LEVEL 5

INFORMATION SYSTEMS ANALYSIS

Lecturer Guide

Modification History

Version	Date	Revision Description
V1.0	October 2011	For release
V1.1	November 2015	Assessment Methodology Updated

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1. Module Overview and Objectives

This unit aims to equip the learner with a range of tools to analyse the function and requirements of Information Systems, as well as the skills to compare systems analysis models, and to examine them in the wider context of the Internet and the social, economic and political climate of an organisation. Finally the skills needed to deliver outcomes are addressed.

2. Learning Outcomes and Assessment Criteria

Learning Outcomes; The Learner will:	**Assessment Criteria;** The Learner can:
1. Understand soft and hard approaches to the analysis of information systems	1.1 Explain the key aspects of Soft Systems Methodology (SSM) and related approaches 1.2 Explain the key aspects of Structured Systems Analysis and Design Methodology (SSADM) and related approaches 1.3 Identify business situations where a soft or hard systems analysis might be appropriate 1.4 Explain combined soft/hard frameworks (such as Multiview).
2. Understand the techniques associated with requirements capture	2.1 Explain and apply stakeholder analysis techniques 2.2 Explain and apply CATWOE
3. Understand the different viewpoints associated with IS methodologies	3.1 Explain object-oriented IS methodologies 3.2 Explain organisation-oriented IS methodologies 3.3 Explain process-oriented IS methodologies 3.4 Explain people-oriented IS methodologies 3.5 Evaluate IS methodologies of different types in the context of a business scenario
4. Be able to apply various analytical techniques for understanding a complex organisational environment	4.1 Evaluate a knowledge-based view of organisations 4.2 Define and apply techniques for analysing the business environment (such as PEST and SWOT)
5. Understand the relationship between the economic, social, political and technical factors influencing a business problem	5.1 Analyse the economic, social, political and technical aspects of a business systems problem 5.2 Evaluate the different aspects of a business problem in the context of potential solutions
6. Understand and apply the principles of interface design and the requirements and characteristics of users that motivate these	6.1 Design or evaluate an interface with regard to the characteristics of its users 6.2 Explain the requirements of computer users and how good design can address these

3. Syllabus

Syllabus			
Topic No	Title	Proportion	Content
1	Introduction to Information Systems Analysis	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• An introduction to the module • Define and explain the term information system • Identify types and examples of information systems • Define and explain the abbreviation SDLC • Discuss Information systems analysis in the context of the SDLC • Define and explain analysis and requirements capture • Discuss the role of analysis and requirements capture in specific contexts • Define the term methodology • Determine the requirement for different methodologies • Present an overview of information system analysis and design methodologies • Research and discuss case studies ***Learning Outcome: 1***
2	Hard Approaches to the Analysis of Information Systems	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term hard approach to systems analysis • Identify examples of hard approach methodologies • Identify business situations where a hard approach to systems analysis might be appropriate • Define and explain the abbreviation SSADM • Identify and discuss the advantages of SSADM • Identify and discuss the disadvantages of SSADM • Define and explain the abbreviation DFD • Define and explain terminology associated with DFDs • Illustrate the use of DFDs • Construct DFDs • Provide solutions to business problems using DFDs ***Learning Outcome: 1***

3	Soft Approaches to the Analysis of Information Systems	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term soft approach to systems analysis • Identify examples of soft approach methodologies • Identify business situations where a soft approach to systems analysis might be appropriate • Define and explain the abbreviation SSM • Identify and discuss the advantages of SSM • Identify and discuss the disadvantages of SSM • Provide solutions to business problems using SSM • Research and discuss case studies ***Learning Outcome: 1***
4	Combined Soft/Hard Approaches to the Analysis of Information Systems	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term combined soft/hard approach to systems analysis • Identify examples of combined soft/hard approach methodologies • Identify business situations where a combined soft/hard approach to information systems analysis might be appropriate • Define and explain the term Multiview • Identify and discuss the advantages of Multiview • Identify and discuss the disadvantages of Multiview • Provide solutions to business problems using Multiview • Research and discuss case studies • Compare and contrast soft, hard and combined approaches to information systems analysis ***Learning Outcome: 1***

5	Techniques Associated with Requirements Capture	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term stakeholder • Identify and discuss types of stakeholder analysis techniques • Define and illustrate the Stakeholder Analysis Matrix • Define and explain the abbreviation CATWOE • Identify and discuss the advantages of CATWOE • Identify and discuss the disadvantages of CATWOE • Provide solutions to business problems using CATWOE • Evaluate CATWOE ***Learning Outcome: 2***
6	Organisation-Oriented and People-Oriented IS Methodologies	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term organisation-oriented IS methodology • Identify the types of organisation-oriented IS methodologies • Identify and discuss the advantages of organisation-oriented methodologies • Identify and discuss the disadvantages of organisation-oriented methodologies • Evaluate and discuss an organisation-oriented methodology in the context of a business scenario • Define and explain the term people-oriented IS methodology • Identify the types of people-oriented IS methodologies • Identify and discuss the advantages of people-oriented methodologies • Identify and discuss the disadvantages of people-oriented methodologies • Define and explain the abbreviation ETHICS • Evaluate and discuss the ETHICS methodology in the context of a business scenario • Define and explain the term Agile methodology • Evaluate and discuss the Agile methodology in the context of a business scenario ***Learning Outcome: 3***

7	Process-Oriented IS Methodologies	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term process-oriented IS methodology • Identify the types of process-oriented IS methodologies • Identify and discuss the advantages of process-oriented methodologies • Identify and discuss the disadvantages of process-oriented methodologies • Define and explain the term Yourdon methodology • Evaluate and discuss the Yourdon methodology in the context of a business scenario • Define and explain the abbreviation POEM • Evaluate and discuss the POEM methodology in the context of a business scenario ***Learning Outcome: 3***
8	Object-Oriented IS Methodologies	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term object-oriented IS methodology • Identify the types of object-oriented IS methodologies • Define and explain terminology associated with an object oriented methodology • Illustrate the construction of an object-oriented methodology • Identify and discuss the advantages of object-oriented methodologies • Identify and discuss the disadvantages of object-oriented methodologies • Evaluate and discuss an object-oriented methodology in the context of a business scenario ***Learning Outcome: 3***
9	Analytical Techniques for Understanding a Complex Organisational Environment	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Define and explain the term knowledge-based view of organisations • Evaluate a knowledge-based view of organisations • Define and explain the abbreviation PEST • Demonstrate how PEST can be used • Apply PEST to a business scenario • Define and explain the abbreviation SWOT • Demonstrate how SWOT can be used • Apply SWOT to a business scenario ***Learning Outcome: 4***

10	Analysis of Factors Influencing a Business Problem	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Analyse the economic aspects of a business systems problem • Evaluate and discuss the economic aspects of a business systems problem in the context of potential solutions • Analyse the social aspects of a business systems problem • Evaluate and discuss the social aspects of a business systems problem in the context of potential solutions • Analyse the political aspects of a business systems problem • Evaluate and discuss the political aspects of a business systems problem in the context of potential solutions • Analyse the technical aspects of a business systems problem • Evaluate and discuss the technical aspects of a business systems problem in the context of potential solutions • Research and discuss case studies ***Learning Outcome: 5***
11	Principles of Interface Design and the Requirements and Characteristics of Users that Motivate These	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Identify the principles and good practice of interface design • Analyse the requirements of the users of an interface • Analyse the characteristics of the users of an interface • Demonstrate how good interface design can address the requirements and characteristics of an interface user ***Learning Outcomes: 6***
12	Design or Evaluate an Interface with regard to the Requirements and Characteristics of its Users	1/12 1 hour of lectures 1 hour of tutorials 3 hours of seminars	• Design an interface that addresses the requirements and characteristics of an interface user • Evaluate and discuss whether interface design principles have been applied to an interface • Evaluate and discuss whether interface design principles have addressed the requirements and characteristics of the interface user ***Learning Outcomes: 6***

4. Related National Occupational Standards

The UK National Occupational Standards describe the skills that professionals are expected to demonstrate in their jobs in order to carry them out effectively. They are developed by employers and this information can be helpful in explaining the practical skills that students have covered in this module.

Related National Occupational Standards (NOS)
Sector Subject Area: 6.1 ICT Professional Competence
Related NOS: 4.1.P.1 – Carry out IT/technology architecture activities
4.1.P.2.C – Contribute to information activities relating to IT/technology architecture models
4.1.P.1 – Contribute, under supervision, to the preparation of a data analysis assignment;
4.1.P.2 – Assist in the development of data analysis models
6.1.A.1 - Contribute to information management
6.1.A.2 - Document information assets
6.1.P.1 - Manage the classification and categorisation of information

5. Resources

Lecturer Guide: This guide contains notes for lecturers on the organisation of each topic, and suggested use of the resources. It also contains all of the suggested exercises and model answers.

PowerPoint Slides: These are presented for each topic for use in the lectures. They contain many examples which can be used to explain the key concepts. Handout versions of the slides are also available; it is recommended that these are distributed to students for revision purposes as it is important that students learn to take their own notes during lectures.

Student Guide: This contains the topic overviews and all of the suggested exercises. Every student needs a copy of this and should bring it to all of the taught hours for the module.

6. Pedagogic Approach

Suggested Learning Hours					
Lectures:	**Tutorial:**	**Seminar:**	**Laboratory:**	**Private Study:**	**Total:**
12	12	36	-	90	150

The teacher-led time for this module is comprised of lectures, laboratory sessions, tutorials and seminars. The breakdown of the hours is also given at the start of each topic.

6.1 Lectures

Lectures are designed to start each topic and PowerPoint slides are presented for use during these sessions. Students should also be encouraged to be active during this time and to discuss and/or practice the concepts covered. Lecturers should encourage participation wherever possible.

6.2 Tutorials

These are designed to deal with the questions arising from the lectures and private study sessions.

6.3 Seminars

These are designed to provide tasks to involve group work, investigation and independent learning for certain topics. The details of these tasks are provided in this guide and also in the Student Guide.

6.4 Private Study

In addition to the taught portion of the module, students will also be expected to undertake private study. Exercises are provided in the Student Guide for students to complete during this time. Teachers will need to set deadlines for the completion of this work. These should ideally be before the tutorial session for each topic, when Private Study Exercises are usually reviewed.

7. Assessment

This module will be assessed by means of an examination worth 100% of the total mark. The assessment will be based on the assessment criteria given above and students will be expected to demonstrate that they have met the module's learning outcomes. Samples assessments are available through the NCC Education *Campus* (http://campus.nccedu.com) for your reference.

8. Further Reading List

There is no core text for this module. The module content is intended to be sufficiently expansive to cover all the necessary concepts. Students will also be directed to websites for useful materials, examples and case studies in their student guide. However, a selection of sources of further reading around the content of this module must be available in your Accredited Partner Centre's library. The following list provides suggestions of some suitable sources:

Avison D. and Fitzgerald G. (2002). *Information Systems Development: Methodologies, Techniques and Tools,* 4th edition. McGraw-Hill Education.
ISBN-10: 007711475
ISBN-13: 978-0077114176

Curtis G. and Cobham D. (2008). *Business Information Systems: Analysis, Design and Practice*, 6th edition. Pearson Education Ltd.
ISBN-10: 0273713825
ISBN-13: 978-0273713821

Hoffer, J., George, J. and Valaciah, J. (2013). *Modern Systems Analysis and Design*, 7th edition. Prentice Hall.
ISBN-10: 0132991306
ISBN-13: 978-0132991308

Shelly G., Cashman T. and Rosenblatt H. (2010). *Systems Analysis and Design*, 8th edition. Thomson Course Technology.
ISBN-10: 0538479884
ISBN-13: 978-0538479882

Yeates, D. and Wakefield, T. (2004) *Systems Analysis and Design,* 2nd edition. Pearson Prentice Hall.
ISBN-10: 0273655361
ISBN-13: 978-0273655367

Online Resources:

Information Systems Journal: Wiley-Blackwell
http://www.blackwellpublishing.com/journal.asp?ref=1350-1917

Topic 1: Introduction to Information Systems Analysis

1.1 Learning Objectives

This topic provides an overview of types of information systems, the systems development lifecycle, the purpose of the analysis of information systems and requirements capture, and types of analysis and design methodologies.

On completion of the topic, students will be able to:

- Define and explain the term information system;
- Identify types and examples of information systems;
- Define and explain the abbreviation SDLC;
- Discuss information systems analysis in the context of the SDLC;
- Define and explain analysis and requirements capture;
- Discuss the role of analysis and requirements capture in specific contexts;
- Define the term methodology;
- Determine the requirement for different methodologies;
- Identify types and examples of information system analysis and design methodologies.

1.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

1.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

1.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term information system
- Identification of types of information systems
- Identification of examples of information systems
- A definition and explanation of the abbreviation SDLC
- A discussion of information systems analysis in the context of the SDLC
- A definition and explanation of analysis and requirements capture
- A discussion of the role of analysis and requirements capture in specific contexts
- A definition of the term methodology
- A discussion of the requirement for different methodologies
- An overview of information system analysis and design methodologies

1.4.1 Guidance on the Use of the Slides

Slides 2-5: Aims and learning outcomes for this topic.

Slide 6: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 7: This slide provides a definition of the term computer system. You might want to try and elicit the students' ideas about this before you reveal the definition to them. You could ask them to name types of processes and functions undertaken by such systems.

Slide 8: This slide provides a definition of the term information system. Again, you might want to try and elicit the students' ideas about this before you reveal the definition to them. You can ask if they understand the term 'strategic'.

Slide 9: This slide presents types of information systems used by different levels of staff within organisations. You can try and elicit the various staffing levels and the students' own ideas about the types of information systems before revealing the information on the slide.

Slides 10-11: These slides present the main uses and types of information systems. You could ask the students if they have heard of/used any of the examples. Inform them that they will be expected to refer to this information, along with the more detailed explanations of each type on the following slides, during their private study time.

Slide 12: This slide explains what is meant by Executive Support Systems/Executive Information Systems. You could ask the students if they can think of other examples of functional areas (Human Resources, Production, Finance, etc.) and ask them to write down any correct examples that other students may suggest. It is suggested that you do not reveal all the examples at once and that you try and elicit the students' own ideas before you reveal the examples. You could also ask them to suggest further examples of such systems.

Slide 13: This slide explains what is meant by Management Information Systems. Again, you could try and elicit the students' own ideas before you reveal the examples.

