9.1   Project Management

This topic is intended to give students an understanding of the underlying theory of project management as well as an opportunity to plan, design and implement an information system that has a purpose. The chosen information system implemented in project work should be drawn from:

- a database information system
- a communication system
- a transaction processing system
- a decision support system
- an automated manufacturing system
- a multimedia system.

The construction of the information system will follow the stages detailed in the Preliminary topic Developing Information Systems. Other system development methods have been included beyond the traditional methods. One large project or a number of smaller projects may be undertaken in the course. If smaller projects are undertaken, they need to occur over a significant amount of time and involve sustained work. Project(s) should allow students to see the information system in its full context. Students should identify the purpose for the information system, the participants, data/information and information technology that work with the information processes.

Project work requirements are described in the Course Structure on page 9.

Outcomes

A student:

H1.1	applies and explains an understanding of the nature and function of information technologies to a specific practical situation
H1.2	explains and justifies the way in which information systems relate to information processes in a specific context
H2.1	analyses and describes a system in terms of the information processes involved
H2.2	develops and explains solutions for an identified need which address all of the information processes
H3.1	evaluates and discusses the effect of information systems on the individual, society and the environment
H3.2	demonstrates and explains ethical practice in the use of information systems, technologies and processes
H4.1	proposes and justifies ways in which information systems will meet emerging needs
H5.1	justifies the selection and use of appropriate resources and tools to effectively develop and manage projects
H5.2	assesses the ethical implications of selecting and using specific resources and tools, recommends and justifies the choices
H6.1	analyses situations, identifies needs, proposes and then develops solutions
H6.2	selects, justifies and applies methodical approaches to planning, designing or implementing solutions
H7.1	implements and explains effective management techniques
H7.2	uses methods to thoroughly document the development of individual and team projects

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1. Techniques for managing a project	
Students learn to:	*Notes:*

▪ communication skills necessary for dealing with others	▪ **Necessary** communication skills:
	  – **Active Listening**
	  – **Negotiation Skills**
	  – **Conflict Resolution**
	  – **Team Building**
	  – **Interview Techniques**

▪ the consequences for groups that fail to function as a team, including:
  – financial loss
  – employment loss
  – missed opportunities
	▪ If the project team fails to achieve the common goals it can lead to **[Disadvantage]:**
	  – **Financial loss**
	  – **Employment loss**
	  – **Missed opportunities**
	  – **Conflicts**
	  – **Decrease in job satisfaction and productivity.**

▪ project management tools, including:
  – Gantt charts
  – scheduling of tasks
  – journals and diaries
  – funding management plan
  – communication management plan
▪ identifying social and ethical issues
	▪ Tools used:
	  – **Gantt Chart**
	    Used for **scheduling tasks** and the **scope of the project**.
	    Plotted on a **horizontal bar graph** with **time [horizontal axis]** and **project tasks [vertical axis].**
	
	  – **Journals and Diaries**
	    Record day to day events within the project system**, detailing** the **achievements** as well as the **mistakes** and problem that could be implemented to prevent from further damage.
	  – **Funding Management Plans**
	    A record of schedule and the **cost of the tasks**, identifying, any **lose or profits made**, the **expenditure** and reinforces that the **budget is within the range**.
	  – **Communication Management Plans**
	    Communication and interactions are crucial for implementing ideas, and solving big factors. They help **increase the productivity** within the project.
	    Emails, newsgroup, online communication, telephone calls, meeting.

