



education

Department:
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REPUBLIC OF SOUTH AFRICA

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SUBJECT GUIDELINES

SYSTEMS ANALYSIS AND DESIGN NQF level 3

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SYSTEMS ANALYSIS AND DESIGN – LEVEL 3

CONTENTS

INTRODUCTION

1 DURATION AND TUITION TIME

2 SUBJECT LEVEL FOCUS

3 ASSESSMENT REQUIREMENTS

3.1 Internal assessment

3.2 External assessment

4 WEIGHTED VALUES OF TOPICS

5 CALCULATION OF FINAL MARK

6 PASS REQUIREMENTS

7 SUBJECT AND LEARNING OUTCOMES

7.1 Concepts associated with systems analysis and development

7.2 Data processing, IT, business support and control systems.

7.3 Information systems departments in business organisations.

7.4 Acquisition of computer technology.

7.5 Information systems planning and strategy

7.6 Preliminary investigation in a systems development life cycle (SDLC).

8 RESOURCE NEEDS FOR THE TEACHING OF SYSTEMS ANALYSIS & DESIGN LEVEL 3

8.1 Physical resources

8.2 Human resources

8.3 Other resources

INTRODUCTION

A. What is Systems Analysis and Design?

Systems Analysis and Design introduces the student to the first important steps to the analysis of organisational systems.

B. Why is the subject important in the Information Technology programme?

Systems Analysis and Design forms a solid foundation enabling students to build on this base as they move onto the next levels of this qualification and in particular Systems Analysis and Design Level 4.

C. The link between the Systems Analysis and Design Learning Outcomes and the critical and developmental outcomes

The learner will be able to identify and solve problems, collect, analyse, organise, critically evaluate information that is related to information systems. The student will also be able to demonstrate an understanding of the world as a set of related systems by recognizing problem solving contexts do not exist in isolation.

D. Factors that contribute to achieving the Systems Analysis and Design Learning Outcomes

- The ability to think logically and analytically, as well as holistically and laterally; and
- Be able to transfer skills from familiar to unfamiliar situations
- Keen powers of observation
- Meticulous
- Interest in computers and related topics

1 DURATION AND TUITION TIME

This is a one year instructional programme comprising 200 teaching and learning hours. The subject may be offered on a part-time basis provided the candidate meets all the assessment requirements.

Course preparation should consider students with special education needs.

2 SUBJECT LEVEL FOCUS

The learner must be able to identify and describe information technology systems life cycle.

3 ASSESSMENT REQUIREMENTS

3.1 Internal assessment (50 percent)

3.1.1 Theoretical Component

The theoretical component will form 40 percent part of internal assessment.

Internal assessment of the theoretical component of Systems Analysis and Design NQF Level 3 will take the form of observation, class questions, group work, (informal group competitions with rewards), individual discussion with students, class, topic and semester tests, and internal examinations. Daily observation can be done when marking exercises of the previous day and class questions.

Assignments, case studies and test can be done at the end of a topic. Tests and internal examinations must form part of internal assessment.

3.1.2 Practical/Application Component

Practical component includes applications and exercises.

All practical components must be indicated in a Portfolio of Evidence (PoE).

The practical component will form 60 percent part of internal assessment.

Internal assessment of the practical component of Systems Analysis and Design NQF Level 3 will take form of assignments, practical exercises, case studies, practical examination in a simulated business environment.

Students may complete practical exercises on a daily basis. Assignments and case studies can be done at the end of a topic. Practical examination can form part of internal practical assessment.

- **Some examples of practical assessments include, but are not limited to:**

- Presentations (lectures, demonstrations, group discussions and activities, practical work, observation, role play, self activity, judging and evaluation)
- Use of aids
- Exhibitions
- Visits
- Guest speaker presentations
- Research
- Task performance in a simulated/structured environment

- **Definition of 'structured environment'**

Structured environment for the purposes of assessment refers to an actual or simulated workplace, or workshop environment.

- **Evidence in practical/application assessments**

All evidence pertaining to evaluation of practical work must be reflected in the students' PoE. The tools and instruments constructed and used for the purpose of conducting such assessments must be clear from evidence contained in PoE.

