MODULE 2

SYSTEMS ANALYSIS AND DESIGN LIFE CYCLE

Contents

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MOTIVATION

Students should know how to logically divide a complex job into smaller manageable steps. Each step must have a logical beginning and end and must be self contained. Division of large jobs into logical steps will enable one to assess progress at the end of each step, each step may be assigned to persons with specialized competence, and allocation of human and financial resources appropriate for each step can be planned.

LEARNING GOALS

At the end of this module u will know:

1. Nine Steps in designing Information Systems.
2. Tasks performed in each step.
3. Nature of tasks performed by Systems Analysts.
4. The attributes of Systems Analysts.
5. The tools used by Systems Analysts.

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<u>LEARNING UNIT 1</u>

<u>Systems Analysis and Design life Cycle: Requirements determination, requirements specifications</u>

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<u>LIFE CYCLE OF SYSTEMS ANALYSIS AND DESIGN</u>

Steps involved in Analysis and Design

1. Requirements Determinations
2. Requirements Specifications
3. Feasibility Analysis
4. Final Specifications
5. Hardware Study
6. System Design
7. System Implementation
8. System Evaluation
9. System Modification

<u>1.Requirements Determination:</u>

This is arrived at by a consensus reached among managers in the organization. Priorities among applications are determined and high priority applications are selected.

<u>2.Requirements Specifications</u>

This is known as System Requirements Specification (SRS). Applications where a system is required are listed, and specifications of the users requirements are arrived at after discussion with the user.

LEARNING UNIT 2

Feasibility analysis, final specifications, hardware and software study, system design, system implementation, system evaluation, system modification.

3. Feasibility Analysis

Formulate Goals of the system and quantify them. Find alternative methods of meeting the goals and for each alternative assess resources needed like Human Resources, Time and Money, Equipment needed etc. Assess cost of each alternative and find the best alternative

4.Final Specifications

Specifications would state what the system would achieve. Specifications drawn up are then improved for implementation. SRS is written, which is then given to user and agreement is reached

5.Hardware Study

Determine Hardware and Software required to execute the application. Determine Response time, Volume of data to be processed, Frequency of reports etc & then pick the hardware.

6.System Design

A logical Design of the System is implemented. Objects are identified, Database is designed, and program specification and implementation plan is drawn up.

7.System Implementation

In this phase programs are written, Database is created, user operational document is created, users are trained and the system is tested with operational data

8.System Evaluation

Find out from Users whether the System meets the specified requirements. List areas of dissatisfaction and find reasons, suggest if there has to be any improvements to the system

9.System Modification

Fix the errors, add/delete features as required by users, tune the system and continuously monitor system and assess performance.

LEARNING UNIT 3

Role of systems analyst, attributes of system analyst, tools used in system analysis

ROLE OF SYSTEMS ANALYST

The following are roles of systems analyst:

1. Defining Requirements: Involves Interviewing Users
2. Prioritizing Requirements: Obtain Users Consensus
3. Fact Gathering: Data, Facts and opinions of Managers are gathered, Lower level Users should also be consulted
4. Analysis and evaluation **-**Arrive at appropriate system
5. Solving problems: Hazy requirements converted into specific requirements, suggest many alternative solutions, and quantify cost and benefits
6. Drawing up specifications: Draw up specifications which are understood by users and programmers, which are accepted by users and which are precise and detailed.
7. System design: Logical design of system is implemented and the design must be modular
8. Evaluating Systems: Evaluate the system after it has been used for sometime, Plan the periodicity for evaluation and modify the system as needed

ATTRIBUTES OF A SYSTEMS ANALYST

Knowledge of organisation
Knowledge of computers and software
Good interpersonal relations
Ability to communicate
Analytical mind
Breadth of knowledge

TOOLS USED BY SYSTEMS ANALYST

- Data Flow Diagram
- Decision Tables
- Modeling Language such as UML
- Normalization of Databases
- Testing tools
- ISO/CMM procedure manuals

REFERENCES

Most of the material in the module is adapted from Chapter 3 of Analysis and Design of Information Systems by V.Rajaraman published by Prentice Hall of India 2002 with permission from publisher.

1. Information Systems Today by L.Jessup and J.Valacich. Topics in this module treated from a slightly different perspective in Chapter 8, pp.240 to 256.

2. K.E.Kendall and J.E.Kendall, Systems Analysis and Design, Pearson Education Asia, Indian Reprint 2002. pp.16-17 have a very brief treatment of Systems Analysists' role and Systems Development life cycle.

3. Modern Systems Analysis and Design by J.E.Hoffer, J.F.George and J.Valacich treat life cycle in pp.18-25. Role of various stake holders in systems development is covered in pp.11 to 15.

4. Information Systems, S.Alter, Pearson Education Asia 2000 looks at life cycle from a different perspective on pp. 4 to 16.