Slide 14: This slide explains what is meant by Decision Support Systems. You should make reference to the types of tools and techniques used, such as spreadsheet software and decision-support system software. You could also ask the students to suggest further examples of such systems and ask them to write down any correct examples that other students may suggest.

Slide 15: This slide explains what is meant by Knowledge Management Systems. It is suggested that you do not reveal all the examples at once and that you try and elicit the students' own ideas before you reveal the examples. You could also ask them to suggest further examples of such systems.

Slide 16: This slide explains what is meant by Transaction Processing Systems. Again, try to elicit ideas from students before revealing the examples on the slides and remind students to take notes of any correct ideas suggested by other students.

Slide 17: This slide explains what is meant by Office Automation Systems. Inform the students that they will be expected to refer to this information during the seminar time for this topic.

Slide 18: The concept of interconnection between an organisation's information systems is introduced here with a brief example. Encourage the students to suggest other examples. This will also allow you to check their understanding of the types of system which were already outlined during the lecture.

Slides 19-20: These slides introduce the software development life cycle. Before revealing the description of each step, you could ask the students for their own ideas.

Slide 21: This slide explains information systems analysis in the context of the SDLC. Emphasise that the module will focus on the analysis step and explain that data flow diagrams will be covered in Topic 2.

Slide 22: A definition of the term 'analysis and requirements capture' is provided here. You could ask the students to provide examples for each description, e.g. aspects can include the hardware and software and problems could refer to slow and inefficient processing of data. Inform them that they will be expected to refer to this during the seminar time for this topic.

Slide 23: This slide explains the sort of questions that a systems analyst should ask when he/she is undertaking analysis of an information system. Inform the students that they will be expected to refer to this during the seminar.

Slides 24-25: This slide describes what information is required in an analysis requirements specification. You could ask the students to provide examples of structure (type of network), functions (payroll), data (hours worked), user (payroll administrator),

customer (employee), performance (processing type, e.g. batch), hardware (network associated) and software (financial) and ask them to write down any correct suggestions that other students may make. Ensure that they understand the terms 'verification' and 'validation'. This will be explored further during the seminar time for this topic.

Slide 26: This slide makes reference to the role of analysis and requirements capture in specific contexts. Ensure that students understand the term 'stakeholders'. Provide examples for the various constraint types: technical (out-of-date software), operational (users need training), economic (lack of finance), legal (system security has to be improved) and ethical (data protection compliance is needed). This will be explored further in the Seminar.

Slide 27: This slide provides a definition of the term 'methodology'. You might want to try and elicit the students' ideas about this before you reveal the definition to them. Ask them if they can give an example of a tool (e.g. data flow diagram).

Slides 28-29: This slide explains the requirement for different methodologies and how they may be selected. You may want students to suggest the considerations to be taken into account when selecting a methodology before showing Slide 29.

Slides 30-32: These slides presents types of information system analysis and design methodologies. Each type will be explored in detail in subsequent topics.

Slide 33: This slide explains that whatever methodology (or combination) is chosen by the systems analyst, the aims are still to provide the qualities of efficiency, etc. Make sure that students understand each of these terms.

Slide 34: References.

Slide 35: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, that they have opportunity to ask during the tutorial and seminar sessions.

1.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks.

Encourage students to complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Changes to Information Systems

In your group, discuss and record the reasons why an organisation might decide to introduce a new information system or upgrade an existing one. Make notes on your ideas.

Suggested Answer:

- To upgrade the system/s, e.g. hardware, software, communications
- There are technical problems in the system
- User's roles need to be changed, e.g. more automation is required, less user involvement
- There is a change in the organisation's strategic objectives, e.g. increased competition could mean that the organisation might need expand, decrease or change its business and improve or regain its competitive advantage
- There is a need for improved performance from the current system/s, e.g. the system/s need to be faster and more efficient
- The current system/s need to be easier to use
- The current system/s need to be re-vamped, e.g. redundant files and software need to be deleted
- There are security concerns
- There is duplication of data
- Staff are often taken away from their main duties because of system inadequacies/ inaccuracies/failures

Activity 2: Case Study: A Patients' Records Information System

UK City Hospital is a large hospital located in the south east of England. The hospital uses a computer network which links the reception and the Administration Department.

When a patient is admitted to the hospital he or she is asked to complete a paper-based form with his or her personal details and any medical data. This form is taken with the patient to the ward that they will be staying in and the patient's details are read and copied onto a chart that is stored at the bottom of the patient's bed. The information on this chart is updated several times a day. If the patient has been in the hospital before, a member of the nursing staff has to retrieve the patient's folder (paper-based) from the Patients' Records Department to read the details contained in it and to check, for example, that they do not suffer from any allergies to medication they may be given to them. The patient's chart is updated with any relevant information.

The form is then taken to the Administration Department for a copy to be taken of it and the details are entered into the patient records database by data-entry staff. If the patient has not been in the hospital before, a new record is created for them; if they have been admitted before, their previous record is updated. The patient records database is updated once a day. The original form is then taken and placed in the patient's folder in the Patients' Records Department.

When the patient leaves the hospital, their patient chart is taken to the Administration Department where the data-entry staff enter information from it into the patient records database. The patient's chart is then taken to be stored in the patient's folder in the Patients' Records Department.

The manager of the hospital is very concerned about the current information system and has met with various senior staff and it has been decided that a new information system is required.

Task 1

In your group discuss what concerns the manager of the hospital is likely to have.

Suggested Answer:

- Possible lack of security of patients' data
- The duplication and distribution of the patient's data in several locations
- Possible data-entry errors
- Possible loss of data
- Possible inaccuracies in data
- The delay in retrieving stored patient data
- Taking nursing staff time (having to retrieve folders, etc.)
- Lack of network coverage between departments
- Lack of email facilities
- Lack of adherence to data protection legislation

Task 2

In your group, write down at least ten questions that a systems analyst could ask the users of the existing patient's record information system.

Suggested Answer:

Possible questions can include:

- Do you perceive any problems with the current patient records system?
- Would you like a more efficient system?
- Do you think that patients' data is susceptible to loss?
- Do you think that data is duplicated unnecessarily?
- Is the current computer system easy to use?
- Have you come across any data-entry errors?
- Are you aware of patient data that has been lost?
- Would you like access to email with other departments at the hospital?
- Does the current system take you away from your nursing duties sometimes?
- Do you have any suggestions about how you would like the system to be improved?
- Do you think that the current method of collecting and storing data is time-consuming?
- Are you confident using ICT?

Task 3

In your group, discuss and record a number of difficulties that a systems analyst might face when trying to collect information for an analysis and requirements specification for a new patient records information system.

Suggested Answer:

Difficulties might include:

- Users might not really know what they want from the system
- Users might have unrealistic expectations as to what they want from the system
- Users might be resistant to the current system being changed; they might be fearful of losing their jobs
- It might be difficult to gather information from users, e.g. they are too busy to attend interview, complete questionnaires or are reluctant to be observed at work
- Users might request additional system changes after the cost and timescale of the project are confirmed
- Technical and non-technical staff might disagree on the system requirements
- Technical staff, users, management might disagree with the systems analyst's suggestions
- Economic constraints, e.g. lack of funding could limit the potential development
- Legal constraints, e.g. privacy regulations

Task 4

In your group, discuss the requirements that might be needed for a new patient records information system and complete the table below:

Requirements	Example
Functional areas involved	
Hardware	
Software	
System Functions	
Data input	
Data output	
System performance	
Security procedures	
Users	
Patients	
Link to other information systems	

Suggested Answer:

Requirements	Example
Functional areas involved	Administration Department, Patient Records Department, Technical Department, Reception
Hardware	Network hardware, personal computers, laptops, printers
Software	Word processing, database, spreadsheet software (Office Automation software)
System Functions	Input, processing, storage and output of patient's data

Data input	Patients' personal details, condition, admission dates, etc. medication and reference to staff involved. Need for great accuracy. Need for accurate updates. No duplication.
Data output	Patients' data, medication, condition, admission dates, etc. and reference to staff involved.
System performance	Needs to be reliable – fast, efficient, accurate.
Security procedures	Need to be robust – stored in one place if possible, back-up of data, appropriate software, e.g. firewalls, anti-virus.
Users	Need to be trained to use hardware, software, etc. correctly and efficiently.
Patients	Need to know their data is accurate, up-to-date and secure.
Link to other information systems	Management Information Systems, Decision Support Systems.

1.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: The Importance of Detailed Analysis

Information systems are often disliked by the users who have to work with them and this is often because of inadequate development of the systems.

Write down your response to this statement.

Suggested Answer:

Possible answers can include:

- The lack of careful analysis that should consider the whole system, not simply the hardware, software and processing.
- The users need to be consulted and asked their views on the current system and potential new/upgraded system.
- If the users have not been consulted, resulting systems may not be user-friendly, efficient or secure.
- The systems might not have been designed with the users needs considered, e.g. the interface.

Exercise 2:

Write a letter to the Chief Executive Officer of an organisation explaining why a knowledge management system might benefit his/her organisation.

Suggested Answer:

Student answers will vary but should include the following:

- The purpose of such a system needs to be explained.
- Reference to the fact that all staff at an organisation, at all levels, can benefit from such a system needs to be emphasised.
- Examples should be provided of the sort of information that can be made accessible to staff and how this can help them in their day-to-day tasks.

Exercise 3: Information Gathering Methods

There are a number of ways that a systems analyst can collect information from staff at an organisation and each method has its advantages and disadvantages. Complete the table below:

Method	Advantages	Disadvantages
Interviews (Face-to-face)		
Interviews (Telephone)		
Interviews (Online)		
Questionnaires (Paper and email)		
Focus Groups		
Observations		
Documentation e.g. Data entry manuals Network system technical manuals System user guides System error logs		
Joint Applications Design (JAD) and Joint Requirements Analysis (JRA)		

Suggested Answer:

Some possible answers are given below:

Method	Advantages	Disadvantages
Interviews (Face-to-face)	• This is a primary technique used for information gathering and if carried out properly, a considerable amount of information can be gathered. • Information from many sources at many levels in an organisation can be collected. • A rapport can be established with the interviewee.	• Not everyone that needs to be interviewed is available. • Difficult to interview all staff in a large organisation. • Staff may be reluctant to state what they really think. • May seem intrusive. • Information can be lost, inaccurate or incomplete if it is not carefully documented.

	• Questions can be clarified. • Information collected from other sources can often be verified. • Problems can be uncovered that might otherwise not be discovered. • Can obtain leads for gathering further information.	• Assumptions are often made leading to inaccuracy of facts. • Can be expensive and time-consuming.
Interviews (Telephone)	• Questions can be clarified. • Information collected from other sources can often be verified. • Problems can be uncovered that might otherwise not be discovered. • Can obtain leads for gathering further information.	• Often difficult to establish a rapport with the interviewee. • Often difficult to schedule. • Often has to be kept short. • Assumptions are often made leading to inaccuracy of facts.
Interviews (Online)	• Questions can be clarified. • Information collected from other sources can often be verified. • Problems can be uncovered that might otherwise not be discovered. • Can obtain leads for gathering further information.	• Often difficult to establish a rapport with the interviewee. • Often difficult to schedule. • Often has to be kept short. • Assumptions are often made leading to inaccuracy of facts.
Questionnaires (Paper and email)	• Can be answered when convenient for the interviewee • Can contact a large number of people. • Easier to administer and document.	• Not everyone responds. • No rapport with interviewer. • Lack of detailed information. • No opportunity to clarify questions.
Focus Groups	• Questions can be clarified. • It can be used to gather data from several sources at one time. • A range of responses can be collected.	• The group can easily get off the topic if not facilitated properly. • Organising and motivating people to attend may be difficult. • May be expensive and time-consuming. • Information may be lost/be inaccurate if not documented carefully.
Observations	• Improves interviewer understanding of the working environment. • Validates data gathered from other sources.	• May seem intrusive. • Time consuming. • Can be disruptive/distracting.

Documentation e.g. Data entry manuals Network system technical manuals System user guides System error logs	• Can clarify understanding. • Not intrusive. • Inexpensive. • Good source of background information. • May provide information not accessible by other information collection methods.	• May not be accessible. • Information may be inaccurate incomplete, disorganised or out of date. • May be time-consuming to collect, review and analyse. • May be biased if information has been selectively documented.
Joint Applications Design (JAD) and Joint Requirements Analysis (JRA)	• Users are brought together and guided by a facilitator to analyse business functions, processes, activities and data. • Similar to a focus group but usually lasts much longer - several weeks (full-time) or months (part-time). • Similar advantages to a focus group.	• Similar disadvantages to a focus group. • Users often have a narrow view of their organisation and may not see problems obvious to an objective outsider.

Exercise 4:

Explain what types of information systems support the work of operational staff, middle and senior management and how they do so.

Suggested Answer:

Operational Staff:

- Transaction Processing Systems - information on routine tasks such as billing systems
- Knowledge Management Systems - share organisational expertise and knowledge; easy access to information

Middle management:

- Management Information Systems - information taken from sources such as Transaction Processing Systems and generated into management reports, e.g. budgeting
- Decision Support Systems - information taken from various sources which enables decision making e.g. five year plans
- Knowledge Management Systems - share organisational expertise and knowledge; easy access to information

Senior Management:

- Executive Support Systems/Executive Information Systems - enable strategic decisions to be made by taking information from across the organisation, e.g. planning for new products/services
- Decision Support Systems - information taken from various sources which enables decision making, e.g. five year plans

- Knowledge Management Systems - share organisational expertise and knowledge; easy access to information

1.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: The Role of a Systems Analyst

Produce a job description for the role of systems analyst. State the skills needed for the job as well as the personal qualities required.

Suggested Answer:

It needs to be emphasised that the skills and personal qualities for a systems analyst should include:

- Excellent communication (verbal and written), e.g. be able to explain technical information clearly
- Hardware knowledge
- Software knowledge
- Communications media knowledge
- Business knowledge
- Analytical – a good problem solver
- A creative approach to problem solving
- Ability to gather and interpret information
- A good team player
- Good negotiating skills
- Work well under pressure
- Motivated
- Meet deadlines
- Effective budgeting skills
- Patient

Further information can be found at:

https://nextstep.direct.gov.uk/PlanningYourCareer/JobProfiles/JobProfile0882/Pages/Work.aspx

Topic 2: Hard Approaches to the Analysis of Information Systems

2.1 Learning Objectives

This topic provides an overview of the types of hard approach analysis methodologies, structured systems analysis and design methodology, tools and techniques, advantages and disadvantages of structured systems analysis and design methodologies, and the purpose and potential of dataflow diagrams.