3.1.3 Processing of internal assessment mark for the year

A year mark out of 100 is calculated by adding the marks of the theoretical component and the practical component of the internal continuous assessment.

3.1.4 Moderation of internal assessment mark

Internal assessment is subjected to both internal and external moderation procedures as contained in the National Examinations Policy for FET College Programmes.

3.2 External assessment (50 percent)

A national examination is conducted annually in October or November by means of a paper set externally and marked and moderated internally.

Details in respect of external assessment are contained in the *Assessment Guidelines: Systems Analysis and Design* (Level 3).

4 WEIGHTED VALUES OF TOPICS

TOPICS	WEIGHTED VALUE
1. Concepts associated with systems analysis and development	10%
2. Data Processing, IT, Business Support and Control Systems	10%
3. Information systems departments in business organisations	15%
4. Acquisition of computer technology	15%
5. Information systems planning and strategy	30%
6. Preliminary investigation in a systems development life cycle (SDLC)	20%
TOTAL	100

5 CALCULATION OF FINAL MARK

Continuous assessment: Student's mark/100 x 50/1 = a mark out of 50 (a)

Theoretical examination mark: Student's mark/100 x 50/1 = a mark out of 50 (b)

Final mark: (a) + (b) = a mark out of 100

All marks are systematically processed and accurately recorded to be available as hard copy evidence for, amongst others, purposes of moderation and verification, as well as for purposes of reporting.

6 PASS REQUIREMENTS

The student must obtain at least fifty (50) percent in ICASS and fifty (50) percent in the examination.

7 SUBJECT AND LEARNING OUTCOMES

On completion of Systems Analysis and Design Level 3 the student should have covered the following topics:

- Topic 1: Concepts associated with systems analysis and development
- Topic 2: Data processing, IT, business support and control systems
- Topic 3: Information systems departments in business organisations
- Topic 4: Acquisition of computer technology
- Topic 5: Information systems planning and strategy
- Topic 6: Preliminary investigation in a systems development life cycle

7.1 Topic 1: Concepts associated with systems analysis and development

7.1.1 Subject Outcome 1: Explain the origin of information systems development.

Learning Outcomes

The student should be able to:

- Explain the term system.
- Identify different types of systems found in an organisation.
- Outline the characteristics of systems.
- Identify the objectives of systems development.
- Identify different ways in which information systems can be developed.
- Identify the reasons why systems development could fail.

7.1.2 Subject Outcome 2: Describe systems development life cycle (SDLC).

Learning Outcomes

The student should be able to:

- Identify the characteristics of systems development life cycle.
- Identify the different stages in systems development life cycle.
- Identify different types of systems development life cycles.
- Identify different approaches to systems development.

7.1.3 Subject Outcome 3: Describe structured development techniques.

Learning Outcomes

The student should be able to:

- Identify structured development techniques.

7.2 Topic 2: Data processing, IT, business support and control systems.

7.2.1 Subject outcome 1: Describe data processing systems.

Learning Outcomes

The student should be able to:

- Define the term data processing.
- Explain the nature and purpose of data processing.
- Identify different data processing operations.
- Identify data processing activities performed by data processing systems.

7.2.2 Subject Outcome 2: Explain the difference between accounting systems and total information systems.

Learning Outcomes

The student should be able to:

- Explain the term accounting system.
- Explain the term accounting information systems (AIS).
- Explain the term total information system.

7.2.3 Subject Outcome 3: Explain the different support systems within a business organisation.

Learning Outcomes

The student should be able to:

- Describe the term transaction support system.
- Explain the purpose of an operational support system.
- Explain the purpose of office automation systems (OAS).
- Identify different support systems supporting management information systems (MIS).

7.2.4 Subject Outcome 4: Describe the different control systems within an organisation.

Learning Outcomes

The student should be able to:

- Explain the primary objective of control within an organisation.
- Identify the broad purposes of control and security systems.
- Identify control systems within an organisation.

7.3 Topic 3: Information systems departments in business organisations.

7.3.1 Subject Outcome 1: Describe the role of information system (IS) departments in organisations

Learning Outcomes

The student should be able to:

- Identify the roles that are typically found in an IS department.
- Identify the purposes of each role and outline their tasks.
- Compare the tasks of each role.

