

16.2.2. SYSTEMS ANALYSIS AND DESIGN – (160 HOURS)

16.2.2.01 INTRODUCTION

This module unit is intended to equip the trainee with the knowledge, skills and attitudes to enable him/her to undertake systems analysis and design.

16.2.2.02 GENERAL OBJECTIVES

By the end of this module unit, the trainee should be able to:

- a) understand systems concepts
- b) understand systems analysis and design phases
- c) use systems analysis design tools and techniques
- d) apply systems development methodologies
- e) apply information system project management skills

16.2.2.03 COURSE SUMMARY AND TIME ALLOCATION: 160 HOURS

CODE	TOPIC	SUB-TOPIC	HOURS T P	HOURS
16.2.2.1	INTRODUCTION TO SYSTEMS ANALYSIS AND DESIGN	<ul style="list-style-type: none">• meaning of system analysis and design<ul style="list-style-type: none">- system- information system- information technology• components of an information system• types of information system<ul style="list-style-type: none">- TPS- DSS- OAS- GSS- ELS- Others• roles of information system stake holders	6	6
16.2.2.2	SYSTEMS THEORY	<ul style="list-style-type: none">• systems theory concepts• components of a system• types of systems• system properties	4	4
16.2.2.3	SYSTEMS DEVELOPMENT LIFE CYCLE (SDLC)	<ul style="list-style-type: none">• meaning of SDLC• SDLC stages	10	10

CODE	TOPIC	SUB-TOPIC	HOURS T P	HOURS
16.2.2.4	PROBLEM DEFINITION	<ul style="list-style-type: none"> • problem definition • indicators of problems • methods of identifying the problem • contents of TOR 	2 2	4
16.2.2.5	FEASIBILITY STUDY	<ul style="list-style-type: none"> • types of feasibility <ul style="list-style-type: none"> - economic - technical - social/behavioral - legal - schedule - operational • fact finding methods • feasibility study report 	4 6	10
16.2.2.6	SYSTEM ANALYSIS	<ul style="list-style-type: none"> • meaning and importance of systems analysis • methods in systems analysis <ul style="list-style-type: none"> - structured - prototyping • tools <ul style="list-style-type: none"> - DFD'S - flowcharts - data dictionary - ELH - others 	10 14	24
16.2.2.7	SYSTEMS DESIGN AND DEVELOPMENT	<ul style="list-style-type: none"> • meaning and importance of system design • qualities of a good design • system design models • system components tools • design tools • system development methodologies • system design methods • criteria for choosing a system development methodology 	24 12	36

CODE	TOPIC	SUB-TOPIC	HOURS T P	HOURS
16.2.2.8	IMPLEMENTATION	<ul style="list-style-type: none"> • meaning and importance of system implementation • procedures of system implementation • system implementation techniques • testing techniques • levels of acceptance testing • user training 	14	14
16.2.2.9	MAINTENANCE AND REVIEW	<ul style="list-style-type: none"> • meaning of system maintenance and review • importance of maintenance • types of system maintenance 	2	2
16.2.2.10	SYSTEM DOCUMENTATION	<ul style="list-style-type: none"> • meaning of document • need for documentation • types of documentation 	6	6
16.2.2.11	SYSTEM ACQUISITION	<ul style="list-style-type: none"> • Information system acquisition methods • criteria for choosing an information system acquisition method 	4	4
16.2.2.12	ICT PROJECT MANAGEMENT	<ul style="list-style-type: none"> • meaning and importance of ICT project management • ICT project management tools • criteria for evaluating ICT projects • signs of a failing ICT project • reasons for ICT project failure • strategies for managing a failing ICT project 	30	30
16.2.2.13	EMERGING TRENDS IN SAD	<ul style="list-style-type: none"> • emerging trends in SAD • challenges of emerging trends in SAD 	2	2

16.2.2.1T INTRODUCTION TO SYSTEMS ANALYSIS AND DESIGN

THEORY

16.2.2.1.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain meaning of SAD
- b) describe the components of an information system
- c) describe the roles of information systems stake holders
- d) describe the types of information systems

