

Academia International College

Course Title: System Analysis and Design

Course no: CSC-252

Credit hours: 3

Full Marks: 60+20+20

Pass Marks: 20+8+8

Nature of course: Theory (3 Hrs.) + Case Study(3 Hrs.)

Course Synopsis: This course help launch the careers of successful systems analyst – or of users assuming an active role in building systems that satisfy their organization’s information needs. Also provides a solid foundation of systems.

Goal: This course will provide the concept of system representation.

| S.N | Chapter | Description | Hour |
|-----|---|---|-------|
| 1 | Overview of Systems Analysis and Design | <ul style="list-style-type: none">• Introduction to system analysis and design• Types of Information Systems(Transaction Processing system, Management Information System, Decision Support System and Expert System)• Systems Development Life cycle(SDLC)• System analysis and design tools : Prototyping, Joint Application Design | 4 Hrs |
| 2 | Modeling Tools for Systems Analyst | <ul style="list-style-type: none">• System Analyst (Introduction, Roles, and Skills)• Context Diagram• Data Flow Diagram (Level 0, Level 1, and Level 2)• CASE tools• E-R Diagram | 5 Hrs |
| 3 | Structured Methodologies | <ul style="list-style-type: none">• The need for a Structured Methodology• Role of CASE in data modeling• Advantages and Disadvantages of Modeling• Data Dictionaries• Modeling tools: Structure English, Decision Table and Decision Tree | 6 Hrs |
| 4 | Systems Analysis | <ul style="list-style-type: none">• Systems planning and initial Investigation• Information Gathering Techniques (Interviews and Questionnaires)• The tools of Structured Analysis• Feasibility Study-(Introduction, Steps in Feasibility analysis)• Cost-Benefit Analysis (Direct and Indirect Cost, Tangible and Intangible Benefit)• Payback Period | 8 Hrs |

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| 5 | Systems Design | <ul style="list-style-type: none"> • The process and Stages of systems Design • Designing Forms and Report: The process of Formatting Forms and Reports • Designing Database: The process, Normalization(Up to 3rd Normal form), Transferring E-R diagram to Relations • File Organization (Introduction, Organization of Records in Files) | 8 Hrs |
| 6 | System Implementation | <ul style="list-style-type: none"> • System Implementation: Introduction, (The process of Coding, Testing and Installation) • The Process of Documenting the System, Training Users and Supporting Users • Software Application Testing: Types of Testing • Quality Assurance • Maintenance: Corrective, Adaptive, Perfective, Preventive • The process of maintaining Information System • Cost of maintenance • Managing Maintenance • Measuring effectiveness of maintainance • Hardware / Software Selection and the Computer Contract • Project Scheduling and Software | 8 Hrs |
| 7 | Object-Oriented Analysis and Design | <ul style="list-style-type: none"> • Introduction • Object-Oriented Development Life Cycle • The Unified Modeling Language • Use-Case Modeling, • Object Modeling: Class Diagrams, • Dynamic Modeling: State Diagramming, • Dynamic Modeling: Sequence Diagramming, • Analysis Verses Design | 6 Hrs |
| Total | | | 45 Hrs |

Case studies: Student must have to do one case study covers all chapters.

Text books:

- ✓ Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich, **Modern Systems Analysis and Design**, Pearson Education, Second Edition

References:

- ✓ Englewood Cliffs, New Jersey, **Systems Analysis and Design**. Jeffrey L. Whitten, Loonnie D. Bentley, 5th Edition, **Systems Analysis and Design Methods**.
- ✓ Grady Booch, Pearson Education, **Object Oriented analysis and design with applications**.
- ✓ V.Rajaraman, Prentice-Hall, Second Edition, **Analysis and Design of Information Systems**.