7.3.2 Subject Outcome 2: Describe the structure of IS departments in business organisations.

Learning Outcomes

The student should be able to:

- Identify the position of an IS department using an organisation chart.
- Outline the purpose of systems and operation areas within an IS department as well as their interaction.
- Explain the interactions of systems and operations.

7.4 Topic 4: Acquisition of computer technology.

7.4.1 Subject outcome 1: Describe a structured approach to computer technology selection.

Learning Outcomes

The student should be able to:

- Outline the importance of following a structured approach in selecting computer technology.
- Identify the general business considerations in planning acquisition of computer technology
- Identify the steps to be followed in the acquisition of new computer technology.
- Compare the advantages and disadvantages of the different methods of acquiring computer technology.

7.4.2 Subject Outcome 2: Describe different methods of financing computer technology.

Learning Outcomes

The student should be able to:

- Outline the options available for financing the acquisition of computer technology.
- Identify the factors influencing the decision on the method of financing.

7.4.3 Subject Outcome 3: Describe implementation considerations of computer technology.

Learning Outcomes

The student should be able to:

- Identify the factors that affect the location of a computer installed for the first time.
- Identify the important requirements for the main computer room.

7.5 Topic 5: Information systems planning and strategy

7.5.1 Subject Outcome 1: Describe the factors that influence the complexity of information systems planning.

Learning Outcomes

The student should be able to:

- Identify and describe different company and system portfolios.
- Distinguish between planning simple and complex environments.
- Identify factors that influence the complexity of information systems planning.

7.5.2 Subject Outcome 2: Describe theoretical frameworks that assist in information systems planning.

Learning Outcomes

- Explain how properties of an organisation influence the strategic planning for information systems.
- Explain how using information systems in organisations can lead to a competitive advantage.
- Explain positional analysis.
- Explain the stages of development in terms of management control.

7.5.3 Subject Outcome 3: Describe information systems planning time frames.

Learning Outcomes

- Explain what strategic planning involves.
- Explain the tactical planning stage.
- Explain the operational planning stage.

7.5.4 Subject Outcome 4: Describe the development of the systems plan.

Learning Outcomes

The student should be able to:

- Examine and explain the activities of the business.
- Determine and explain the needs of the business.
- Determine and explain data usage.
- Explain the assessment of systems projects.

7.6 Topic 6: Preliminary investigation in a systems development life cycle (SDLC).

7.6.1 Subject Outcome 1: Explain the importance of project specification.

Learning Outcomes

The student should be able to:

- Explain the purpose of the preliminary investigation process.
- Explain the importance of defining the purpose of a project.
- Explain the importance of specifying the outcomes of a project.
- Explain the importance of scoping in a project.
- Identify the importance of data gathering.

7.6.2 Subject Outcome 2: Describe aspects of the current system to be studied.

Learning Outcomes

The student should be able to:

- Identify aspects to be studied within the current system.
- Identify problems that exist in the current system.
- Identify possible improvements that could be made to the current system.
- Identify opportunities for using innovative computer technology.
- Provide the candidate with one or more solutions

7.6.3 Subject Outcome 3: Describe feasibility assessment.

Learning Outcomes

The student should be able to:

- Define project feasibility.
- Outline the ways in which feasibility of the system can be measured.
- Identify areas in which feasibility can be measured.
- Explain and illustrate cost-benefit analysis (CBA).
- Explain the importance of developing a high-level plan (schedule).

8 RESOURCE NEEDS FOR THE TEACHING OF SYSTEMS ANALYSIS AND DESIGN LEVEL 3

8.1 Physical resources

The following teaching aids should be made available, if possible:

- Lecture room
- Library with access to the internet and referencing software eg. Encarta, Encyclopaedia, etc.

8.2 Human resources

- The facilitator must have Information Technology related subjects at NQF level 5.
- It will be to the advantage of facilitator if they are already declared competent as assessor and/or moderator.
- Training in OBE.

8.3 Other resources

- File per learner for PoE
- Computer related books for referencing
- Project management related books