On completion of the topic, students will be able to:

- Define and explain the term 'hard approach to systems analysis';
- Identify examples of hard approach methodologies ;
- Identify business situations where a hard approach to systems analysis might be appropriate;
- Define and explain the abbreviation SSADM;
- Identify and discuss the advantages of SSADM;
- Identify and discuss the disadvantages of SSADM;
- Define and explain the abbreviation DFD;
- Define and explain terminology associated with DFDs;
- Illustrate the use of DFDs;
- Construct DFDs;
- Provide solutions to business problems using DFDs.

2.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

2.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

2.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term hard approach to systems analysis
- Identification of examples of hard approach methodologies
- A definition and explanation of the abbreviation SSADM
- Identification of the advantages of using SSADM
- Identification of the disadvantages of using SSADM
- A definition and explanation of the abbreviation DFD
- A definition and explanation of the terminology associated with DFDs
- An illustration of the use of DFDs
- Construction of DFDs
- Discussion of solutions to business problems using DFDs

2.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 6: This slide provides a definition of the term 'hard approach' to systems analysis. You might want to try and elicit the students' ideas about this before you reveal the definition to them. You could ask them to name types of processes and functions undertaken by such systems. They should make a note of any correct examples that other students may suggest.

Slide 7: This slide states that a hard approach can be used when analysing large, complex information systems, such as government systems but can also be used for smaller information systems. You could ask the students to name some of these types of information system (recapping from Topic 1); again, ask them to write down any correct examples that other students may suggest.

Slide 8: This slide lists the main examples of hard approaches to analysis of information systems. You can point out that the focus of this topic is SSADM, while further reference will be made to JAD, RAD and Agile methods in Topic 6.

Slide 9: This slide explains how SSADM can be used to look at three views of a system: process, data and event. Check that the students are clear about what is meant by each of these terms.

Slide 10: This slide lists the stages that need to be worked through when using SSADM for analysis. You need to emphasise that the stages need to be worked through one after the other as shown in the diagram on Slide 11.

Slide 11: This slide illustrates the waterfall method of applying SSADM and that there is a requirement to follow the stages in sequence. The stages will be looked at in more detail in the following slides.

Slide 12: This slide provides an explanation of the term 'feasible' and identifies economic (if there are problems with funding a project), technical (if there are any problems with aspects of technology) and social feasibility (if there are any problems from a cultural or legal standpoint). You need to check that the students understand what is meant by these terms and emphasise that if there are any problems with any aspects of feasibility, a project may not go ahead. It also introduces the term 'cost-benefit analysis' and you can inform them that this term will be discussed further in the seminar session.

Slide 13: This slide explains what needs to be produced in the second stage, the Analysis and Requirements Specification; you can inform the students that the focus of the topic is on this stage. You can also inform them that this stage will be discussed further in the seminar session.

Slide 14: This slide states what is undertaken in the Design stage. You can ask the students if they can think of other tasks that are undertaken (e.g. specifying the application software, hardware, network topology, etc.) and encourage them to write down any correct examples that other students may suggest.

Slide 15: This slide states what is undertaken in the Implementation stage once the Design stage is complete.

Slide 16: This slide states what is undertaken in the Testing stage is complete. Ensure that students understand the terms 'robustness' and 'reliability'.

Slide 17: This slide states what is undertaken in the Maintenance stage. You can emphasise that the more rigorous the testing, the less problematic this stage should be. It also needs to be emphasised that regular maintenance in the form of checking the system should be established.

Slide 18: This slide states some of the advantages of using SSADM. You may want to try to elicit these from the students before showing them the slide.

Slide 19: This slide states some of the disadvantages of using SSADM. Again, you could ask students to suggest these before showing them the slide.

Slide 20: This slide states that SSADM uses three techniques to illustrate the three views of the system referred to on Slide 9 – the functions, data and events - and that each is cross-referenced with the others to ensure accuracy. You should emphasise that this topic will focus on the Data Flow Modelling technique. Students will be familiar with Entity/Event Modelling technique from the Level 4 Databases module.

Slide 21: This slide introduces the Data Flow Modelling technique and identifies the four main elements that it is designed to analyse and illustrate.

Slide 22: This slide explains that Data Flow Diagrams can be used to illustrate the elements referred to on Slide 21.

Slide 23: This slide explains that the main purpose of using a DFD is to depict the process and data elements of the system. You can explain that this is why SSADM and hard approaches to analysis are also referred to as process-oriented approaches.

Slide 24: This slide explains how a DFD can illustrate an information system in four different ways which are described as: the current physical DFD, the current logical DFD, the required logical DFD and the required physical DFD. Check that the students understand this and inform them that it will be referred to in the seminar session.

Slide 25: This slide states the advantages of constructing DFDs. It introduces the term system boundary and the terms decomposition and sub-processes. Inform the students that they will be constructing DFDs and decomposing them in the seminar/private study sessions.

Slide 26: This slide introduces the notation that is used to represent data flows in a DFD. You should emphasise that each data flow should be given a meaningful name. Check that they understand the term 'notation'.

Slide 27: This slide states the guidelines that students must follow when illustrating data flows on their DFDs.

Slide 28: This slide introduces the notation that is used to represent processes in a DFD. You should emphasise that each process should be given a meaningful name. You also need to emphasise that whatever shape is used, it must be used throughout the DFD and associated DFDs for consistency. You can inform them that details of the location or person/s responsible do not have to be included but is an example of good practice.

Slide 29: This slide states the guidelines that students must follow when illustrating processes on their DFDs.

Slide 30: This slide introduces the notation that is used to represent data stores in a DFD. You should stress that each data store should be given a meaningful name.

Slide 31: This slide states the guidelines that students must follow when illustrating data stores on their DFDs

Slide 32: This slide introduces the notation that is used to represent external entities in a DFD. You should emphasise that each external entity should be given a meaningful name.

Slide 33: This slide states the guidelines that students must follow when illustrating external entities on their DFDs

Slide 34: This slide reinforces the essential rules to be followed when constructing DFDs. This is a summary of the previous slides so you might like to try to ask students to suggest the key points to remember before showing them this slide.

Slide 35: This slide illustrates a basic DFD. It does not include a data store and you can ask the students where they think one could be added – it could be joined by a data flow to the process and it could be named Customer Details. Ask the students to add this detail to their diagrams.

Slide 36: References.

Slide 37: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

2.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks. Encourage students to complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: A Cost/Benefits Analysis

In your group, refer to the Case Study from Activity 2 in the Topic 1 seminar (A Patients' Records Information System) and put together a Cost-Benefit Analysis to be presented to management at the hospital. At this stage you need only include the factors that should be included as costs and benefits; you do not need to include actual costs. List both the tangible factors (that can be costed, e.g. insurance) and intangible factors (that cannot be costed, e.g. increased patient satisfaction).

Suggested Answer:

Student answers will vary but should include the following:

COSTS
• Hardware – computers, servers, printers, cabling, etc. (purchase or lease)
• Software (purchase or lease)
• System maintenance
• System development costs, e.g. labour costs
• Training costs (system)
• Operational costs – power, etc.
• Supply costs – paper, etc.
• New staff, e.g. technical staff, data entry staff
• Insurance

BENEFITS
• Central location for data
• Increased efficiency in data input
• Increased efficiency in data output
• Increased patient service (intangible)
• Increased patient satisfaction (intangible)
• Increased staff morale (intangible)
• More reliable
• More accurate
• Better communication between staff and departments and other information systems (intangible)
• Improved accuracy of data
• Improved security of data
• Improved privacy of data
• Saving in staff time (intangible)
• Not in contravention of data protection

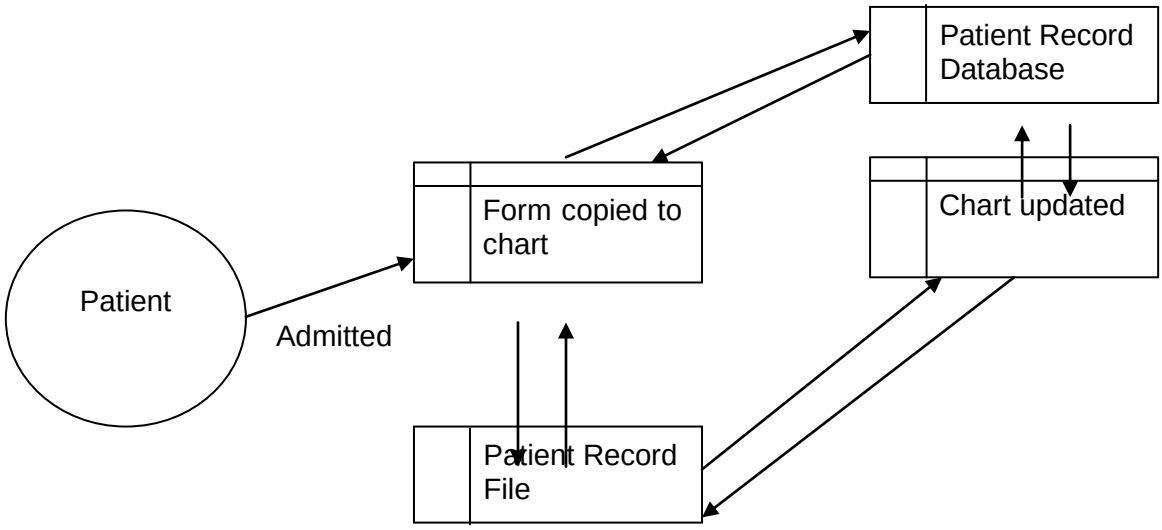
Activity 2: Current Physical Data Flow Diagram

Construct a Current Physical DFD of the Patients' Records Information System. Apply decomposition if you feel it is necessary.

Suggested Answer:

Diagrams will vary but should include all relevant system elements and the correct notations. Students should also have applied the guidelines for each symbol.

Example:



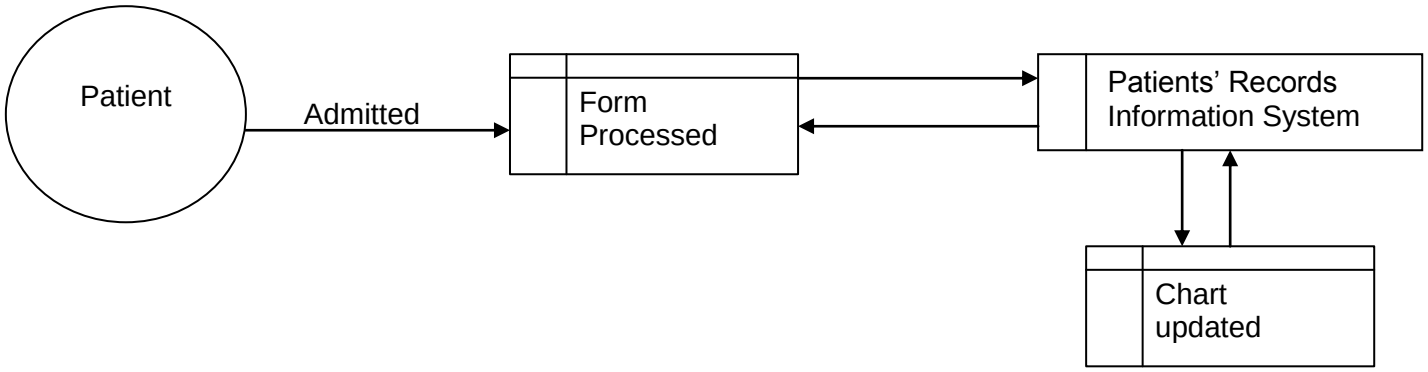
Activity 3: Required Physical Data Flow Diagram

Construct a Required Physical DFD of the Patients' Records Information System. Apply decomposition if you feel it is necessary.

Suggested Answer:

Diagrams will vary but should include all relevant system elements and the correct notations. Students should also have applied the guidelines for each symbol.

Example:



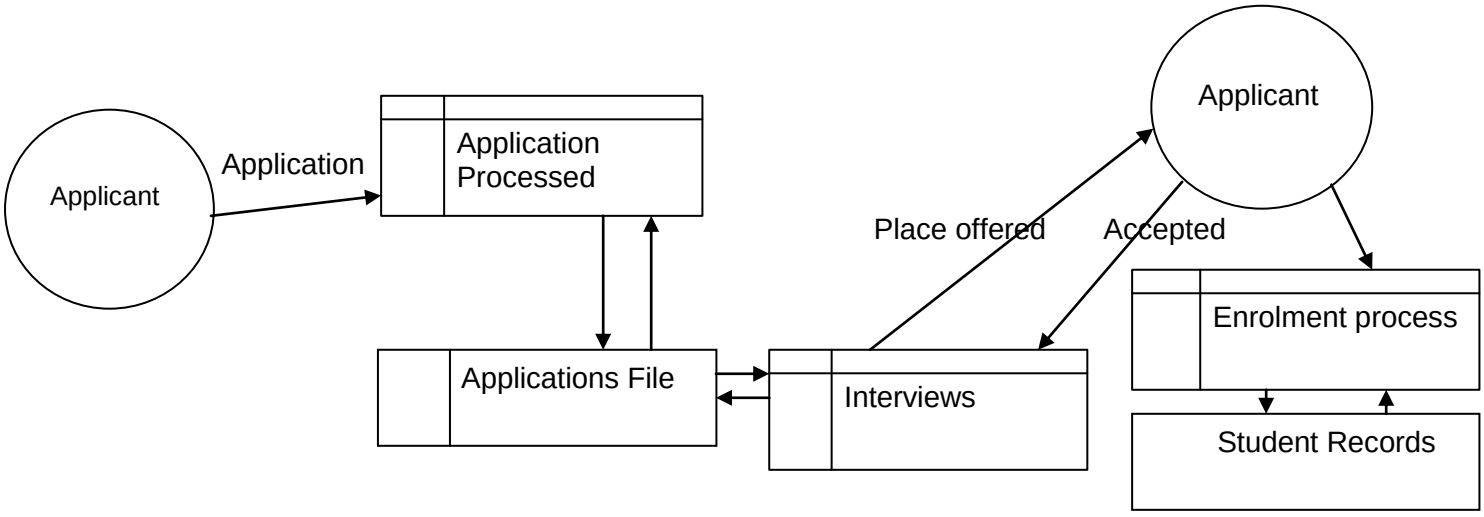
Activity 4: Current Physical and Logical DFDs

Construct a current physical and logical DFD that illustrates your application process to college, from the time you applied to the time that you enrolled on your course. Apply decomposition if you feel it is necessary.