CONTENT

- 16.2.2.1.T1** Meaning of terms:
- system
 - information
 - information system
 - information technology
- 16.2.2.1.T2** Components of an information system
- 16.2.2.1.T3** Types of information systems
- Transaction processing systems
 - Management information systems
 - Decision support systems
 - Expert systems
 - Office automation systems
 - Others
- 16.2.2.1.T4** Roles of information systems stake holders
- systems owners
 - systems users
 - systems analyst
 - systems designers
 - systems developer
 - other

16.2.2.2T SYSTEMS THEORY/CONCEPT

THEORY

- 16.2.2.2.T0** **Specific Objectives**
- By the end of this topic, the trainee should be able to:
- a) explain systems concept
 - b) describe the components of a system
 - c) describe the classification of systems
 - d) explain system properties
 - e) describe the types of systems

CONTENT

- 16.2.2.2.T1** Systems theory/concept explained

- 16.2.2.2.T2** Components/elements of a system
input
processing
output
- 16.2.2.2.T3** Types of systems
man made
automated
- 16.2.2.2.T4** Classification of systems
open Vs closed
adaptive
deterministic
probabilistic
- 16.2.2.2.T5** Classification of properties
hard properties
soft properties

16.2.2.3T SYSTEMS DEVELOPMENT LIFE CYCLE (SDLC)

THEORY

- 16.2.2.3.T0 Specific Objectives**
By the end of this topic, the trainee should be able to:
a) explain the meaning of SDLC
b) describe SDLC stages

CONTENT

- 16.2.2.3.T1** Meaning of SDLC
- 16.2.2.3.T2** SDLC stages
problem definition
feasibility study
systems analysis
systems design and development
implementation
maintenance and review

16.2.2.4T PROBLEM DEFINITION

THEORY

- 16.2.2.4.T0 Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) identify problem indicators
- b) describe the contents of a TOR

CONTENT

16.2.2.4.T1 Problem Indicators

16.2.2.4.T2 Contents of a TOR

PRACTICE

16.2.2.4.P0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) formulate an IS problem statement
- b) prepare a TOR

CONTENT

16.2.2.4.P1 Trainee to formulate information system problem statement

16.2.2.4.P2 Trainee to prepare a TOR based on an IS problem statement

16.2.2.5T FEASIBILITY STUDY

THEORY

16.2.2.5.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) describe the types of feasibility
- b) describe fact finding methods
- c) describe data gathering tools

CONTENT

16.2.2.5.T1 Types of feasibility

economic

technical

operational

legal

16.2.2.5.T2 Fact finding methods

16.2.2.5.T3 Data gathering tools

PRACTICE

16.2.2.5.P0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) design data gathering tools
- b) prepare a feasibility report

CONTENT

16.2.2.5.P1 Groups to design data gathering tools
questionnaire

16.2.2.5.P2 Groups to prepare feasibility report

16.2.2.6T SYSTEMS ANALYSIS

THEORY

16.2.2.6.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain the meaning and importance of systems analysis
- b) describe systems analysis approaches/methods
- c) describe systems analysis tools

CONTENT

16.2.2.6.T1 Meaning and importance of systems analysis

16.2.2.6.T2 Systems analysis approaches/methods
move-driven
structured
photocopying (discovery photo copying)

16.2.2.6.T3 Applying systems analysis tools

- flow charts
- DFDS
- data dictionary
- ELITS
- Others

PRACTICE

16.2.2.6.P0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) apply systems analysis tools

CONTENT

16.2.2.6.P1 Analysis tools

16.2.2.7T SYSTEMS DESIGN AND DEVELOPMENT

THEORY

16.2.2.7.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain the meaning and importance of system design
- b) explain qualities
- c) describe system design models
- d) describe systems component design
- e) describe system design tools
- f) describe system development methodologies
- g) describe system design methods
- h) explain the criteria for choosing system development methodologies

CONTENT

16.2.2.7.T1 Meaning and importance of system design

16.2.2.7.T2 Qualities of a good system design

16.2.2.7.T3 System design models
logical
physical

16.2.2.7.T4 System design components
input
process
reports
code design
database
file design