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Students:	Notes:

▪ understand the communication skills required to manage a system development project, such as:
  – active listening
  – conflict resolution
  – negotiation skills
  – interview techniques
  – team building
	▪ Communication skills:
	  – **Active Listening**
	  Involves giving the speaker your full attention as well as participating in this conversation.
	  Techniques include:
	    ▪ **Mirroring** ➔ Able to **repeat or explain the speaker's key words**.
	    ▪ **Paraphrasing** ➔ The listener is able to **add** some of their **words to the speaker's speech**, thus also enabling other to get a different [**easier**] **understanding.**
	    ▪ **Summarising** ➔ The ability to **identify the main topics** and use that to **sum up** the speech.
	    ▪ **Clarifying questions** ➔ The listener is able to **produce suitable questions and make statements** with benefiting the topic.
	    ▪ **Motivational responses** ➔ tell the speaker that you are **listening and interested**
	  – **Conflict Resolution**
	  Involves **resolving dispute**, providing **appropriate solutions for all concerns**, and making the plan chose for the project's future.
	  Techniques include:
	    ▪ **Bargaining**
	    ▪ **Reminding the projects common goals**
	    ▪ **Active listening**
	  – **Negotiation Skills**
	  The **differences** from other should be **argued logically and valid**. **Without** this, it can **escalate** into inner **conflict**.
	  Some negotiations **help found** the **common goal**.
	  – **Interview Techniques**
	  Involves the skills to conduct an effective interview to maximum the knowledge for both the users and participants.
	  Techniques includes:
	    ▪ **Interviews**
	    ▪ **Questionnaires/surveys**
	    ▪ **Group discussions**
	  – **Team Building**
	  Involves team members to have the correct skills and altitude on achieving the common goal.
	  Thus they can work effectively and efficiency, to avoid failures.

▪ understand the need to apply project management tools to develop a system using a team approach	▪ **Project management tools:** Used to **record, document and communicate** with others in the project team. ▪ These tools can provide an **easier** and enhanced understanding to what the **task is about. [Helps users and participants make clears choose and set them on the right path]**. ▪ Also helps the team **know who is doing which task** and **when it's completed**.

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	Financially helps the team know the expenses of the project; it they need some cutbacks, or allocate more funds to a particular task to further improve the project. **Consequences [optional]:** **Lack of communication/miscommunication can lead to failure in the task. ➔ Mess up with the whole project.**
- appreciate the advantages of groups that function as a team, including: - increased productivity - enhanced job satisfaction - the development of a quality system	- If the team can successfully communicate and achieve the purpose of the project **[Advantages]:** **increased productivity** **enhanced job satisfaction** **the development of a quality system** **more ideas to implement**
appreciate the need for complete documentation throughout all aspects of the system	
assess the social and ethical implications of the solution throughout the project	

2. Understanding the problem	
Students learn to:	*Notes:*
- approaches to identify problems with existing systems, including: - interviewing/surveying users of the information system - interviewing/surveying participants - analysing the existing system by determining: - how it works	- Helps us **identify the problem** by **gathering useful information within and outer the existing system.** Thus, we can also suggest appropriate and **efficient solutions** to prevent further breakdowns. **Surveys ➔ Constructed with relevant questions beforehand to draw out a more effective and relevant issues and feedbacks.** **Interviews ➔ Can be constructed real time with a one on one or small groups, communicating about the different ideas and needs for the system**. - Approaches: **Interviewing/surveying users of the information system:** **Primary concern** is **fulfilling the need of the users.** **Collection of data** from participants and users **that analysis the problems.**