Suggested Answer:

Diagrams will vary but should include all relevant system elements and the correct notations. Students should also have applied the guidelines for each symbol.

Example:



2.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: CASE

CASE can be used when analysing or developing an information system. Research CASE and write a short report to your manager that explains:

- What is meant by this term
- What CASE can be used for
- How the analysis of an information system can benefit from the use of CASE by a systems analyst.

The following websites may be helpful for your research:

- http://www.npd-solutions.com/case.html
- http://case-tools.org/

Suggested Answer:

Student answers will vary but should include the following information:

- CASE stands for '*Computer-Aided Software Engineering'* tools that can be used analysing or designing an information system
- Can be applied to all the stages of development in the SDLC, particularly analysis, design and programming
- Prototyping tools and project management software
- User documentation
- Object-oriented design
- Upper CASE (analysis and design stage of SDLC) and lower CASE (implementation, testing, maintenance)
- Provide support for methodologies such as SSADM: data flow diagrams, process descriptions, entity relationship diagrams, and entity life history diagrams, e.g. SmartDraw
- Benefits include: helps accuracy and efficiency in completion of tasks, high quality results, enhances productivity, minimises the time taken to complete tasks, saving time = saving money

Exercise 2: DSDM

DSDM is an alternative methodology to SSADM. Prepare notes for a short presentation to explain to your colleagues the use, stages and benefits of using DSDM and how it differs to SSADM.

This website may be helpful for your research:

- http://www.selectbs.com/process-maturity/what-is-dsdm

Suggested Answer:

Student answers will vary but should include the following information:

- Use: rapid development of systems
- Stages: The Pre-Project, Feasibility Study, Business Study, Functional Model Iteration, Design and Build Iteration, Implementation, Post-project
- Benefits: faster development, more user involvement, business suitability is an essential goal
- Differences: faster development than SSADM, more user involvement than SSADM, less costly than SSADM (if project is a success), may not be as thorough as SSADM

Exercise 3: Prototypying

Read the article below on prototyping and write down whether or not you think that it would be a good methodology for an analyst to use when working on the Patients' Record Information System development. Justify your opinion.

McClendon, C., Regot, L. and Akers, G. (1999). *What is prototyping?* [Available Online] http://www.umsl.edu/~sauterv/analysis/prototyping/proto.html

Suggested Answer:

Student answers will vary and some may agree that it would be good to use it, whileothers may think it would not. However, they should include the following information:

- A definition of what is meant by prototyping and its purpose
- An explanation of how it can be used/its stages
- Its benefits (and why this would be useful for the Patient Records system)
- Its advantages (and why this would not be useful for the Patient Records system)

2.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

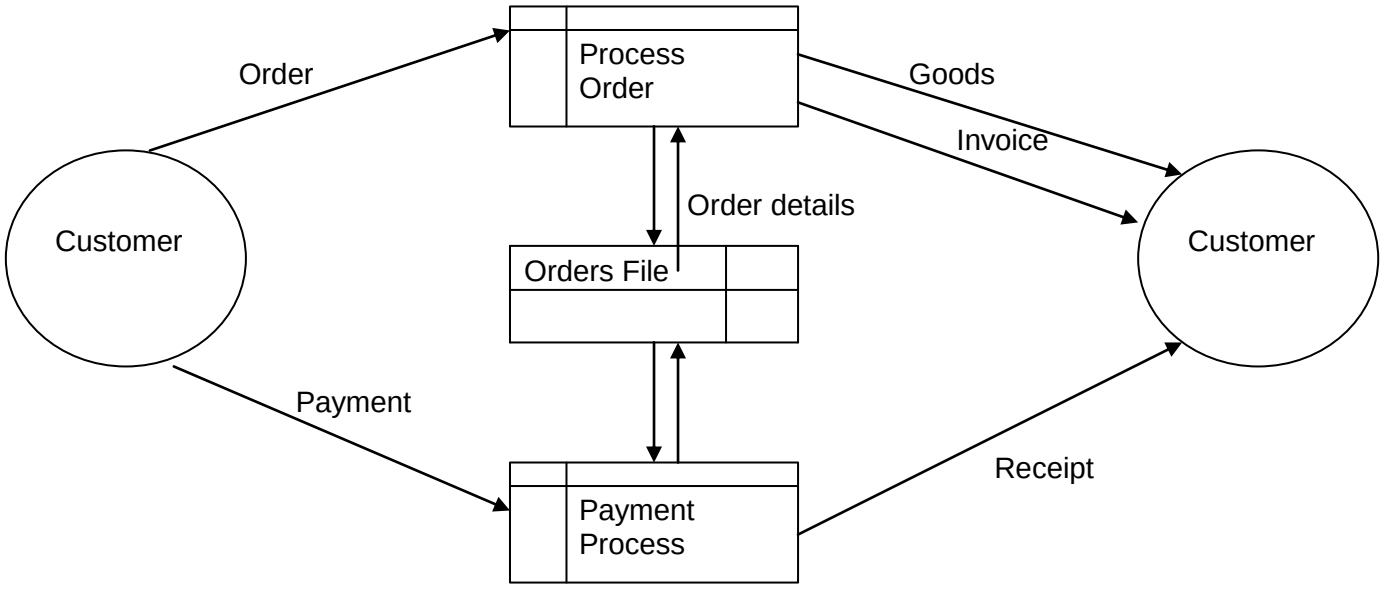
Exercise 2: Internet Company DFD

Construct current physical and current logical DFDs that represent how an Internet company accepts/processes/outputs a customer order

Suggested Answer:

Diagrams will vary but should include all relevant system elements and the correct notations. Students should also have applied the guidelines for each symbol.

Example:



Topic 3: Soft Approaches to the Analysis of Information Systems

3.1 Learning Objectives

This topic provides an overview of the types of soft approach analysis methodologies and the advantages and disadvantages of using such methodologies and how they can provide solutions to business problems.

On completion of the topic, students will be able to:

- Define and explain the term ‘soft approach to systems analysis’;
- Identify examples of soft approach methodologies;
- Identify business situations where a soft approach to systems analysis might be appropriate;
- Define and explain the abbreviation SSM;
- Identify and discuss the advantages of SSM;
- Identify and discuss the disadvantages of SSM;
- Provide solutions to business problems using SSM.

3.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

3.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

3.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘soft approach to systems analysis’
- Identification of examples of soft approach methodologies
- Identification of business situations where a soft approach to systems analysis might be appropriate
- A definition and explanation of the abbreviation SSM
- Identification of the advantages of using SSM
- Identification of the disadvantages of using SSM
- Discussion of solutions to business problems using SSM

3.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 6: This slide provides a definition of the term ‘soft systems methodology’. You might want to try and elicit the students’ ideas about this before you reveal the definition to them. It also explains what is meant by a soft approach to the analysis of information systems.

Slide 7: This slide introduces the term ’human activity system’ and you should emphasise the complexity of such systems and their dynamic nature. You should check that the students fully understand what is meant by the term ’human activity system’.

Slide 8: This slide states some of the types of systems that this approach to analysis could be used for.

Slide 9: This slide lists the steps that need to be followed when undertaking a soft systems analysis. It introduces the terms ’rich pictures’, ’root definition’ and ’conceptual models’ and you should point out that each of these terms will be explained during the course of the lecture.

Slide 10: This slide states that the soft methodology steps do not have to be carried out sequentially, unlike that of SSADM. It then refers to the techniques that can be used when undertaking SSM: rich pictures, root definition and conceptual models.

Slide 11: This slide refers to the first stage of SSM, the Analsysis Stage, where a rich picture is produced of the whole system. There is an explanation of rich pictures, their purpose and construction.

Slide 12: This slide lists the main elements that need to be included in a rich picture. You may want to elicit these from the students before showing them the slide.

Slide 13: This slide lists the additional elements that need to be included in a rich picture. You can check if the students understand each of these additional elements.

Slide 14: This slide provides an example of a rich picture that has been constructed to represent an accommodation system at a university. Remind students that a rich picture (as with this one) will often be roughly hand drawn on a whiteboard, flip chart or notepad during a meeting. You can elicit from the students or describe to them the various elements and processes (including issues with the system) that are included in the picture. Inform the students that they will be producing their own rich pictures during the seminar/study sessions.

Slide 15: This slide points out the differences between a rich picture and a DFD.

Slide 16: This slide states than an analyst should be able to identify problem areas (current or potential) in the system from the rich picture. You could ask the students if they can identify any areas of concern in the rich picture on Slide 14, e.g. will there be enough accommodation at the university? Can the students afford what is available? Are competing universities in a better position to ofer accommodation? Are university staff overwhelmed with the number of applicants for accommodation and the resulting increase of administrative tasks?

Slide 17: This slide emphasises that the Analsyst must use the rich picture to identify problems with a system, rather than provide possible solutions. They must discuss the problems with management and then consider potential solutions.

Slide 18: This slide shows the other techniques that the analyst can use to gather and analyse information in SSM, such as, checklists and questions. The PEST and SWOT techniques are identified. You should inform the students that PEST and SWOT will be discussed in detail in Topic 9.

Slide 19: This slide lists the benefits to staff of the production of the rich picture and how it can be used to initiate change and development of an information system.

Slide 20: This slide provides a definition of the term 'root definition' and defines the two types of root definition; primary task root definition and issue-based root definition.

Slide 21: This slide explains that when producing root definitions the analyst should ensure that they understand what the system is meant to do, how it is done and why it needs to be done. You can inform the students that they will be producing root definitions in the seminar/private study sessions.

Slide 22: This slide introduces CATWOE, another technique to gather and analyse information in SSM. A brief explanation is provided but you need to inform students that this will be discussed in more detail in Topic 5.

Slide 23: This slide states the sort of questions that CATWOE can seek to answer, as an aid to information gathering and analysis.

Slide 24: This slide explains what a conceptual model is and what it can be used for. You need to emphasise to the students that this is not a model of a real system but a model of a potential, 'ideal' system. You can inform them that they will be producing a conceptual model in the seminar/private study sessions.

Slide 25: This slide introduces the 'Three E's', which describes how efficacy, efficiency and effectiveness can be measured against the conceptual model.

Slide 26: This slide explains that the next stage of comparing the conceptual model of the system with the real system illustrated in the rich picture must be undertaken.

Slide 27: This slide explains that the analyst needs to document any differences between the actual system and the conceptual system and discuss them with management. Any developments necessary are discussed and if feasible, introduced.

Slide 28: This slide discusses the advantages of using SSM. You could try to elicit some advantages from students before showing the slide. You could then ask the students if they agree, based on what they have learned so far.

Slide 29: This slide discusses the disadvantages of using SSM. Again you could elicit disadvantages before showing the slide and ask the students if they agree, based on what they have learned so far.

Slide 30: References.

Slide 31: Ask the students if they have any questions. Remind them that if they come across information about which they are unsure, they will have an opportunity to ask about it during the tutorial and seminar sessions.

3.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks.

Encourage students to complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: A Rich Picture

In your group, construct a rich picture of the Patients' Record Information System. You may also refer to the manager's concerns if you feel that this would be helpful (this was discussed in seminar 1).

Suggested Answer:

The pictures will vary but must include:

- a sense of the whole system as they perceive it
- the following elements: patients, staff and their interactions, departments, processes, resources, boundaries, interfaces, attitudes, goals, problems, concerns

Activity 2: A Root Definition

Produce a root definition of the Patients' Record Information System.

Suggested Answer:

The definitions will vary in wording but should include reference to the functions and aims of the system.

Activity 3: A Conceptual Model

Construct a conceptual model of the Patients' Record Information System.

Suggested Answer:

The models will vary but need to include both the must have aspects of the system and the desirable aspects of the system.

Activity 4: Comparing rich pictures and conceptual models

Compare your rich pictures and conceptual models and write down what is similar and what is different.

Suggested Answer:

Answers will vary but should include reference to some of the requirements discussed in Seminar Activity 1.

3.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: SSM as a Methodology

Now that you have some practical experience of working with SSM, prepare a short presentation that outlines why you think it should or should not be used as a methodology. Ensure that you refer to the main purpose of why SSM is used as a methodology and what its benefits and limitations are.

Suggested Answer:

Student answers will vary but all must refer to the fact that SSM is used as an alternative method to the structured SSADM and make a distinction between the hard and soft approach to analysis. They must refer to the advantages and disadvantages as well as drawing their own conclusions about its effectiveness.

Exercise 2: SSM Modelling

Read the information on the following website and attempt the exercises.

- The OR Society (undated). *Soft Systems Methodology.* [Available Online] http://www.orsoc.org.uk/about/teaching/StrategicProblems/m_s_3frs.htm

3.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Internet Company Rich Picture

Produce a rich picture that represents how an Internet company accepts and processes a customer order.

Suggested Answer:

- The pictures will vary but should convey a sense of the whole system as they perceive it
- The following elements should be included: customers, staff and their interactions, departments, processes, resources, boundaries, interfaces, attitudes, goals, problems, concerns

Topic 4: Combined Soft/Hard Approaches to the Analysis of Information Systems

4.1 Learning Objectives

This topic provides an overview of combined soft/hard approach methodologies, the purpose and potential of Multiview, advantages and disadvantages of Multiview and a comparison and contrast of soft, hard and combined approaches to information systems analysis.

On completion of the topic, students will be able to:

- Define and explain the term ‘combined soft/hard approach’ to systems analysis;
- Identify examples of combined soft/hard approach methodologies;
- Identify business situations where a combined soft/hard approach to information systems analysis might be appropriate;
- Define and explain the term ‘Multiview’;
- Identify and discuss the advantages of Multiview;
- Identify and discuss the disadvantages of Multiview;
- Provide solutions to business problems using Multiview;
- Compare and contrast soft, hard and combined approaches to information systems analysis.

4.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

4.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

4.4 Lecture Notes

The following is an outline of the material to be covered during the lectures. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘combined soft/hard approach to systems analysis’
- Identification of examples of combined soft/hard approach methodologies
- Identification of business situations where a combined soft/hard approach to systems analysis might be appropriate
- A definition and explanation of the term ‘Multiview’
- Identification and discussion of the advantages of Multiview
- Identification and discussion of the disadvantages of Multiview
- Discussion of solutions to business problems using Multiview
- A comparison and contrast of soft, hard and combined approaches to systems analysis

4.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 6: This slide explains the purpose of using a combined hard/soft approach to analysing an information system. Before you reveal the explanation, you could ask the students what they think a combined approach might mean and why it might be needed (thus recapping on Topics 1 and 2).