MODEL QUESTION FORMAT:

TRIBHUVAN UNIVERSITY

Institute of Science and Technology

Level: B.Sc.(CSIT)

Full Marks: 60

Year: II/II

Pass Marks: 24

Course: System Analysis and Design

Time: 3 Hrs

Candidates are required to answer the questions in their own word as far as practicable

Group 'A'

*Long Answer questions: Answer **any two** questions:*

[2x10=20]

1. What is Information system analysis and Design? Explain the stages of SDLC
2. Draw a DFD diagram of College library system up to level2.
3. Explain the process of system implementation and Maintenance

Group 'B'

*Short Answer questions: Attempt **any eight** questions*

[8x5=40]

1. Who is system analyst? List and explain the skills of system analyst.
2. A bank has the following policy on deposit. On deposits of Rs. 50,000 and above for five year or above the interest rate is 15%. On the same deposit for a period less than 5 years it is 12%. On deposit below Rs. 50,000 the interest is 10% regardless of period of deposit.

Write the above process using:

- i. Structured English
 - ii. A decision table
3. A system costs Rs. 2,00,000 to install and Rs. 10,000 per month as recurring expenses. The benefit per year is 1,50,000. Assuming an interest rate is 15%, what is the payback period of the investment?
 4. Briefly explain the steps in feasibility analysis.
 5. What are the main principles used in designing Forms and Reports.
 6. What is file? Explain any technique for implementing records in file.
 7. What is software testing? Explain different types of testing.
 8. Briefly Explain the CASE tools.
 9. State the activities involved Object-Oriented Development Life Cycle.
 10. What is Class Diagram? Draw a class diagram for Payment and Purchase of Customer.

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TRIBHUVAN UNIVERSITY

Institute of Science and Technology

Level: B.Sc.(CSIT)

Full Marks: 60

Year: II/II

Pass Marks: 24

Course: System Analysis and Design

Time: 3 Hrs

Candidates are required to answer the questions in their own word as far as practicable

Group 'A'

*Long Answer questions: Answer **any two** questions:*

[2x10=20]

4. What is Information system analysis and Design? Explain the stages of SDLC
5. Draw a DFD diagram of College library system up to level2.
6. Explain the process of system implementation and Maintanance

Group 'B'

*Short Answer questions: Attempt **any eight** questions*

[8x5=40]

11. Who is system analyst? List and explain the skills of system analyst.
12. A bank has the following policy on deposit. On deposits of Rs. 50,000 and above for five year or above the interest rate is 15%. On the same deposit for a period less than 5 years it is 12%. On deposit below Rs. 50,000 the interest is 10% regardless of period of deposit.
Write the above process using:
 - iii. Structured English
 - iv. A decision table
13. A system costs Rs. 2,00,000 to install and Rs. 10,000 per month as recurring expenses. The benefit per year is 1,50,000. Assuming an interest rate is 15%, what is the payback period of the investment?
14. Briefly explain the steps in feasibility analysis.
15. What are the main principles used in designing Forms and Reports.
16. What is file? Explain any technique for implementing records in file.
17. What is software testing? Explain different types of testing.
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Group 'A'

*Long Answer questions: Answer **any two** questions:*

[2x10=20]

7. What is Information system analysis and Design? Explain the stages of SDLC
8. Draw a DFD diagram of College library system up to level2.
9. Explain the process of system implementation and Maintanance

Group 'B'

*Short Answer questions: Attempt **any eight** questions*

[8x5=40]

21. Who is system analyst? List and explain the skills of system analyst.
22. A bank has the following policy on deposit. On deposits of Rs. 50,000 and above for five year or above the interest rate is 15%. On the same deposit for a period less than 5 years it is 12%. On deposit below Rs. 50,000 the interest is 10% regardless of period of deposit. Write the above process using:
 - v. Structured English
 - vi. A decision table
23. A system costs Rs. 2,00,000 to install and Rs. 10,000 per month as recurring expenses. The benefit per year is 1,50,000. Assuming an interest rate is 15%, what is the payback period of the investment?
24. Briefly explain the steps in feasibility analysis.
25. What are the main principles used in designing Forms and Reports.
26. What is file? Explain any technique for implementing records in file.
27. What is software testing? Explain different types of testing.
28. Briefly Explain the CASE tools.

29. State the activities involved Object-Oriented Development Life Cycle.
30. What is Class Diagram? Draw a class diagram for Payment and Purchase of Customer.