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- what it does - who uses it ▪ requirements reports	▪ Helps **identifies the users experience and implements new ideas** to improve the system. ▪ The larger the amount of information received the more effective the problems and benefit can be improved **[Accurate results].** – **Interviewing/surveying participants:** ▪ **Collection of data** from participants are collected mainly for **identifying the problems/issues since they have interacted with the system**, thus also may help us **solve some of the problems** as well. ▪ They will generally have knowledge of the information processes occurring and thus will be able to have a more vital statement of what the system needs implementing. – **Analysing the existing system by determining:** ▪ It's very important that every participants/user can analyse the system as they will be the ones improving it. ▪ They need to know, **how it works, what it does, and who uses it.** – **Requirement Report:** ▪ Used by project managers to understand the problems and found all the best solution available within all the important elements. ▪
▪ requirements prototype – a working model of an information system, built in order to understand the requirements of the system – used when the problem is not easily understood – repetitive process of prototype modification and participants' feedback until the problem is understood – can be the basis for further system development	▪ **Requirement prototype: A working model of an information system**, built in order **to understand the requirements** of the system. ▪ They are used when the problem is not easily understood. ▪ Repetitive process of prototype modification and participants' feedback until the problem is understood In doing this is effective draw out the hidden issues and repeatedly found more issues. ▪ Can be the basis for further system development. ▪ Helps to clarifies any issues with the problems. ▪ **Advantages** of Prototyping: – **Increases the understanding** of the system – **More productivity** involved – **Few changes** for the following stages – Thus, makes the **system easier** to create ▪ **Disadvantage** of Prototyping: – **Timing consuming** – **Cost effective** – **Limitations** [Since is a working model, it not exactly like the actual model]

Students:	*Notes:*
▪ apply appropriate techniques in	**Understanding [Cyba Taxis]**

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understanding the problem ■ create a requirements prototype from applications packages that provide: – screen generators – report generators ■ use a prototype to clarify participants' understanding of the problem	■ Techniques for understanding the problem – Interviews: Cyba Taxis can interview current groups of taxis and questions and discuss the taxis experience, to help further assist them with their jobs. – Surveys: On the Cyba Taxis app, they can create a section of surveys asking about the customer's services and experiences when riding with them. – Questionnaires: – Online communications: Cyba Taxis can hold can online chat/ help support for customers/taxis drivers that have issues with the company. – Telephone surveying: Since customers are required to enter their phone number, Cyba Taxis can send them a message or telephone the customers for hand on interactions with the problems. All these techniques help creates problems and flaws in the system, so Cyba Taxis can improve their system to prevent future customers from experiencing that flaws. ■ Requirement Prototype: Cyba Taxis can target a certain location with certain taxi drivers and aim to identify problems. – Screen Generators: Their online website can be programmed to collect survey data and interviews can create spreadsheets and excel documents that allow for display digitally. This allows for a much more effective way to analysis the problems. – Report Generators: Taxi drivers can also hold a report book when doing their job. They can write about the experience and the number of customers that had. Also, reporting any problems and issues around the area [Another taxi service, lack of customers, customers' behaviours]. ■ Prototype to clarify participants' understanding: With the given Requirement Prototype, participants can identify the problems about the certain location and either change to a different area or stick with the current one, modifying and repeating the process, until the issues are solved.
■ interpret a requirements report which includes: – the purpose of the systems – an analysis of an existing system – definition of requirements	■ Requirement report: A essential document used by project managers to understand the problems and suggest beneficial solutions. Giving the existing system a direction and adds purpose to the system. – The purpose of the systems ✓
■ diagrammatically represent existing systems using context diagrams and data flow diagrams	■ Context diagrams: – They are set at Level 0 – Shapes and symbols ✓ Rectangle ➔ Entity ✓ Circle ➔ Process ✓ Arrows ➔ Data Flow

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		− Only are allowed one circle [Process]
▪	identify, communicate with and involve participants of the current system	▪
▪	create a requirements prototype from applications packages that provide: – screen generators – report generators	
▪	use a prototype to clarify participants' understanding of the problem	

3. Planning	
Students learn to:	*Notes:*

▪ a feasibility study of proposed solutions, including:
– economic feasibility
– technical feasibility
– operational feasibility
– scheduling
	▪ **Feasibility study is the analysis of the numbers of possible solutions that can be achieve to prevent failure in the systems.**
	▪ Remember **TOES:**
	  – **Technical Feasibility**
	    ▪ Determines the **availability** of the **required information technology.**
	    ▪ Does the system have the all the right and new equipment's [Hardware/Software]?
	  – **Operational Feasibility**
	    ▪ Determines if the **new system will accept** and support the goal of the organization.
	    ▪ Will old be able to cope with the new? i.e. Will the old skills, require new training to perform with the new system?
	  – **Economic Feasibility**
	    ▪ Compares the **expenditure and affordable**, as well as also expecting **benefits and profits.**
	    ▪ Will the user be able to afford the system?
	    ▪ Will the team be financially fit to run the system?
	  – **Schedule Feasibility**
	    ▪ Determines if **time is available** to purpose the system.
	    ▪ Will the solutions run according to the Gantt chart requirement?