Slide 7: This slide states that a comined approach can be used for all types of systems, regardless of their size.

Slide 8: This slide introduces the Multiew methodology and explains its use in considering both the technical and human activity aspects of an information system.

Slide 9: This slide states how Multiview could be used to help provide answers to the technical and human activity aspects of an information system.

Slide 10: This slide lists the stages that need to be followed when undertaking a Multiew analysis. You could point out that the stages do not have to be carried out sequentially, unlike that of SSADM.

Slide 11: This slide states what needs to be done when undertaking an analysis of human activity. As a recap you could ask the students if they can define the terms ’rich picture’, ’root definition’ and ’conceptual model’.

Slide 12: This slide states what needs to be done when undertaking an analysis of the information in an information system and what developments need to be produced when doing so. You could check that students understand what is meant by the terms 'functional model' and 'entity model'.

Slide 13: This slide explains how the main system function is identified and then broken down into sub-functions to produce a functional model. Students can be reminded that the number of subfunctions depends on the overall complexity of the main system function.

Slide 14: This slide explains that events that initiate the functions are then identified, DFDs are also produced and that the functional model and DFDs are then used in the analysis and design of the socio-technical aspects stage.

Slide 15: This slide states that an entity model should also be produced and that the data from the rich picture, root definition and conceptual model should contribute to the entity model.

Slide 16: This slide explains how the analyst must identify various social and technical aspects of the system, identify if and how they meet the information system aims and objectives and rank them in order of their fulfilment of the system objectives, and in terms of how feasible they are (e.g. costs, resources and any constraints). The analyst documents how feasible it would be to develop each aspect of the system.

Slide 17: This slide states how the stated socio-technical aspects of the system can be used to design the interface of the information system.

Slide 18-19: This slide explains the purpose of the design stage and what is needed for the design of the interface. Inputs required for this stage are generated in stages 1 and 2. You can inform the students that they will be focusing in more detail on interface design in Topics 11 and 12.

Slide 20: This slide explains the requirements for the design of the technical aspects of the system and points out that the inputs required for this stage are the entity model produced in stage 2 and the technical requirements identified in stage 4.

Slide 21: This slide discusses the advantages of using Multiview. You could try to elicit some advantages from students before showing the slide and ask the students if they agree, based on what they have learned so far and if they have any suggestions of their own.

Slide 22: This slide discusses the disadvantages of using Multiview. Again you could elicit possible disadvantages and ask the students if they agree, based on what they have learned so far and if they have any suggestions of their own.

Slide 23: This slide states that a contrast and comparison of soft, hard and a combined approaches to information system analysis depends on several factors. You could ask the students if they can think of any other relevant factors in addition to the ones listed. You can inform them that this will be explored and discussed further in the seminar.

Slide 24: References.

Slide 25: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

4.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks. However, students should complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Stages 1, 2 and 3 of Multiview

In your group, with reference to the Patients' Records Information System, produce the documentation that is required for stages 1, 2, and 3 of Multiview.

Suggested Answer:

They should include: the rich picture, root definition, conceptual model, DFD and entity model.

Activity 2: Socio-technical Aspects

Document all the information that you have on the existing socio-technical aspects. Consider the list of possible requirements that you compiled in Topic 1, Activity 2, Task 4. What socio-technical aspects do you think should be developed/improved?

Suggested Answer:

The students should refer to their list of requirements from Topic 1, Activity 2, Task 4 and document them as either social or technical objectives/alternatives.

Activity 3: Multiview and a Stock Control System

In your group, prepare a short presentation explaining how using Multiview could help an organisation develop a new, more efficient stock control system.

Suggested Answers:

Should include:

- reference to having to construct a rich picture, root definition, conceptual model, DFD and entity model and why this would be beneficial
- an explanation that the socio-technical aspects would need to be documented and why this would be required

- reference to the overall advantages of using Multiview

4.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1:

Multiview has been used in the analysis and design of transaction processing systems such as seat reservation systems. Write a short report to your manager, explaining why you think that this particular approach would be suitable to be used for the analysis of a seat reservation system.

Suggested Answer:

Answers should include reference to the combined socio-technical approach of this methodology and the appropriateness of the techniques and tools that can be used with it.

The required diagrams of a seat reservation system (plane/train/bus/theatre) could be included.

The advantages of the socio-technical method need to be explained.

4.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: A comparison of a Hard, Soft and Combined Approach to the Analysis of the Patients' Record Information System

Write down which approach you have preferred using when analysing the Patients' Records Information System. Compare your view to that of your fellow students, giving reasons to support your opinion.

Topic 5: Techniques Associated with Requirements Capture

5.1 Learning Objectives

This topic provides an overview of stakeholder analysis techniques, the stakeholder analysis matrix, the purpose and potential of CATWOE, advantages, disadvantages and evaluation of CATWOE.

On completion of the topic, students will be able to:

- Define and explain the term ‘stakeholder’;
- Identify and discuss types of stakeholder analysis techniques;
- Define and illustrate the Stakeholder Analysis Matrix;
- Define and explain the abbreviation CATWOE;
- Identify and discuss the advantages of CATWOE;
- Identify and discuss the disadvantages of CATWOE;
- Provide solutions to business problems using CATWOE;
- Evaluate CATWOE.

5.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

5.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

5.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘stakeholder’
- Identification and discussion of types of stakeholder analysis techniques
- A definition of the Stakeholder Analysis Matrix
- Illustration of the Stakeholder Analysis Matrix
- A definition and explanation of the abbreviation CATWOE
- Identification and discussion of the advantages of CATWOE
- Identification and discussion of the disadvantages of CATWOE
- Discussion of solutions to business problems using CATWOE
- Evaluation of CATWOE

5.4.1 Guidance on the Use of the Slides

Slides 2-3: Aims and learning outcomes for this topic.

Slide 4: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 5: This slide defines what is meant by the term ’stakeholder’. You could ask the students if they can think of any definitions or examples of a stakeholder before showing the slide,. Ask them to write down any other correct examples that students may suggest.

Slide 6: This slide explains what needs to be done when undertaking stakeholder analysis. Check that the students understand what is meant by ‘power’, ‘influence’ and ‘interest’. You could ask them who they think the most important stakeholders are likely to be(e.g. the CEO, the customers) and ask them to write down any correct examples that other students may suggest.

Slide 7: This slide describes the main stakeholder characteristics that an analyst needs toidentify. You could try to elicit these characteristics before showing the slide. You could ask the students to suggest which stakeholders may have alliances (e.g. managers of the departments in an organisation) and ask them to write down any correct examples that other students may suggest.

Slide 8: This slide illustrates a stakeholder matrix and describes what it can be used for. When a stakeholder is identified as having high power and is interested in the development of a new information system, then the name of that stakeholder is recorded in the ‘Keep satisfied’ section of the matrix, etc.

Slide 9: This slide describes the four positions of the stakeholders on the stakeholder matrix.

Slide 10: This slide states the sort of questions that an analyst could ask to gather information about the stakeholders.

Slide 11: This slide describes the CATWOE technique. Before you reveal the explanations, you could ask the students if they can recall what each letter stands for (recapping on Topic 3).

Slide 12: This slide states when CATWOE could be used and emphasises its usefulness in analysing human activity in an organisation.

Slide 13: This slide describes the meaning of 'Customers/Clients'. You could ask the students if they can identify customers/clients of an information system, e.g. train passengers and ask them to write down any correct examples that other students may suggest.

Slide 14: This slide describes the meaning of 'Actors/Agents'. You could ask the students if they can identify actors/agents of an information system, e.g. call centre workers and ask them to write down any correct examples that other students may suggest.

Slide 15: This slide describes the meaning of 'Tranformations'. You could ask the students if they can identify typical transformations of an information system, e.g. latest train arrival times are inputted and their estimated times of arrival updated. Ask students to write down any correct examples that other students may suggest.

Slide 16: This slide describes the meaning of 'World View'. You could ask the students if they can identify any factors inside and outside the organisation that may be influencing the development of the system, e.g. low staff morale about new working patterns. Ask students to write down any correct examples that other students may suggest.

Slide 17: This slide describes the meaning of 'Owners'. You could ask the students if they can identify Owners of an information system, e.g. shareholders, and ask them to write down any correct examples that other students may suggest.

Slide 18: This slide describes the meaning of 'Environment'. You could ask the students if they can identify any financial, legal, or ethical limits and constraints to developing an information system, e.g. lack of finance to develop a new system. Ask the students to make a note of any correct examples that other students may suggest.

Slide 19: This slide states the advantages of using CATWOE.

Slide 20: This slide states the disadvantages of using CATWOE.

Slides 21&22: These slides present an evaluation of CATWOE and emphasise the need for efficient management of the technique if it is to make a positive contribution to the development of an information system.

Slide 23: References.

Slide 24: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

5.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Stakeholder Matrix

In your group, produce a Stakeholder Matrix for UK City Hospital and record the positions of various staff in the sections of the matrix that you think would be most appropriate for them.

Keep Satisfied	Manage Closely
Monitor	Keep Interested

Record in the table below the reasons for your choices:

Stakeholder	Interest	Potential Impact on them	How to try and Maintain/Gain their Support

Suggested Answer:

Keep Satisfied Managers Doctors/Nurses	Manage Closely Nurses
Monitor Data Entry Staff Receptionists	Keep Interested Patients

Students may produce different answers but suitable justification for their choices is important.

Activity 2: CATWOE

Apply CATWOE to the UK City Hospital and prepare a short presentation on how CATWOE can be used for the analysis and why this could benefit the organisation.

Suggested Answer:

The students' answers may differ but should be similar to:

- C - Patients
- A – Managers, doctors, nurses, data entry staff, receptionists
- T – Record input/storage/output/retrieval
- W – Need for improvement
- O – Management, authorities
- E – Possible economic constraints, resistance to change

Activity 3: College Stakeholder Analysis and CATWOE

Produce a Stakeholder Matrix for your college and also complete a CATWOE analysis.

5.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: CATWOE

Write a short report for your manager explaining the expected benefits of using the CATWOE technique and identifying stakeholders.

Suggested Answer:

Students' reports would be expected to contain most of the following:

- Reference to be made to the fact that it is a soft approach yet seeks to address the technical aspects also.
- CATWOE allows a problem definition to be formulated and this definition can be reformulated if required, thus allowing flexibility in the definition and suggested solution.
- It is useful when trying to formulate a problem definition when there are complex human problem situations in an organisation; where an organisation has several goals; where there are a considerable number of stakeholders; customers and stakeholders have different views and opinions.
- Staff, customers and stakeholders are more likely to understand and support information systems development if they take part in defining a problem and discussing how it could be improved.
- Managed effectively, it encourages open discussion of problems, perceptions and needs, different perspectives, joint problem solving, user participation and commitment, and it brings sectors of an organisation together.

Exercise 2: CATWOE Investigation

Explain how an analyst would identify the information needed for a Stakeholder Analysis and to produce information on CATWOE.

Suggested Answer:

This should include reference to data gathering techniques such as:

- Interviews
- Questionnaires
- Focus Groups
- Observation

- Documentation

5.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Internet Company and CATWOE

Produce a CATWOE analysis for an Internet company with which you are familiar.

Topic 6: Organisation-Oriented and People-Oriented IS Methodologies

6.1 Learning Objectives

This topic provides an overview of types of organisation-oriented Information Systems methodologies and their advantages, disadvantages and potential effectiveness; people-oriented Information Systems and their advantages, disadvantages and potential effectiveness; ETHICS and its purpose and potential; the Agile methodology and its purpose and potential (briefly, as Agile systems development is a separate level 5 module).

On completion of the topic, students will be able to:

- Define and explain the term 'organisation-oriented IS methodology';
- Identify the types of organisation-oriented IS methodologies;
- Identify and discuss the advantages of organisation-oriented methodologies;
- Identify and discuss the disadvantages of organisation-oriented methodologies;
- Evaluate and discuss an organisation-oriented methodology in the context of a business scenario;
- Define and explain the term people-oriented IS methodology;
- Identify the types of people-oriented IS methodologies;
- Identify and discuss the advantages of people-oriented methodologies;
- Identify and discuss the disadvantages of people-oriented methodologies;
- Define and explain the abbreviation ETHICS;
- Evaluate and discuss the ETHICS methodology in the context of a business scenario;
- Define and explain the term Agile methodology;
- Evaluate and discuss the Agile methodology in the context of a business scenario.

6.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

6.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

6.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘organisation-oriented IS methodology’
- Identification of the types of organisation-oriented IS methodologies
- Identification of the advantages of organisation-oriented methodologies
- Identification of the disadvantages of organisation-oriented methodologies
- Evaluation of an organisation-oriented IS methodology in the context of a business scenario
- A definition and explanation of the term people-oriented IS methodology
- Identification of the types of people-oriented IS methodologies
- Identification of the advantages of people-oriented IS methodologies
- Identification of the disadvantages of people-oriented IS methodologies
- A definition and explanation of the ETHICS methodology
- ETHICS in the context of a business scenario
- Evaluation of ETHICS
- A definition and explanation of the Agile methodology
- Agile in the context of a business scenario
- Evaluation of Agile

6.4.1 Guidance on the Use of the Slides

Slides 2-5: Aims and learning outcomes for this topic.

Slide 6: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 7: This slide explains what is meant by the term ’organisation-oriented methodology’

Slide 8: This slide refers to SSADM and Multiview as two examples of this type of methodology.

Slide 9: This slide states the type of project/organisation where the application of an organisation-oriented methodology is most suitable.

Slide 10: This slide states some advantages of using this methodology. As SSADM and Multiview can be used, before you reveal the advantages you could ask the students if they can think of any advantages of the methodology, and to write down what additional advantages to the ones listed that other students may suggest.

Slide 11: This slide states some disadvantages of using this methodology. As SSADM and Multiview can be used, before you reveal the disadvantages you could ask the students if they can think of any disadvantages and to write down any additional disadvantages students may suggest.

Slide 12: This slide explains what is meant by the term 'people -oriented methodology'.

Slide 13: This slide refers to Multiview, ETHICS and RAD/RSD, JAD and Agile as examples of this type of methodology.

Slide 14: This slide states the type of project/organisation that the application of a people-oriented methodology is best applied to.

Slide 15: This slide provides a definition of the ETHICS as a means of analysis and its purpose. You may want to elicit from the students what each letter stands for before showing the slide.

