Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

POSITIVE QUADRANT
T E C H N O L O G I E S
SERVING INFORMATION WORLDWIDE

System Design

SYSTEM DESIGN

Programming & development

Course Curriculum

Basic – 16 Hours

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SYSTEM DESIGN

Module 1 : Introduction to System

Basic concept of system

Elements of a system : Input, Output Processor, Control, Feedback, Environment, Boundaries, and Interface

Characteristics of a System

Module 2 : Types of Systems

Physical and Abstract System

Open and Closed System

Man-made System

Module 3 : System Development Life Cycle (SDLC)

Introduction to SDLC

Various phases: study, analysis, design, development, testing, implementation, maintenance

Module 4 : Architectural Design

Introduction to Software Architecture

Basic Architectural Styles (e.g., client-server)

Module 5 : Database Design

Basic Design Principles

Designing simple Classes and objects

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Module 6 : Security in System Design

Basic Security Concepts

Authentication and Authorization Basics

Security Threats, Risk Analysis

Module 7 : Tools for System Analysis

Data Flow Diagram (DFD)

Logical and Physical DFD's

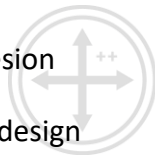Developing DFD

Module 8 : System Design

Module Specification

Module Coupling and cohesion

Top-down and bottom-up design

Logical and Physical Design

Structured design

Module 9 : Introduction to Testing

Basic of Unit Testing

Basic Integration Testing

Module 10 : Advanced Architectural Design

In-depth Architectural Styles

Architectural Patterns

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Module 11 : Advanced Database Design

Normalization and Denormalization

Indexing and Query Optimization

Module 12 : Advanced Component-Level Design

In – depth Design Principles

Designing Complex Classes and Objects

Module 13: Advanced Security

Encryption and Decryption Techniques

Handling Advanced Security Threats

Module 14: Advanced Testing

Integration Testing Strategies

System testing and validation techniques

Module 15: Technologies in System Design

Cloud Computing and Advanced System Design

Microservices Architecture in – depth

Module 16: Edge Computing and IoT

Edge Computing in System Design

IoT in System Architecture