▪ choosing the most appropriate solution	▪ When choosing the most appropriate solution, Project managers will choose the most beneficial solution in the outcomes written in Feasibility Study. ▪ These solutions then are recorded in the project plan for further use.

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- choosing the appropriate development approaches – traditional – outsourcing – prototyping – customisation – participant development – agile methods	**6 types** of system **development approaches** – **Traditional or Structure Approach** - Very **formal step by step** stages - Follows the UPDIT structures - Traditional approach may take longer than other approaches by it provides detailed and deliverable result for each stage. This can be very beneficial. – **Outsourcing** - Involving using **another company** to develop parts or even complete the new system. **Passing control** to other companies. - This method is used wither because the team either has no time to complete a certain task or there is not enough skills to ace the part of the system. **Cost efficiency;** outsourcing will provide experts from other companies to deal with the system, rather than spending more money on hiring worker to preform new skills. – **Prototyping** **A limited working model** of the system that is usually constructed for clarification to the clients/participants about the requirements. - Prototyping is concentrated on the inputs and outputs. **Meant for trial and error**, which allows the developers to construct a clearer solution/understanding. **Cost efficiency**; a full-scale model would be too expensive to test. - Is **non-formal** – **Customisation** - An **existing system is customised** to suit the specific needs and requirements. - The **hardware and software are being modified** to the new system. **Copyright** any be an issue if this approach is used incorrectly. – **Participant Development** - The **participant** becomes the **designer/developer** and develops their own software solutions. – **Agile Approach** - Team base development/skill for completing the system rather than following structured stages. - Requires **Team Building and cooperation**. - More suitable for system that requires **regularly modification** rather than **one full transformation**. **[Updates]** **Well suited** for **web based software development.**

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▪ the requirements report that:
  – details the time frame
  – details the subprojects and the time frame for them
  – identifies participants
  – identifies relevant information technology
  – identifies data/information
  – identifies the needs of users
	▪ **Requirements Report:**
	▪ In every Requirements report, must contain an introduction with the system's purpose
	  – **Details the time frame**
	    ▪ Time frame usually belongs in the System scope, along with Money and Scope. [Triangle Scope]
	  – **Details the subprojects and the time frame for them**
	    ▪ This is usually done by Gantt charts. They can be graphed and schedule as subprojects being horizontal bar chart.
	  – **Identifies participants**
	    ▪ This can be a list of participants involved and their different type of skills/nature/personality/feature that may affect the system.
	  – **Identifies relevant information technology. [system operation]**
	    ▪ This section identifies the hardware and software required for the system.
	    ▪ This notify us if an upgrade is new to suit the new system, or do workers and user need addition skill in some information technology.
	  – **Identifies data/information**
	    ▪ This section includes the requirements that address the any addition data/information needed for the system.
	    ▪ Also, details about the storage of data and other data/information by other organisation.
	  – **Identifies the needs of users**
	    ▪ This addresses the users need for the new system.
	    ▪ Collected data from surveying/questionnaires/interviewing are listed and considered for the system.

| *Students:*	*Notes:*
▪ conduct a feasibility study and report on the benefits, costs and risks of the project	
▪ compare traditional, iterative and agile system development approaches	
▪ create Gantt charts to show the implementation time frame	
▪ investigate/research new information technologies that could form part of the system	