Slide 16: This slide explains how ETHICS strives to deliver job satisfaction in the development of an information system. Before you reveal the list of factors that could be used to measure job satisfaction, you could ask the students for their ideas on this.

Slide 17: This slide explains how the Knowledge Fit and Psychological Fit measurements can be used to measure job satisfaction.

Slide 18: This slide explains how the Task-Structure Fit and Efficiency Fit measurements can be used to measure job satisfaction.

Slide 19: This slide explains how the Ethical Fit measurement can be used to measure job satisfaction.

Slide 20: This slide describes how social issues in an organisation can affect job satisfaction.

Slide 21: This slide explains how any alternatives in working practices that an analyst identifies need to be evaluated against costs and whether these costs are justifiable in meeting the social objectives. .

Slide 22: This slide describes another people-oriented methodology, RAD/RSD. You can inform the students that they will look at this more closely in their private study time.

Slide 23: This slide describes another people-oriented methodology, JAD. You can inform the students that they will look at this more closely in their private study time.

Slide 24: This slide describes another people-oriented methodology, Agile. You can inform the students that as they are covering this in a seperate Level 5 module it will not be looked at further in this module.

Slide 25: This slide states some of the advantages of using a people-oriented methodology. You can ask the students if they can think of any advantages before showing the slide and to write down any additional advantages students may suggest.

Slide 26: This slide states some of the disadvantages of using a people-oriented methodology. You can ask students if they can think of any disadvantages and to write down any additional disadvantages other students may suggest.

Slide 27: References.

Slide 28: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

6.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: ETHICS

Interview one of your fellow students about a job that they may currently do or have done in the past. Find out as much information as you can. Use ETHICS to document your answers. Once you have done this, then the other student can undertake the same process with you.

Activity 2: ETHICS and the UK City Hospital

If you were using ETHICS at the UK City Hospital, list the staff that you would use it with. Write down if you think there may be problems using it and explain why you think so. Discuss and compare your answers with the rest of the group.

Suggested Answer:

The staff that it could be used with include the nurses, receptionist, doctors, data entry staff; problems might include some staff being unavailable or only being available for a limited time, others being reluctant to provide information, for fear of losing their jobs or being demoted. The whole process may take up considerable time (of both the analyst and the staff). There may be lack of awareness amongst the staff of the benefits and purpose of ETHICS.

Activity 3: ETHICS POSTER

Design a poster that aims to persuade staff at the UK City Hospital to attend an ETHICS interview.

6.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: RAD/RSD

RAD/RSD is an alternative methodology to SSADM. Prepare notes for a short presentation to explain to your colleagues the use, stages and benefits of using RAD/RSD and how it differs from SSADM.

The following articles may be helpful for your research:

- Select Business Solutions. (2011). *What is Rapid Application Development?* [Available Online] http://www.selectbs.com/analysis-and-design/what-is-rapid-application-development
- Maner, W. (1997). *Rapid Application Development (RAD).* [Available Online] http://www.cs.bgsu.edu/maner/domains/RAD.htm

Suggested Answer:

Student answers will vary but should include the following information:

- Use: rapid development of systems
- Stages
- Benefits: faster development, more user involvement, business suitability is an essential goal
- Differences: faster development than SSADM, more user involvement than SSADM, less costly than SSADM (if project is a success), may not be as thorough as SSADM

Exercise 2: JAD

JAD is an alternative methodology to SSADM. Prepare notes for a short presentation to explain to your colleagues the use, stages and benefits of using JAD and how it differs from SSADM.

The following article may be helpful for your research:

- Rottman, D. (undated). *Joint Application Development (JAD).* [Available Online] http://www.umsl.edu/~sauterv/analysis/488_f01_papers/rottman.htm

Suggested Answer:

Student answers will vary but should include the following information:

- Use: teams of people work together
- Stages
- Benefits: faster development, more user involvement, customer-focused, customer satisfaction is an essential goal
- Differences: more team involvement, more user involvement than SSADM, better quality systems

6.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered. Your teacher may ask you to deliver your presentations on RAD/JAD to the rest of the group during this time.

Exercise 2: ETHICS

Reflect on your use of ETHICS. Did you find the session easy or difficult? Write down your views on this experience and compare them with your fellow students.

Topic 7: Process-Oriented IS Methodologies

7.1 Learning Objectives

This topic provides an overview of types of process-oriented Information System methodologies and their advantages and disadvantages, the purpose and potential of the Yourdon methodology and the POEM methodology.

On completion of the topic, students will be able to:

- Define and explain the term ‘process-oriented IS methodology’;
- Identify the types of process-oriented IS methodologies;
- Identify and discuss the advantages of process-oriented methodologies;
- Identify and discuss the disadvantages of process-oriented methodologies;
- Define and explain the term Yourdon methodology;
- Evaluate and discuss the Yourdon methodology in the context of a business scenario;
- Define and explain the abbreviation POEM;
- Evaluate and discuss the POEM methodology in the context of a business scenario.

7.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

7.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

7.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘process-oriented IS methodology’
- Identification of the types of process-oriented IS methodologies
- Identification of the advantages of process-oriented IS methodologies
- Identification of the disadvantages of process-oriented IS methodologies
- A definition and explanation of the Yourdon methodology
- Yourdon in the context of a business scenario
- Evaluation of Yourdon
- A definition and explanation of the POEM methodology
- POEM in the context of a business scenario
- Evaluation of POEM

7.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 6: This slide provides a definition of the term ’process-oriented methodoly’.

Slide 7: This slide asks the students what methodology they think is siimilar to the one described on Slide 6.

Slide 8: This slide lists the main process-oriented methodologies.

Slide 9: This slide states the type of project/organisation that the application of a process-oriented methodology is best applied to.

Slides 10-12: These slides list the advantages of using a process-oriented methodology. You could try to elicit some of the advantages from students before showing the slides.

Slides 13-14: These slides list the disadvantages of using a process-oriented methodology. Again, you may invite students to suggest some disadvantages before showing the slides.

Slide 15: This slide describes the main features of the Yourdon methodology.

Slide 16: This slide states the type of project/organisation that the application of the Yourdon methodology is best applied to.

Slide 17: This slide provides a definition of POEM and describes what is meant by the terms ’enterprise model’, ’static model’ and ’dynamic model’

Slide 18: This slide provides further explanation of static and dynamic enterprise models. You can ask the students if they can provide examples of such models, e.g. a static model is a view of the organisation’s processes at a particular moment in time (e.g. the number of employees); a dynamic model refers to a view of the organisation that changes over time (e.g. customer orders increasing or decreasing and so affecting the manufacturing/distribution processes). Ask them to write down any examples that other students may suggest.

Slide 19: This slide expands on the above explanations to include a description of the purpose of process-oriented eneterprise models.

Slide 20: This slide explains the term process-oriented models and their purpose in aiding the analysis of an information system. You can ask the students if they can think of examples of business processes, business roles and responsibiilities and the relationships between them.

Slide 21: This slide refers to a Process map Diagram that an analyst can produce as a result of their analysis. Inform the students that they will look at this in more detail in their seminar/private study time.

Slide 22: This slide presents an evaluation of POEM and emphasises that it attempts to blend a soft methodology with a hard methodology to focus on the needs of both the organisation processes and those who are responsible for working with them.

Slide 23: References.

Slide 24: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

7.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. Once students have prepared their presentations, join 2 or 3 groups together and ask them to give their presentations. The other students should take notes to augment their own information and ask questions as necessary. You may also want to hold a whole class feedback session on appropriate presentation content.

Activity 1: Management Information Systems Analysis

Prepare a presentation that explains how the analysis of a management information system might benefit from a process-oriented methodology being applied. Note that Activity 2 below should also be included in your presentation.

Suggested Answer:

This would include:

- A definition of a MIS and process-oriented methodology
- Reference to a hard approach
- Aspects of an MIS and the considerable number of processes that are involved
- Reference made to the highly-structured approach of a process-oriented methodology such as SSADM, Yourdon
- Benefits of the methodology

Activity 2: Hard v Soft Approach

Include in your presentation the advantages and disadvantages of taking either a hard approach or a soft approach to the analysis of the above system. Also, consider if it would it be suitable to use a combined approach and if so, include the reasons why it would be suitable.

Suggested Answer:

Reference would be made to a definition of all three approaches and each aspect of an MIS considered and assessed according to which approach would be more appropriate, e.g. would DFDs be more useful to construct than rich pictures, etc. The size of the system might also be discussed as a factor, as would the number of staff involved.

7.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: POEM

Write a report for your manager that explains the purpose of POEM and the benefits of using it.

Suggested Answer:

This should include:

- A definition of POEM
- An explanation of what it can be used for
- Reference to the fact that it is highly structured and organised, offers static and dynamic views, etc.
- Examples of the types of information systems that it could be applied to

Exercise 2: Process Mapping

Explain what is meant by process mapping and provide examples of how this tool can be applied.

You may find the following article useful for your research:

- The CPS Activity Based Costing Team. (2011). *A Guide to Process Mapping and Improvement.* [Available Online] http://www.cps.gov.uk/publications/finance/process_mapping.html

Suggested Answer:

This should include:

- A definition
- An explanation of what it can be used for
- A description of the notation
- At least one example of a process map

7.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. You may also want to collect in students' reports for marking and more formal feedback. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Process Mapping, DFD and Rich Picture

Write down which of the above you have found the easiest to construct and explain your reasons why. Ensure that you make at least one comment about each technique in your answer. Compare your response with the other students.

Topic 8: Object-Oriented Methodologies

8.1 Learning Objectives

This topic provides an overview of the types of object-oriented Information Systems methodology, object-oriented terminology, the construction of such a methodology, its advantages and disadvantages, its role in a business scenario and its evaluation.

On completion of the topic, students will be able to:

- Define and explain the term ‘object-oriented IS methodology’;
- Identify the types of object-oriented IS methodologies;
- Define and explain terminology associated with an object oriented IS methodology;
- Illustrate the construction of an object-oriented IS methodology;
- Identify and discuss the advantages of object-oriented IS methodologies;
- Identify and discuss the disadvantages of object-oriented IS methodologies;
- Evaluate and discuss an object-oriented IS methodology in the context of a business scenario.

8.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

8.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

8.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term ‘object-oriented IS methodology’
- Identification of the types of object-oriented IS methodologies
- Definition and explanation of the terminology associated with an object oriented methodology
- Illustration of the construction of an object-oriented methodology
- Identification of the advantages of object-oriented methodologies
- Identification of the disadvantages of object-oriented methodologies
- Object-oriented methodology in the context of a business scenario
- Evaluation of object-oriented methodology

8.4.1 Guidance on the Use of the Slides

Slides 2-5: Aims and learning outcomes for this topic.

Slide 6: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 7: This slide provides a definition of the term ‘object-oriented methodology’. You should inform the students that because this topic is covered in detail in a separate module at Level 5, this topic will only provide an overview of its use in the analysis of information systems.

Slide 8: This slide explains that although there are a number of object-oriented tools and techniques, there are only three methodologies that can be used for analysis purposes. You can point out to the students that this topic will focus on the Object Modelling Technique and how it can be applied to analysing an information system.

Slide 9: This slide states the type of project/organisation that the application of an object-oriented methodology is best applied to.

Slide 10: This slide explains that when OMT is used the analyst produces three types of diagram to convey their findings and to aid contruction of a model of the whole system. When problems in the information system are highlighted, this is then discussed with the management.

Slide 11: This slide descibes the three types of model that the analyst is required to produce during the course of the analysis stage.

Slide 12: This slide explains the steps involved when undertaking object-oriented analysis. You need to emphasise to the students that the model constructed by the analyst illustrates what the system is meant to do rather than how it will do what it is meant to do.

Slide 13: This slide explains what is meant by the terms ‘objects’ and ‘attributes’. Before you reveal the examples you could ask the students if they can think of any and to write down any correct ones, in addition to the ones listed..

Slide 14: This slide explains what is meant by the terms ‘’classes’ and ‘object types’. Before you reveal the example you could ask the students if they can think of any and to write down any correct ones in addition to the one listed.

Slide 15: This slide explains what is meant by the term ‘inheritance’. Before you reveal the example you could ask the students if they can think of any and to write down any correct ones in addition to the one on the slide.

Slide 16: This slide then states how the analyst documents the findings and draws up a requirements specification prior to the design process.

Slides 17-18: These slides discuss the advantages of using an object-oriented analysis methodology. You could ask the students if they agree with these suggestions based on what they have learned so far and if they have any suggestions of their own.

Slide 19: This slide discusses the disadvantages of using an object-oriented analysis methodology. You could try to elicit disadvantages from the students before showing the slide and ask the students if they agree with these suggestions based on what they have learned so far and if they have any suggestions of their own.

Slide 20: References.

Slide 21: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

8.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks. Encourage students to complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Objects, Attributes and Classes

In your group, identify the objects, attributes and classes of the Patients' Records Information System. Identify the appropriate methods for each object and the relationships between them and construct an object model that illustrates the system.

Suggested Answer:

The students' models will vary but should ensure that:

- Each object should have an name
- A description of the data associated with it
- A description of what can be done with it
- Objects include: ward, bed, patient, nurse, patient chart, patient form, reception, Data Entry Staff, Manager, Data Records Department, Administration Department and the relationships between them should be identified
- Methods should include the allocation of a form to a patient, a patient to a ward, a form to a department, a nurse to a patient, a nurse to a form, etc.

Activity 2: OOA

Prepare a presentation that explains how OOA helps to improve the analysis of an information system. You should also refer to any limitations that you think this method has and why. Describe how you think it compares to other techniques, such as DFDs and rich pictures, conceptual modelling, etc.

Suggested Answers:

Answers should include:

- A definition of OOA
- Its purpose in applying it to analysis
- Examples of how it could be used
- Its benefits
- Its disadvantages
- Comparison to DFDs, etc.

8.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: Use Case

Write a report to your manager that explains the Use Case and its use as a technique in OOA. Illustrate how the UK City Hospital Patients' Records Information System could benefit from it.

You may find the following article useful during your research:

- Gatherspace.com (2011). *Writing Effective Use Case and User Story Examples*. [Available Online] http://www.gatherspace.com/static/use_case_example.html

Suggested Answer:

Student's answers will vary but they should include:

- A definition of Use Case
- Its purpose
- Advantages
- Disadvantages
- Illustration of the system at UK City Hospital

Exercise 2: OOA and SSADM

Write a report that describes the main differences between OOA and SSADM.