16.2.2.7.T5 System design tools
decision tables
structured English
ERDS
structured charts
others

- 16.2.2.7.T6** System development methodologies
structured
traditional
object oriented
- 16.2.2.7.T7** system design methods
photocopying
JSD
SSDAM
functional decomposition
- 16.2.2.7.T8** Criteria for choosing system development methodologies

PRACTICE

- 16.2.2.7.P0** Specific Objectives
By the end of this topic, the trainee should be able to:
- develop a physical system model
 - develop a logical system model
 - use design tools
 - prepare system specifications

CONTENT

- 16.2.2.7.P1** Physical design model
- 16.2.2.7.P2** Logical design model
- 16.2.2.7.P3** Design tools
- 16.2.2.7.P4** System specifications

16.2.2.8T SYSTEM IMPLEMENTATION

THEORY

- 16.2.2.8.T0** Specific Objectives
By the end of this topic, the trainee should be able to:
- explain the meaning and importance of system implementation
 - explain procedures of system implementation
 - describe system implementation techniques
 - describe system testing techniques
 - explain the levels of acceptance testing
 - explain the need for user training
 - explain the methods of user training
 - describe types of users to be trained

CONTENT

- 16.2.2.8.T1** Meaning and importance of system implementation
- 16.2.2.8.T2** Procedure of system implementation
- 16.2.2.8.T3** System implementation techniques
- 16.2.2.8.T4** System testing and techniques
- 16.2.2.8.T5** Levels of acceptance testing
- 16.2.2.8.T6** Need for user training
- 16.2.2.8.T7** Methods of user training
- 16.2.2.8.T8** Types of users to be trained

16.2.2.9T SYSTEM MAINTENANCE AND REVIEW

THEORY

16.2.2.9.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain the meaning of system maintenance and review
- b) explain the importance of system maintenance
- c) describe the types of system maintenance

CONTENT

- 16.2.2.9.T1** Meaning and importance of system maintenance and review
- 16.2.2.9.T2** Importance of system maintenance
- 16.2.2.9.T3** Types of system maintenance

16.2.2.10T SYSTEM DOCUMENTATION

THEORY

16.2.2.10.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain the meaning of system documentation
- b) explain the need for system documentation
- c) describe the types of system documentation

CONTENT

- 16.2.2.10.T1** Meaning of system documentation
- 16.2.2.10.T2** Need for system documentation

16.2.2.10.T3 Types of system documentation

16.2.2.11T SYSTEM ACQUISITION

THEORY

16.2.2.11.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) describe information system acquisition methods
- b) explain the criteria for choosing an information system acquisition method

CONTENT

16.2.2.11.T1 Information system acquisition methods

16.2.2.11.T2 Criteria for choosing an information system acquisition methods

16.2.2.12T ICT PROJECT MANAGEMENT

THEORY

16.2.2.12.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) explain the meaning and importance of ICT project management
- b) describe ICT project management tools
- c) explain the criteria for evaluating ICT projects
- d) explain the signs of a failing ICT project
- e) explain the reasons for ICT project failure
- f) explain the strategies for managing a failing ICT project

CONTENT

16.2.2.12.T1 Meaning and importance of ICT project management

16.2.2.12.T2 ICT project management tools

16.2.2.12.T3 Criteria for evaluation ICT projects

16.2.2.12.T4 Signs of a failing ICT project

16.2.2.12.T5 Reasons for ICT project failure

16.2.2.12.T6 Strategies for managing a failing ICT project

16.2.2.13T EMERGING TRENDS IN SAD

THEORY

16.2.2.13.T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) identify emerging trends in SAD
- b) explain the challenges of emerging trends in SAD
- c) cope with the challenges of emerging trends

CONTENT

16.2.2.13.T1 Emerging trends in SAD

16.2.2.13.T2 Challenges of emerging trends in SAD

16.2.2.13.T3 Cope with the challenges of emerging trends in SAD

TEACHING/LEARNING RESOURCES

Relevant text books and free e-books

www contents

Resource persons

ASSESSMENT MODE

Written tests

Project report writing

Oral tests

easytvvet.com