4. Designing

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Students learn to:	Notes:
• clarifying with users the benefits of the new information system	• User should be able utilizes with the system, and achieve their particle needs. Thus, project managers must be able to clarify and provide users with benefits of the new information system.
• designing the information system for ease of maintenance	• The design phase can be implemented be ease maintenance like **time, effort and money**.
• clarifying each of the relevant information processes within the system	• **Collecting: the process where data is gathered and inputted for further analysis.** • **Organising: the process where data is formatted into its appropriate structure.** • **Analysing: the process where data is transformed into useful information.** • **Storing and Retrieving: the process where data is save and access later.** • **Transmitting and Receiving: the process where data is send from within and outside the system.** • **Displaying: the process where data is outputted on a display for user and participants.** • **Processing: the process where data is manipulated.**

• detailing the role of the participants, the data and the information technology used in the system	• **Participants**
	  – A **special class of user that interaction and involve one of the information processes**.
	• **Data**
	  – **Raw piece of information** that can be interpreted via the information processes to become useful information.
	• **Information technology**
	  – **Hardware and Software** used in an information system.

• refining existing prototypes	• **Refining Existing Prototypes** – It requires **modifying the existing prototype** to **work towards the final system**. **Evolving** it to meet the **user's standards** and provided more **better feedbacks**. **Collective test** is used to refine the prototype to suit it in real life scenario.

• participant development, when people within the information system develop the solution
  – participant designed solutions
  – tools for participant development such as guided processes in application packages
	• Participant development is development is when participants become the designer and develop the system to suit them.
	  – Participants designed solutions
	    • On-going feedbacks by participants
	    • Interviews from participants and other forms of collecting critical opinions on the system.
	    • Through questionnaires, surveys and forms are crucial when creating a solution.
	  – Tools for participant development such as guided processes in application packages
	    • Application software installed with wizard setup and assistant can guide users to perform tasks. This lowers the amount of difficult and lowers the chances for questions.

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	▪ They can be created for the whole system, or be distributed in topics relevant to the system.

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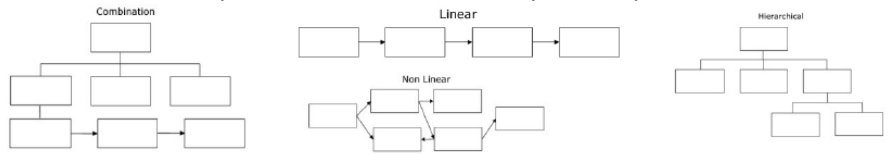|	
- tools used in designing, including: – context diagrams – data flow diagrams – decision trees – decision tables – data dictionaries – storyboards	- Tools used in designing include: **– Context diagrams** - Links from entities to process. **We only must draw Level 0 Context diagram. [Must only have one process]** Rectangles ➔ Entities Circles ➔ Processing system Arrows ➔ data flow of data and the data entered and exited **– Data flow diagram** - More complex diagram compared to context. - Represents the change in the data when process and stored. Rectangle ➔ Entities Circle ➔ Process Open Rectangle ➔ Storage Arrows ➔ Data flow **– Decision trees** - Diagrammatic representation of **all the possible solution of a topic**. **Branches out the solutions**, ending with the **resulting action.** **– Decision tables** 2D table that represent all the possible solutions and requirement. - The table will have a list of condition and at the bottom is the final action. - It less user-friendly but doesn't branch out with reduced columns than a decision tree. **– Data dictionaries** - Is a table that lists of the field name and displays the description of the field. - Usually consist of **a field name, data type, data format, field size, description, example.** **Metadata** uses this design to **assign its data's data name.** **– Storyboards** - Storyboards are used mainly for designing user **interface software**. They are interactive and will bring upon another board upon interacting with the current board. - They are laid out with screens and connected to one another, using