Suggested Answer:

It should include reference to:

- Their overall approaches – structured, sequential or otherwise
- What tools/techniques are used in each
- How the tools/techniques are applied
- Examples of tools and techniques
- User involvement
- Socio-technical considerations
- Overall efficiency

8.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. You may also want to collect in copies of the students' reports for marking and more formal feedback. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Object Model for an Internet Company

Identify the objects, attributes and classes of an Internet company. Identify the appropriate methods for each object and the relationships between them and construct an object model that illustrates the system.

Suggested Answer:

The students' models will vary but should ensure that:

- Each object should have an name
- A description of the data associated with it
- A description of what can be done with it
- Objects include: customer, order, supplier/warehouse etc. and the relationships between them should be identified
- Methods should include the allocation of an order to a customer, an invoice to a customer etc.

Topic 9: Analytical Techniques for Understanding a Complex Organisational Environment

9.1 Learning Objectives

This topic provides an overview of the meaning of a knowledge-based view of organisations, the purpose and potential of PEST and the purpose and potential of SWOT.

On completion of the topic, students will be able to:

- Define and explain the term ‘knowledge-based view of organisations’;
- Define and explain the abbreviation PEST;
- Demonstrate how PEST can be used;
- Apply PEST to a business scenario;
- Define and explain the abbreviation SWOT;
- Demonstrate how SWOT can be used;
- Apply SWOT to a business scenario.

9.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar sessions and tutorial sessions. Private study will be used to reinforce student learning.

9.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

9.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- A definition and explanation of the term 'knowledge-based view of organisations'
- Identification of the advantages of an organisation-oriented methodology
- Identification of the disadvantages of an organisation-oriented methodology
- A definition and explanation of SWOT
- How SWOT can be used
- The application of SWOT to a business scenario
- A definition and explanation of PEST
- How PEST can be used
- The application of PEST to a business scenario

9.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slides 6-9: These slides describes the term 'knowledge-based view' and emphasise the importance of an organisation's knowledge; that this is one of its most important resources. You can ask the students if they understand the terms 'explicit' (obvious, used everyday, stored and easily communicated, e.g. manuals, procedures, etc.) and 'tacit' (often having an unknown location, usually held by an individual, often ideas, can be difficult to transfer/communicate with others).

The term 'core competency' (important capability) is introduced and you should check that the students understand this term.

An analyst will need to identify any problems in an organisation's knowledge base and know if the organisation is exploiting the knowledge base to its full advantage.

Slide 10: This slide states the importance of an organisation managing its knowledge base and describes the main factors that it needs to be aware of. You can inform the students that they will be considering this in more detail in their private study time.

Slide 11: This slide explains that a combined approach to analysis might be used to gather information about an organisation's knowledge base and in addition, techniques such as PEST and SWOT can be used here

Slide 12: This slide explains the meaning of PEST and describes the four factors that are part of this technique. Before you reveal the explanations for each of the factors, you could ask the students for their ideas as to what they think might be meant by politcal, economic, social and technological factors.

Slide 13: This slide states that PEST can also be used to analyse and undertsand aspects such as an organisation's knowkedge base.

Slide 14: This slide explains the importance of identifying what a PEST analysis is meant to help achieve.

Slide 15: This slide describes how PEST can be applied and how all participants need to be informed of its purpose. You can inform the students that they will be looking at PEST in more detail in their seminar and private study sessions.

Slides 16-17: These slides define and explain the purpose of a SWOT analsyis and its usefulness.

Slide 18: This slide describes what could be meant by the strengths of an organisation. Before you reveal the examples you could ask the students if they can think of any strengths and to write down any correct ones in addition to the ones listed.

Slide 19: This slide describes what could be meant by the weaknesses of an organisation. Before you reveal the examples you could ask the students if they can think of any weaknesses and to write down any correct ones in addition to the ones listed.

Slide 20: This slide describes what could be meant by the opportunities an organisation may have. Before you reveal the examples you could ask the students if they can think of any opportunities and to write down any correct ones in addition to the ones listed.

Slide 21: This slide describes what could be meant by the threats that an organisation may face, both internally and externally. Before you reveal the examples you could ask the students if they can think of any threats and to write down any correct ones in addition to the ones listed.

Slide 22: This slide illustrates how findings from the SWOT analysis can be documented.

Slide 23: This slide describes how SWOT can also be used for matching and converting and describes what is meant by each of these terms. You could ask the students if they can think of any examples of matching or converting and to write down any correct ones in addition to the ones listed. You can inform the students that they will be looking at PEST in more detail in their seminar and private study sessions

Slide 24: This slide refers to CATWOE, already discussed in Topic 5, and refers to how it could also be useful when used to gather information about an organisation's knowledge base.

Slide 25: References.

Slide 26: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

9.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: SWOT Analysis

In your group produce a SWOT analysis for the UK City Hospital.

Suggested Answer:

Strengths	Weaknesses
• A committed manager • A committed staff • Some staff have considerable IT experience	• Duplication and distribution of patients' data is an issue • Potential inaccuracies in patients' data • Potential loss of patients' data • Delays in information retrieval • Takes up nurses' time • Lack of communication between departments • Lack of adherence to data protection legislation
Opportunities	**Threats**
• Could develop a new system • The manager has identified problems with the current system • Could improve communication between departments	• Could contravene data protection laws • Patients' data could be lost • Patients' data could be viewed by unauthorised people • Patients' data could be inaccurate • Possible negative publicity that could affect the hospital's reputation (and so lower staff morale)

Activity 2: SWOT ANALYSIS Purpose and Benefits

Prepare a presentation for the manager at the hospital that explains the purpose and expected benefits of investing in a SWOT analysis.

Suggested Answer:

Answers should clearly outline why an analyst might choose to use this technique and list its advantages. You may want students to give these presentations to other groups who act as the hospital manager (intended audience) and ask questions. Alternatively, one or two groups could be selected to present their ideas to the whole class.

Activity 3: SWOT Analysis and Transaction Processing System

Explain how using a SWOT analysis would benefit a large organisation that wanted to develop a new transaction processing system.

Suggested Answer:

The key point in this answer would be the emphasis on the fact that exploiting strengths and opportunities could improve the organisation's customer base due to increased efficiency. It could also raise job satisfaction and staff morale.

9.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: Knowledge-Based View of an Organisation

Explain why it is vital that an organisation ensures that it knows how to locate, develop, share and retain its knowledge.

You may find the following article useful for your research:

- Zack, M. (2003). Rethinking the Knowledge-Based Organisation. *Sloan Management Review*, **44** (4), p66-77 [Available Online] http://web.cba.neu.edu/~mzack/articles/kbo/kbo.htm

Suggested Answer:

This should include reference to:

- Knowledge being a core competency
- Used for strategic planning, competitive analysis, in response to legal requirements, to improve/increase services etc.
- Increases competency, efficiency, innovation etc.
- Aids decision-making, training etc.

Exercise 2: Knowledge Management Information Systems

Write a report to your manager that explains the purpose and importance of a knowledge management information system. Refer to the problems of establishing such a system but why it is necessary.

You may find the following articles helpful:

Robertson, J. (2005). *10 Principles for Effective Information Management.* [Available Online] http://www.steptwo.com.au/papers/kmc_effectiveim/index.html

Petrides, L. (2004). Knowledge Management, Information Systems and Organisations. EDUCAUSE *Research Bulletin*, **20**. [Available Online] net.educause.edu/ir/library/pdf/ERB0420.pdf

Suggested Answer:

This should include reference to:

- A definition
- Examples of what such systems can be used for
- An acknowledgement of the considerable range of business needs to be met (with examples provided)
- Reference to the substantial number of information management problems that need to be addressed (with examples provided)
- Reference to the benefits of developing such a system

9.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Tacit Knowledge Gathering

Write down some of the methods that a systems analyst might use to gather tacit knowledge at an organisation.

Suggested Answer:

This will include reference to:

- Interviewing
- Observation
- Focus Groups
- Questionnaires

Topic 10: Analysis of Factors Influencing a Business Problem

10.1 Learning Objectives

This topic provides an overview of the economic, social, political and technical aspects of a business systems problem and an evaluation of these aspects in the context of potential solutions.

On completion of the topic, students will be able to:

- Analyse the economic aspects of a business systems problem;
- Evaluate and discuss the economic aspects of a business systems problem in the context of potential solutions;
- Analyse the social aspects of a business systems problem;
- Evaluate and discuss the social aspects of a business systems problem in the context of potential solutions;
- Analyse the political aspects of a business systems problem;
- Evaluate and discuss the political aspects of a business systems problem in the context of potential solutions;
- Analyse the technical aspects of a business systems problem;
- Evaluate and discuss the technical aspects of a business systems problem in the context of potential solutions.

10.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

10.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

10.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- Analysis of the economic aspects of a business systems problem
- Evaluation of the economic aspects of a business systems problem in the context of potential solutions
- Analysis of the social aspects of a business systems problem
- Evaluation of the social aspects of a business systems problem in the context of potential solutions
- Analysis of the political aspects of a business systems problem
- Evaluation of the political aspects of a business systems problem in the context of potential solutions
- Analysis of the technical aspects of a business systems problem
- Evaluation of the technical aspects of a business systems problem in the context of potential solutions

10.4.1 Guidance on the Use of the Slides

Slides 2-4: Aims and learning outcomes for this topic.

Slide 5: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slides 6-7: These slides explain that political, economic, social, technological, legal and environmental factors can affect an organisation on a local, regional and/or global basis.

Slide 8: This slide describes how economic factors can cause problems for an organisation. Discuss each factor and ensure that the students understand what is meant by each factor.

Slide 9: This slide presents examples of economic factors that might prove problematic. Before you reveal the examples you could ask the students if they can think of any examples and to write down any correct ones in addition to the ones listed.

Slide 10: This slide describes what types of organisations can be affected by economic problems and asks students if they can think of local, regional or global organisations that have been affected by such problems. Ask them to write down any correct examples that other students may suggest.

Slide11: This slide describes the need for an analyst to undertake a thorough analysis in order to identify any economic issues/problems, document their findings and produce a requirements specification that recommends a feasible solution or solutions..

Slide 12: This slide describes how social factors can be problematic for organisations. Each factor should be discussed. You should ensure that the students understand what is meant by each one.

Slide 13: This slide presents examples of social factors that can be problematic. Before revealing the examples you could ask the students if they can think of examples and to write down any correct ones suggested that aren't included in the list.

Slide 14: This slide describes what types of organisations can be affected by social issues and asks students if they can think of local, regional or global organisations that have been affected by such issues. Ask them to write down in their notes any correct examples that other students may suggest.

Slide 15: This slide describes how an analyst needs to undertake a thorough analysis in order to identify any social issues/problems; they should also document their findings and produce a requirements specification that recommends a feasible solution or solutions.

Slide 16: This slide describes how the influence of political factors can cause problems for an organisation. Each factor should be discussed and you should and ensure that the students understand the meaning of each factor.

Slide 17: This slide presents examples of such political factors. Before you reveal these examples ask the students if they can list any and instruct them to write down any correct ones in addition to the examples shown.

Slide 18: This slide describes the types of organisations affected by political problems and asks students to discuss local, regional or global organisations that have been affected by such issues. Instruct them to write down any relevant examples suggested.

Slide 19: This slide describes how an analyst needs to undertake a thorough analysis to identify political issues and how they should document their findings and produce a requirements specification recommending a feasible solution or solutions.

Slide 20: This slide describes how technological factors can cause problems for an organisation. Discuss each factor and ensure that the students understand what is meant by each factor.

Slide 21: This slide presents examples of problematic technological factors. Ask the students if they can think of any examples before you reveal them and to write down any correct examples that are not already listed.

Slide 22: This slide states the types of organisations can be affected by technological problems and asks the students to consider and discuss local, regional or global organisations that have been affected by technological problems. You should ask them to write down any correct examples that have been discussed.

Slide 23: This slide states that an analyst needs to identify any technological issues/problems and document their findings. He/she should then produce a requirements specification that recommends a feasible solution/s..

Slide 24: References.

Slide 25: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

10.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. They may need access to the Internet or a suitable library to complete the tasks. Encourage students to complete as much of the task as possible from their existing knowledge and understanding before researching any additional answers.

You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: PEST

In your group complete the following PEST analysis for the UK City Hospital and explain how any factors you identify might influence development of the information system.

Political Factors	Economic Factors	Social Factors	Technical Factors

Suggested Answer:

Answers will be varied but should include as a minimum the following:

Political Factors	Economic Factors	Social Factors	Technical Factors
• Data Protection law – threats to patients' privacy of data will influence the need for change	• There may not be enough finance available to develop a new system	• Some patients might be concerned about their data	• Staff may need training in new systems
• Government regulations might demand change	• There may not be enough finance available to operate and maintain a new system	• Staff may be reluctant to changes in working practices	• Technical staff may need to be employed

	• There may not be enough finance to employ technical staff	• The media might provide adverse publicity about the existing system	
		• Staff may be afraid of losing their jobs	

Activity 2: Local, regional and global companies influenced/affected by PEST factors

Write a short report that explains which local, regional and/or global companies have been affected by PEST factors.

You may find the following websites useful for sourcing information:

- http://money.cnn.com/magazines/fortune/global500/2011/
- http://www.global100.org/

Political Factors	Economic Factors	Social Factors	Technical Factors

Suggested Answer:

Answers will vary, particularly if they focus on a local and regional level.

- A number of companies cited may be those that have closed due to the fall in demand for their products (economic factors), some due to pressure group activities, e.g. for selling non-sustainable products (social and political factors)
- Others may have increased their business due to the closure of competing businesses, the increased demand for their product or service, the relocation of an organisation overseas etc.
- eCommerce companies increase their customer base
- Global companies can include Apple (success of the iPod, iPad) and the companies associated with producing these products

10.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: PEST

Read the information and try the PEST exercise on the website below:

http://marketingteacher.com/lesson-store/lesson-pest.html

Suggested Answer:

The answer is included on the website.

Exercise 2: Information Gathering and PEST

Explain how an analyst might gather the information for a PEST analysis and also the problems that he or she might face in obtaining this information.

Suggested Answer:

Answers should include interviews, questionnaires etc. and also make reference to the technique described on the above website. Problems faced include reluctance of an organisation to divulge certain information, availability of staff etc.

Further information is available from: http://www.marketing-intelligence.co.uk/help/Q&A/question24.htm

10.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Evaluation of PEST

Do you consider PEST to be a useful tool for analysis? Write down your thoughts and compare your answers with the other students.

