

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester II
BCA205 – Part 2: Core 6
System Analysis and Design

Rationale:

Large number of jobs today for computer science graduates is in creating information systems for managing organizations. Systems Analysis is a central part of systems development. It comprises the process of turning a set of user requirements into a logical system specification and encompasses various activities to achieve this end. The traditional systems lifecycle has been challenged by alternative models, for example the spiral (iterative and incremental) lifecycle and rapid application development. There are a variety of systems development approaches including the structured approach, the object oriented approach. Systems Analysis activities will be studied in the context of these trends. Candidates should be familiar with at least one structured approach (e.g. SSADM) and one object oriented approach (e.g. the Unified Process).

Learning Outcomes: Students will be able to:

- To understand the role of systems analysis within various systems development life cycles.
- To develop an awareness of the different approaches that may be taken to systems analysis.
- To understand the systems analyst’s activities, and apply current tools and techniques.
- Describe different life cycle models and explain the contribution of systems analysis within them.
- Discuss various systems analysis approaches and explain their strengths and weaknesses.
- Evaluate the tools and techniques that may be used by a systems analyst in a given context.
- Use appropriate methods and techniques to produce a systems analysis for a given scenario.
- Provide suitable systems documentation for an analysis.
- Will be able to implement SDLC by small case studies.

Resource Utilization:

Lecture based on Activity Oriented Classroom Teaching by availing case studies, Projector.

Teaching and Evaluation Scheme:

Sub. Code	Sub. Type	Subject Title	Teaching Scheme		Exam Scheme				
			Cr.	Hrs. / Week	Theory		Practical		Total Marks
					Internal	External	Internal	External	
BCA 205	Core	System Analysis and Design	4	4	30	70	-	-	100

Course Content:

Unit I (25%)

Objective

Learners will know: Information System concept, System Analyst Role, Business Information System model, Organizational structure levels and the team of Information technology Department.

Content

System Analysis and Design: concept and need; Information System: System, Information System Components; System Analyst: Role, Skills, Tools used by System Analyst; Business Information System: Business Profile, Business Case, Business Process Modeling, E- Commerce Business Types (B2C, B2B), Business Information System categories; Organization: Hierarchy, Level based Structure; Information Technology Department.

Text Book Reference Page No: 22-34, 45-48

Unit 2: (25%)

Objective

Learners will be acquainted with: System Development Methods categories, Software Development Life Cycle Stages, detailing of System Planning System Analysis Stages.

Content

System Development Method: Structured Analysis - Software Development Life Cycle Stages and Object Oriented Analysis concept.

System Planning: Strategic Planning – SWOT Analysis; System Projects: Main reasons for System Request, Internal & External Factors; Feasibility Study types: Operational, Technical, Economical

(Tangible and Intangible Benefit), Schedule Feasibility; Preliminary Investigation Steps.

System Analysis : System Analysis Stages, Joint Application Development and Rapid Application Development Concept, Fact Finding Techniques : Interview Steps, Document Review, Observation, Questionnaires and Surveys, Sampling, Research ; Data Flow Diagrams : Symbols, Guidelines for Drawing DFD, Creating DFD (Context Level & First Level Diagram); Data Dictionary elements ; Process Description Tools : Modular Design, Structured English, Decision Tables, Decision Trees; Prototyping Methods : System Prototyping and Design Prototyping.

**Text Book Reference Page No: 36-40, 60-61, 66-71, 74-77, 78-86,101-106,113-127,
150-162, 255-256**

Unit 3: (25%)

Objective

Learners will be familiar with: System Design Stage, User Interface Design Types, Input and Output Design Concepts.

Content

System Design : User Interface Design : types- Process Centered Information System Model and User Centered Information System Model, Guidelines for User Interface Design ; Input Design : Types of Input Devices, Input Methods – Batch Input and Online Input ; Output Design : Types of Output, Reports – Summary Report, Exception Report and Detailed Report ; Data Design basic Terminology : Entity, Table or File, Field, Record.

Text Book Reference Page No: 281-282, 281-282, 296-297, 268-274, 327-328

Unit 4:

(25%)

Objective

Learners will be gaining knowledge of: System Design Implementation Stage Concept – Coding, Software Quality Assurance, Software Testing Types, Documentation, Management Approval and Systems Operations, Support and Security Stage to maximize return on the Investment as well as Security Control safeguard the system from both external and internal threats.

Content

System Implementation: Coding Concept; Software Quality Assurance concept; Types of Software testing – Unit Testing, Integration Testing and System Testing; Documentation Concept and Types, Management Approval.

Systems Operations, Support and Security: Training – training Plan, Types of Training; Data Conversion concept; System Changeover Types: Direct Cutover, Parallel Operations, Pilot Operations, Staged Operation; Post Implementation task; Final Report to Management.

Text Book Reference Page No: 430-431, 416-417, 431-435, 435-455

Text Books:

[1] System Analysis and Design Methods; 4th edition; by Shelly, Cashman, Rosenblatt; Cengage Learning India Edition.

Reference:

[2] System Analysis and Design, 3rd edition, by Elias Awad (Galgotia Publications).

Question Paper Scheme:

University Examination Duration: 3.00 Hours. Total marks: 70

Q.1-Unit-I & II	(11 Marks)
Objective / Short Questions	
Q.2-Unit-I	(12 Marks)
Descriptive / Long questions	
Q.3-Unit-II	(12 Marks)
Descriptive / Long questions	
Q.4-Unit-III & IV	(11 Marks)
Objective / Short Questions	
Q.5-Unit-III	(12 Marks)
Descriptive / Long questions	
Q.6-Unit-IV	(12 Marks)
Descriptive / Long questions	