Context diagram for searching the Internet
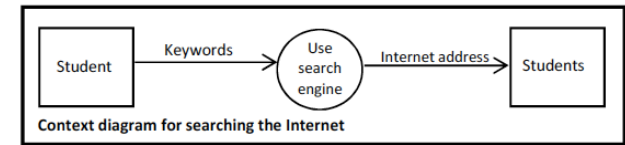
Conditions		Rules		
Number of web sites >10		✔	x	x
Number of Web sites <10		x	✔	x
No results		x	x	✔
Actions				
Use a more specific search		✔	x	x
Access each web site		x	✔	x
Try a new keyword			x	✔

Field name	Data type	Data Format	Field Size	Description	Example
UserID	Text	NNNNNNNN	8	Unique eight digit number represented as text	0001539
FirstName	Text		25	First name of employee	Bill
Surname	Text		25	Surname of employee	Smith
DOB	Date	DD/MM/YYYY	10	Date of birth as a short date format	15/07/1982
HourlyPayRate	Currency	#####.##	8	Rate of pay expressed in dollars per hour	34.50
Height	Real	#.##	3	Height in metres, with two decimal places	1.58
FeesPaid	Boolean		1	Y or N for Yes or No	Y

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navigational links.
- There are three types: **Linear, Hierarchical [common for webpages], Combination.**
- User interface ➔ When designing a user interface, it is important to know the statistic of users and their consistency of knowledge with the software, having recorded actions and reactions of what they are doing. The UI must show all possible function that are operational and an end/way out on potential threats.

Students:	Notes:
▪ develop a solution to a problem from a prototype	▪ Prototypes – The prototype must contain an input and output to clarify the users understanding of operation. Screen designs are appropriate. ▪ Hardware and software specification must be check to suit the prototype before making it. ▪ The system must be tested on different sceneries before implementing, for safety, both economically and beneficially. ▪ Documentation of the new system should be required, keeping track of the progress and change made to prevent repeated approaches and enhancing knowledge of the problems. Backup and recovery is required in the documents. ▪ Documentation for the user should be issues out to help improve the understanding of the new system, and lower the chance of problems and questions. These can be interactive devices or manual guidebooks, but must be simple and user-friendly.
▪ use a guided process in an application to create all or part of a solution	▪ **Handbooks, guidebook, on-screen help, FAQ, contact system, and other manual and digital help pages** can guide the user in the whole system or part of the systems.

▪ use system design tools to:
  – better understand the system
  – assist in explaining the operation of the new system
  – document the new system
	▪ User system design tools to
	  – **Better understand the system**
	    ▪ For users to better understand the system a **storyboard is a more simple and user-friendly tool** for the whole layout of the new system. Through it may not have the data flow of the data, a context diagram, will seem more of a complex but reliable method of gaining an easy and understandable knowledge of the system.
	  – **Assist in explaining the operation of the new system.**
	    ▪ To explain the processes occurring the new system, **a context diagram or data flow diagram is the most effective** tools to show the flow data and **how they are processed**.
	  – **Document the new system**

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	▪ A **journal or record can be kept to view the past feedbacks and problems** that occurs and thus be used to guide the team to prevent the reoccurrence of the problems.

5. Implementing	
Students learn to:	*Notes:*

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▪ acquiring information technology and making it operational – hardware – software, customised or developed	▪

