or user acceptance testing)

■

1.3.2 Methods of Obtaining Requirements from Stakeholders

- Interviews
- Direct Observation
- Surveys

1.4 Range of Usability Problems with commonly used digital devices

1.4.1 Usability

Definition 1.4.1 — Effectiveness.

Definition 1.4.2 — Effiency.

Definition 1.4.3 — Ergonomics. In usability of system design, ergonomics is the qualities of system design that makes it safe and comfortable to use.

Some examples of ergonomics could be the size of the keyboard, the size of the screen, the resolution of the screen, the size of the mouse, the size of the buttons,

Definition 1.4.4 — Accessibility.

1.5 Forms of Testing

Definition 1.5.1 — Black Box Testing. Testing a system without knowing how it works.

Definition 1.5.2 — White Box Testing. Testing a system by knowing how it works.

Definition 1.5.3 — Beta Testing. Testing a system by a group of people who are not involved in the development of the system.

Definition 1.5.4 — Alpha Testing. Small testing done by the developers after the development of the product.

Definition 1.5.5 — User Acceptance Testing. Testing a system through the end users, feedback given in yes or no responses.

1.6 System Installations

1.6.1 Parallell Installation

Installing a system in a way that the old system is still running while the new system is being installed.

Pros	Cons
Less risky because old system is still there	Time consuming
Staff has security of old system	Systems can go out of sync
Allows staff to take their time to learn new system	Duplicate sets of data can lead to errors
	Extra Cost of running system

1.6.2 Phased Installation

Installation of a new system through individual stages / modules.

Pros	Cons
Problems are isolated	Time consuming
Staff introduced gradually	User request can hold up installation
	Can be difficult to merge / integrate the old system with the new system even in stages

1.6.3 Pilot Installation

Installation of a new system using a small pilot group of users to test the system.

Pros	Cons
Only a small part of the business is affected	Pilot group faces direct installation, and *has* to manage 2 systems
Any problems discovered do not affect the whole business	Pilot cannot easily interact with other staff
Pilots can train staff for the new system	

1.6.4 Direct Installation

Installation ofa new system by turning off the old system when the new one is turned one.

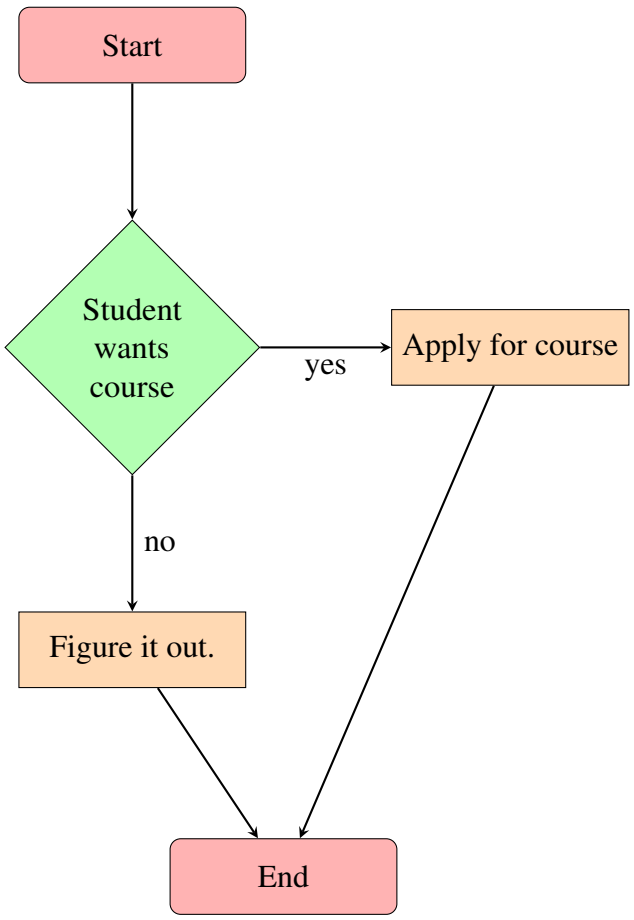
Pros	Cons
System available to all staff immediately	Staff have to learn new system immediately
Cheapest method of installation	No backup data
No duplicate data sets	Have to transfer all data from old system before shutting it off
	Period of time when neither system is available

1.7 Representations of System Requirements

Definition 1.7.1 — System Flow Chart. A diagram that shows the flow of data through a system. Depicts how logical processes are carried out.

Definition 1.7.2 — Data Flow Diagram. A diagram that shows the flow of data through a system. Depicts how data is processed.

■ **Example 1.3 — System Flow Chart.** A simple system flor chart describing the process of a student applying for a course at a university.



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■ **Example 1.4 — Data Flow Diagram.** TODO ■

1.8 Data Migration

1.8.1 Problems with Data Migration

- Diferences in data structure
- Incompattible file structure
- tree

1.9 Forms of Staff Training

Definition 1.9.1 — Formal Classrooms. Training in a classroom setting.

- Cheaper and more efficient
- Instructors can not give individual attention

Definition 1.9.2 — Remote/Online Training.

1.10 Data Loss

Definition 1.10.1 — Data Loss. The loss of data.

1.10.1 Ranges of data loss

- Power out during storm
- Defective hard drive
- System crash
- Malicious activities by employees, outsiders, or malicious user
- Virus or Keylogger

1.10.2 Consequences

- Loss of money
- Loss of time
- Loss of reputation
- Loss of customers

1.10.3 Prevention

- **Failover Systems –**
- **Removable Media –**
- **Offsite/Onsite storage –** Cloud Storage or Hard Drive
- **Redudency –** Any type of storage device that can be removed and inserted with ease

1.11 Strategies for manging releases and update

Definition 1.11.1 — Release. A version of a system that is released to the public.

Definition 1.11.2 — Update. A change to a system that is released to the public.

1.11.1 Strategies

- **Manual Updates –** Updates are done manually by the user
- **Automatic Updates –** Updates are done automatically by the system

Pros	Cons
User can decide when to update	User can forget to update
User can choose what to update	User can update at the wrong time