IT-2700: SYSTEMS ANALYSIS AND DESIGN

Cuyahoga Community College

Viewing: IT-2700 : Systems Analysis and Design

Board of Trustees:
2016-05-26

Academic Term:
Fall 2018

Subject Code
IT - Information Technology

Course Number:
2700

Title:
Systems Analysis and Design

Catalog Description:
Overview of systems development life cycle. Utilize structured tools and object-oriented techniques to analyze and document process flow, data flows, data structures, file designs, input & output designs and program specifications in the systems development life cycle. Examine information gathering and reporting activities. Analyze strategies and techniques for producing logical methodologies which deal with complexity in development of information systems.

Credit Hour(s):
3

Lecture Hour(s):
3

Requisites

Prerequisite and Corequisite
IT-1050 Programming Logic.

Outcomes

Course Outcome(s):
Utilize both classical and modern tools & techniques to analyze and document process flow, data flows, data structures, file designs, input & output designs and program specifications in the systems development life cycle.

Objective(s):
1. Explain each component of the Systems Development Life Cycle.
2. Assess reasons why the Systems Development Life Cycle is simply a model and not a rigid step-by-step process.
3. Identify, analyze and research specific situations to understand where it fits in the Systems Development Life Cycle.
4. Identify the appropriate tools to use at various points in the Systems Development Life Cycle.
5. Determine the appropriate use of specific tools at various stages of the Systems Development Life Cycle.
6. Define the meaning of systems analysis, systems design, systems implementation, and systems evaluation (including testing and quality assurance).
7. Apply the tools, techniques, and concepts of object-oriented and structured analysis to information systems development.
8. Perform project planning tasks using project planning tools such as PERT and Gantt charts.

Course Outcome(s):
Working as a member of a software development team, produce, test and maintain systems specifications to the meet end-user requirements.

Objective(s):
1. Utilize data gathering techniques, including questionnaires, interviews, observation, and research to gather information from end users for defining system requirements.
2. Identify the differences and similarities of structured design and object-oriented design.

3. Utilizing information gathered during the analysis phase, produce systems specifications implementation plans that meet the user's needs.
4. Demonstrate an ability to test the system at all points in the project to ensure that the user's needs have been met.
5. Engage in directed work as a member of a software development team.
6. 6. Engage in teamwork skills and perform the necessary tasks to manage a small software development project.
7. Demonstrate the ability to adapt to and embrace change in a constantly changing professional environment.
8. Develop skills as a self-starter, including taking initiative, working independently,k and solving problems as an individual.
9. Demonstrating the ability to solve problems as a member of a team.
10. Create and maintain the appropriate documentation.
11. Identify and analyze the skills necessary to manage the project, and team, in various locations around the world.

Methods of Evaluation:

1. Class participation and discussion
2. Oral and/or written reports
3. Homework assignments
4. Hands-on computer lab projects
5. Comprehensive projects and documentation
6. Regular project status reports
7. Class presentation of projects
8. Participation in peer review of projects
9. Quizzes
10. Objective examinations
11. Hands-on computer lab examinations
12. Other methods deemed appropriate by the department

Course Content Outline:

1. System development life cycle overview
    a. Analysis (Information Gathering)
    b. Design (Planning)
    c. Implementation
    d. Testing (Throughout the entire life cycle)
    e. Maintenance
2. Feasibility study
    a. Analysis of current system
    b. Analysis of alternative systems
3. Data gathering techniques
    a. Questionnaires
    b. Interviews
    c. Observation
    d. Research
4. Classical documentation tools and techniques
    a. Systems flowchart
    b. Systems narrative
    c. UML
5. Structured documentation tools and techniques
    a. DFD
    b. Data dictionary
6. Methods in application development
    a. Joint
    b. Rapid
    c. Agile
7. Object Modeling with UML
    a. Object oriented terms and concepts
    b. Classes, attributes, methods
    c. Class Diagrams
        i. Use case
        ii. Sequence
        iii. Activity

8. User interface design
    a. Human computer interaction
    b. Input and output security issues
    c. Input and output technology issues
9. Data design concepts
    a. Data structures
    b. Data terms
    c. UI as it relates to data
    d. Entity-relationship diagrams
10. Deviation of the logical design
11. Deviation of the physical design
    a. Output
    b. Input
    c. Programming specifications
12. Individual skills
    a. Taking initiative
    b. Working independently
    c. Problem solving
13. Team Building
    a. Building the team
    b. Managing the team
14. Project planning
    a. PERT chart
    b. Gantt chart
15. Systems implementation
    a. Testing
    b. Training
    c. Conversion
16. Systems & testing evaluation
    a. Unit Testing
    b. Training
    c. Conversion
17. Quality Assurance & Maintenance
    a. Acceptance criteria
    b. Error reporting and handling
18. Ethics in system design

Resources

Matt Weisfeld. *The Object-Oriented Thought Process.* 3rd ed. Addison Wesley, 2008.

Rosenblatt, Harry J. (2014) *Systems Analysis and Design,*Boston, MA: Course Technology Cengage Learning.

Dennis, A., Wixom, B. H., Roth, R. M. (2014) *Systems Analysis and Design,*Hoboken, NJ: Wiley.

Satzinger, John W., Robert B. Jackson, and Stephen D. Burd. (2015) *System Analysis and Design in a Changing World,*Australia: Brooks/Cole.

Hoffer, J. A., George, J. F., Valacich, J. S. *Modern System Analysis and Design.* 7th. Boston: Pearson, 2014.

Resources Other

1. Institute of Management Consultants.
2. Source EDP.

Top of page
Key: 2513