Topic 11: Principles of Interface Design and the Requirements and Characteristics of Users that Motivate These

11.1 Learning Objectives

This topic provides an overview of the principles and good practice of interface design, analysis of the requirements and characteristics of interface users and how good interface design can address these requirements and characteristics.

On completion of the topic, students will be able to:

- Identify the principles and good practice of interface design;
- Analyse the requirements of the users of an interface;
- Analyse the characteristics of the users of an interface;
- Demonstrate how good interface design can address the requirements and characteristics of an interface user.

11.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

11.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

11.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- Identification of the principles and good practice of interface design
- Analysis of the requirements of the users of an interface
- Analysis of the characteristics of the users of an interface
- Demonstration of how good interface design can address the requirements of an interface user
- Demonstration of how good interface design can address the characteristics of an interface user

11.4.1 Guidance on the Use of the Slides

Slides 2-3: Aims and learning outcomes for this topic.

Slide 4: Inform the students that terminology will be explained in the lecture, seminar, and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slides 5-6: This slide presents the steps that a systems analsyst should ensure they work through when analysing an information system, with the view to developing a suitable interface.

Slide 7: This slide explains what factors have to be identified when defining a problem statement. You could ask the students to suggest what types of interfaces could be referred to (e.g. menu driven) and what sort of tasks the interface could be used for (e.g. data entry).

Slide 8: This slide lists the methods that the analyst could use to gather information about the current and proposed system. Before you reveal the examples, you could ask the students if they can name any methods and what kind of advantages or problems each one may have.

Slide 9: This slide describes the sort of data that is required to undertake analysis of the system users and focuses on demographic data. Before you reveal the examples of demographic data to the students, you could ask them if they can provide any examples and ask them to write down any correct examples in addition to those listed.

Slide 10: This slide describes the sort of data that is required to undertake analysis of the system users and focuses on work or work-related data. Before you reveal the examples of work or work-related data to the students, you could ask them if they can provide any examples and ask them to write down any correct examples in addition to those listed.

Slide 11: This slide provides examples of the proficiency levels of users and their position in the organisation. You could ask the students if a user's position in the organisation is also an indication of their proficiency using the interface (not necessarily so because it would depend on the frequency of use; what they used it to do and how long they had used it for).

Slide 12: This slide explains the factors that have to be addressed when the analyst undertakes a Task Analysis.

Slide 13: This slide refers to the users' goals and the need for descriptions of scenarios and the conditions under which users work. It also states that opportunities to support the users' work should be identified. You could ask the students if they can think of additional aids to support work, e.g. effective help features or software that can accommodate visually impaired users.

Slide 14: This slide introduces and explains the terms 'Task Decomposition', 'Knowledge-based Techniques' and 'Hierarchical Task Analysis' to aid information gathering.

Slides 15-17: These slides describe 'Hierarchical Task Analysis' technique and how it can be used to enable the analyst to define the users' goals and tasks thoroughly.

Slides 18-19 : These slides list a number of aspects that can be used to measure whether or not the user characteristics and requirements have been met. You can point out to the students that these factors will be evaluated further in Topic 12.

Slide 20: References.

Slide 21: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

11.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Portable Patients' Record Information System

The manager of the UK City Hospital is very interested in the possibility of developing a Portable Patients' Record Information System. Such a system would involve using a hand-held device with wireless capabilities that would allow a patient's data to be input to it, stored to a server, retrieved from the server and output to a printer. It would also allow reports on patient data to be generated. The interface design would be very important for this device as all levels of staff would have access to it at different levels.

What factors need to be taken into account before the design of this interface begins?

Suggested Answer:

Answers should include:

- The need for a definition of the problem statement and the relevant information gathered to do this
- Analysis of the type of user
- Analysis of the type of task
- A Requirements Specification needs to be drawn up

Activity 2: Undertaking Analysis

Undertake the above analysis for the UK city Hospital. Record your findings and present them to the other groups.

Suggested Answer:

Answers should make reference to:

- What system requires an interface
- What type of interface is needed
- What the interface will be used for
- Who will use it
- Users' experiences, skills, needs etc.
- Tasks to be undertaken

- Specification Requirements – match the interface/user/task needs

Activity 3: User Characteristics and Requirements

Explain what you consider to be the characteristics and requirements of the UK City Hospital users.

Suggested Answers:

Reference should be made to:

- the users' experiences;
- demographic data, for example age, gender, general educational level, position at the organisation, cultural background, any special requirements, technology training and knowledge, experience with similar systems/products;
- skills and knowledge, for example cognitive styles, skill sets, capabilities, proficiencies and their requirements for a suitable interface – easy to use, error free, good feedback;
- work or work-related factors, for example organisation-specific knowledge and experience, job characteristics, job familiarity, frequency of using technology, expertise level (novice, intermittent, frequent), familiarity with specific hardware and software, technology skill base such as using a keyboard, familiarity with interaction styles;
- are users experienced, new, executive, managerial, operational? An effective user interface should match the skills, experience and expectations of its users and be able to meet the needs of different types of users, as described above.

11.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: A Management Information System Interface

Write a report to your manager explaining how you will undertake the analysis of the development of a management information system user interface. Choose your own methodology and techniques.

Suggested Answer:

Student answers will vary but should include reference to:

- The type of analysis approach, e.g. hard, soft, combined and why you have chosen to use it
- The methodology
- The stages of the methodology
- The techniques used
- The documents produced and what they will document
- Tasks undertaken of the management information system
- A description of who uses it
- User requirements
- Task requirements
- Interface requirements

11.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. You may also like to collect in the students' reports for marking and more formal feedback. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Interface Types

Complete the table below including the advantages and disadvantages and examples of use of various types of interface:

Style of Interaction	Advantages	Disadvantages	Examples of where it can be used
Direct manipulation			
Menu selection			
Form fill-in			
Command language			
Natural language			

Suggested Answers:

Style of Interaction	Advantages	Disadvantages	Examples of where it can be used
Direct manipulation	• Fast • Intuitive • Easy to learn	• Can be hard to implement • Suitable only if there is a visual symbol for tasks	• CAD systems
Menu selection	• Avoids user error • Easy to use • Little typing required	• Can be complex if there are several layers	• Most general-purpose systems

Forms	• Simple data entry • Easy to learn • Checkable	• Takes up a lot of screen space • Causes problems where user options do not match the form fields	• Stock control • Goods ordering
Command language	• Powerful • Flexible	• Difficult to learn • Poor error feedback	• Operating systems • Command and control systems
Natural language	• Accessible to casual users • Easily extended	• Need to be trained • Natural language understanding systems are unreliable	• Information retrieval systems

Topic 12: Design or Evaluate an Interface with regard to the Requirements and Characteristics of its Users

12.1 Learning Objectives

This topic provides an overview of interface design that addresses the requirements and characteristics of an interface user, an evaluation of interface design principles and whether these principles address the requirements and characteristics of the interface user.

On completion of the topic, students will be able to:

- Design an interface that addresses the requirements and characteristics of an interface user;
- Evaluate and discuss whether interface design principles have been applied to an interface;
- Evaluate and discuss whether interface design principles have addressed the requirements and characteristics of an interface user;

12.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar and tutorial sessions. Private study will be used to reinforce student learning.

12.3 Timings

Lectures:	1 hour
Seminars:	3 hours
Private Study:	7.5 hours
Tutorials:	1 hour

12.4 Lecture Notes

The following is an outline of the material to be covered during the lecture time. Please also refer to the slides.

The structure of this topic is as follows:

- An introduction to the topic
- Learning outcomes
- Terminology
- Design of an interface that addresses the requirements and characteristics of an interface user
- An evaluation of whether interface design principles have been applied to an interface
- An evaluation of whether interface design principles have addressed the requirements of an interface user
- An evaluation of whether interface design principles have addressed the characteristics of an interface user

12.4.1 Guidance on the Use of the Slides

Slides 2-3: Aims and learning outcomes for this topic.

Slide 4: Inform the students that terminology will be explained in the lecture, seminar and tutorial sessions. Request that students use these sessions to ask any questions they have and ask them to write down any correct examples that other students may suggest.

Slide 5: This slide describes the purpose of evaluation and emphasises that the factors of functionality, performance and reliability must be taken into account when evaluating a user interface.

Slide 6: This slide explains that a user acceptance test is required and a HCI evaluation assessment when evaluating an interface.

Slide 7: This slide lists the usability goals that are required to be included when testing the interface's usability.

Slide 8: This slide lists the user experience goals that are required to be evaluated when testing the interface's usability. You could ask the students to describe any interfaces that they think are aesthetically pleasing to them, enjoyable to use, motivating, engaging and that they feel are reliable. What are the factors they mention and the reasons for their choices (e.g. easy to use, error free, choice of colours etc)?

Slides 9-10: These slides present the various methods that can be used when evaluating user interface. Some involve the actual users of the system , some do not.

Slides 11-12: These slides describe the heuristic evaluation method

Slide 13: This slide describes the criticisms that have been made of the heuristic method. You could try to elicit possible critisisms before showing the slide and ask the students if they think that these criticisms are justified.

Slides 14-16: These slides present evaluation documentation, such as an Evaluation Checklist and an Evaluation Assessment. You could ask the students what factors they would add to the Evaluation checklist (e.g motivate, guide) and to the Evaluation Assessment (e.g. qualifications and ask them to write down any correct examples that other students may suggest.

Slide 17: This slide emphasises the need for a robust evaluation of an interface because if the users are not satisfied with it, it can affect the information system's efficiency.

Slide 18: This slide lists some of the benefits of robust interface evaluation. Before you reveal the examples, you could ask the students what benefits they think it would bring to the organisation as well as the user. Ask them to write down any correct examples that other students may suggest.

Slide 19: References.

Slide 20: Ask the students if they have any questions. Remind them that if they come across information that they are unsure about, they will have an opportunity to ask about it during the tutorial and seminar sessions.

12.5 Seminar Notes

The time allocation for the seminars for this topic is 3 hours.

Lecturer's Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not given in their guide.

Students should work in small groups of 2 or 3 throughout the seminar sessions. You will also need to allow time for feedback on each exercise and encourage students to take notes of additional correct answers suggested by other groups.

Activity 1: Design the User Interface for the UK City Hospital Portable Patients' Records Information system

In your group, prepare a design (on paper or computer) of the User Interface for the UK City Hospital Portable Patients' Records Information system.

Suggested Answers:

The design should include as many of the criteria by which it will be evaluated as possible. If it is designed on paper, students can make reference to possible error message feedback etc. The important aspect is that they convey a feel for how the interface would look and operate.

- Functionality - does it satisfy the task requirements?
- Usability goals – is it free from errors, efficient, easy to learn, easy to recall, easy to use?
- User experience goals
- Simple language
- Simple directions
- Is it easily recalled?
- Is there consistency?
- Is feedback provided and in what form?
- Are there clearly marked exits?
- Are there shortcuts?
- Are there clear and relevant error messages?
- Is it error free?
- Is it aesthetically pleasing?
- Is it motivating?
- Is it engaging?

Activity 2: Evaluation Checklist/Assessment

Produce a checklist/assessment of the criteria that you will use to evaluate the interface designs of your own and other group's interfaces.

Suggested Answer:

- Functionality - does it satisfy the task requirements?
- Usability goals – is it free from errors, efficient, easy to learn, easy to recall, easy to use?
- User experience goals
- Simple language
- Simple directions
- Is it easily recalled?
- Is there consistency?
- Is feedback provided and in what form?
- Are there clearly marked exits?
- Are there shortcuts?
- Are there clear and relevant error messages?
- Is it error free?
- Is it aesthetically pleasing?
- Is it motivating?
- Is it engaging?

12.6 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturer's Notes:

Students have copies of the private study exercises in the Student Guide. Answers are not provided in their guide.

Students are also expected to use private study time to revise the content of the topic and come to the tutorial with any questions or queries.

Exercise 1: Design a Management Information Systems Interface

Design (on paper or computer) a user interface for a management information system.

You may find the following article useful:

- Hinze-Hoare, V. (2007). *Review and Analysis of Human Computer Interaction (HCI) Principles.* [Available Online] http://arxiv.org/ftp/arxiv/papers/0707/0707.3638.pdf

Suggested Answer:

The design should include as many of the criteria by which it will be evaluated as possible. If it is designed on paper, students can make reference to possible error message feedback etc. The important aspect is that they convey a feel for how the interface would look and operate.

- Functionality - does it satisfy the task requirements?
- Usability goals – is it free from errors, efficient, easy to learn, easy to recall, easy to use?
- User experience goals
- Simple language
- Simple directions
- Is it easily recalled?
- Is there consistency?
- Is feedback provided and in what form?
- Are there clearly marked exits?
- Are there shortcuts?
- Are there clear and relevant error messages?
- Is it error free?
- Is it aesthetically pleasing?
- Is it motivating?
- Is it engaging?

Exercise 2: User Interface Evaluation

What two interface evaluation techniques would you recommend be used to evaluate an interface and what are the reasons for your choices?

You may find the information in the following articles useful:

- Jeffries, R., Miller, J., Wharton, C. and Uyeda, K. (1991) User Interface Evaluation in the RealWorld: A Comparison of Four Techniques. Proceedings ofCHI'91 (ACM Computer Human Interaction), New Orleans, April 28-May 3, 1991/ [Available Online] http://www.hpl.hp.com/techreports/91/HPL-91-03.pdf
- Zazelenchuk, T. (2006). *Heuristic Evaluation and Its Alternatives.* [Available Online] http://www.userfocus.co.uk/articles/heuristics.html

Suggested Answers:

Student answers will vary but whatever two techniques they recommend, they must explain their choices clearly.

Exercise 3: Revision

Review the material for the module. You should bring any specific questions about the module and revision for the examination to the tutorial session.

12.7 Tutorial Notes

The time allowance for tutorials in this topic is 1 hour.

Lecturer's Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

Students should be encouraged to share their answers to the private study tasks. This includes an opportunity for students to raise any last questions they may have about the module. You may like them to do this in small groups before a whole group plenary, depending on the needs and size of your class. They can then work in groups to complete Exercise 2.

Exercise 1: Review of Private Study Exercises

Review your solutions to each exercise undertaken during private study and take the opportunity to discuss any problems you encountered.

Exercise 2: Evaluation of User Interfaces

Evaluate your own group's interface (UK City Hospital) and those of other groups and note how they compare. Document any differences.