▪ an implementation plan that details:
– participant training
– the method for conversion
  - parallel conversion
  - direct conversion
  - phased conversion
  - pilot conversion
– how the system will be tested
– conversion of data for the new system
	▪ Implementation plan requires a conversion where participants might have to adapt to the new change or suit the require technical skills.
	  – **Participant Training:**
	    ▪ Participant training is the type of training involving the use of technology and people and their ability to be able to interact.
	    ▪ This training provide motivation for learners.
	    ▪ They will be likely to understand the new change and attain the required skills for the implemented system.
	  – The **method of conversion (4)**
	    - **Parallel conversion**
	      ▪ The **new system and the old work simultaneously at the same time**, until at one point the new may replace the new once the participants are all trained.
	      ▪ Participants may have **trouble dealing with two system**, providing them with **double the workload**.
	      ▪ Used as the **safest conversion** where info would be loss if the new is damaged.
	      ▪ Also, **most expensive**.
	    - **Direct conversion**
	      ▪ The **new system fully replaces the old system** at a point of time.
	      ▪ This means that participants are **required to train in advanced**.
	      ▪ May be **costlier** if the new system isn't understandable to all.
	    - **Phased conversion**
	      ▪ The **new system is gradually implemented replacing the old over time**.
	      ▪ As the new system comes into action, it **will run simultaneously with old**, where the **old will run as backup** (for emergencies).
	      ▪ This method is used when the system is still in **development (agile method),** where it is more manageable.
	      ▪ Disadvantages is that some of the new **implemented system may not be compatible with the old**.
	      ▪ **Different from parallel, one section at a time is being replaced**.
	    - **Pilot conversion**
	      ▪ The **new system is only tested in one part of the organisation**. For **evaluation, interaction and understanding** of the system.
	      ▪ If the new system is successful, the new system is implemented across the whole organisation.

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	- This is must deem successful by the response users and customer provide as feedback to ensure it suit the required operational environment. **Minimises the risk of widespread of errors to the whole system if there was one.** − How the system will be tested - The system must be test for many encounters of possible errors. - Software like diagnostic program allow for the test of the system by the gathering of all possible feedbacks and decisions. - Onsite test data is used to detect errors in the system. - All the information processes are continually being tested. − Conversion of data for the new system - Implements the notion of an automated or manual process of data conversion. - Also, addresses of the conversion of data will be accurate and the amount of time it will take for the conversion.
the need for an operation manual detailing procedures participants follow when using the new system	**Operation Manual** − Sometime the users and participant will not fully understand the skill required to interact with the new system. The instalment of an operational manual will **provide answers and insights to better understand their knowledge about the system**. They are easy to use and **user friendly**. They act as **tutorials** consisting of: **Procedure of detailed steps** for participants to follow - The **purpose** of the whole concept **Required skills** and tasks **Information about who and when and what** performs the task **provide updates** of **future possible implementation** to the system

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Students:	Notes:
▪ determine training needs arising from the creation of a new system	▪
▪ compare and contrast conversion methods	▪
▪ justify the selected conversion method for a given situation	▪
▪ convert from the old system to the new	▪
▪ implement the appropriate information technology	▪
▪ develop an implementation plan for the project	▪

6. Testing, evaluating and maintaining	
Students learn to:	*Notes:*

▪ testing and evaluating the solution with test data such as
  – volume data
  – simulated data
  – live data
	▪ Testing and evaluating requires constant monitoring of the system, to see if it **meets the expectations**, and reduce the minor errors encountered.
	▪ It is an ongoing process that checks for technical and financial problems. If there is an upgrade or if the system doesn't seem to success in its performance, a new SDLC is produced.
	  – **Volume data:**
	    ▪ This test of **using large amount of dummy data or actual data** is to test if the system can process the large amount of data requested. It allows for the project team to see if the system can **deal with large amount of data** and its **performance under pressure**. Measures the **response time** of when one request is activated and when 200 or 1000 request are activated.
	  – **Simulated data:**
	    ▪ This tests the performance of the system under **it operational condition**. **Simulation software** are generated to provide if the system is able to handle the many users, connections as it would when it's in operation to the real world.
	  – **Live data:**
	    ▪ This test will have **actual relevant data processed for the system**. It ensures that the system will be **operation to the real condition** and meet all the requirements. This is usually the **last step before the client accepts the system**.

▪ checking to see that the original system requirements have been achieved	▪

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▪ trialling and using the operation manual	▪
▪ reviewing the effect on users of the information system, participants and people within the environment	▪
▪ modifying parts of the system where problems are identified	▪

Students:	*Notes:*
▪ compare the new system to the old and evaluate whether the requirements have been met	
▪ update system documentation	

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