Global Knowledge™

Object Oriented Analysis & Design

Duration: 3 Days   Course Code: OOAD   Delivery Method: Company Event

Overview:

The Object Oriented Analysis & Design course focuses on the fundamental concepts of Object Orientation and UML as part of the Software Development Life Cycle. The course focuses on the core activities and artifacts of Object Orientation and UML when used with various methodologies including XP,Agile and Unified Process. UML 2 notation is used throughout the course.
This hands-on course shows delegates how to analyse and design models of software systems to enable them to develop quality software that meets the requirements of Stakeholders. Delegates will learn how to follow a system through the OO Analysis and Design phases and build models and artifacts to validate and elaborate the design.
A Case Study is used through out the course to give practical hands-on experience with the techniques covered.
UML Modelling Tools are available in the classroom to give delegates experience of using these tools to document analysis and design models.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

The Object Oriented Analysis & Design course is aimed at staff and consultants working as part of a development team using OO techniques to develop quality software including Business and System Analysts,Solution Architects,Programmers,Designers,Subject Matter Experts,Project Managers and anyone who needs a good understanding of the use of Object Oriented Analysis and Design within software development.
This course is particularly beneficial for those using Object Oriented development languages such as Java,Python,CCC,Visual Basic and Ruby.

Objectives:

- By the end of the course delegates should be able to:
- Explain OO Analysis and Design
- Describe the main processes and artifacts of OO Analysis and Design
- Identify and Analyse Requirements
- Model System Functionality with Use Cases
- Find and Organise Analysis Classes
- Create System Domain Models
- Validate Use Case Models with Stakeholders
- Create Activity Diagrams to describe System Behaviour
- Model Object Relationships
- Understand and apply Generalisation and Inheritance
- Design Object Behaviour
- Realise System Design
- Create Deployment Models

Follow-on-Courses:

- Fundamentals of Java Programming
- Java Programming
- Developing Applications with Java EE
- Ruby Programming
- Python Programming
- Perl Programming

NOTE: Course technical content is subject to change without notice.

Content:

Object Oriented Analysis ; Design Training Course

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: INTRODUCTION TO OBJECT-ORIENTED ANALYSIS AND DESIGN

- Introduction
- Software Architecture
- Object-Orientation
- Requirements
- Conclusion

Session 2: USE CASE DIAGRAMS

- Use Case Modelling
- Finding Actors and Use Cases
- Use Case Diagrams
- Primary and Secondary Actors

Session 3: USE CASE DESCRIPTIONS

- Developing Use Case Descriptions
- Level of Detail
- Pre-Conditiond and Post-Conditions
- Main Flow
- Branching within a Flow
- Duplicate Steps
- Future Requirements

Session 4: ACTIVITY DIAGRAMS

- Activity Diagrams for Use Case Flows
- Activity Diagram Notation
- Action States
- Subactivity States
- Transitions
- Decisions
- Parallel Processing
- Loops
- Scenarios
- When to Use Activity Diagrams for Use Case Modelling Object Oriented Analysis ; Design Training Course

Session 5: CLASS AND OBJECT ANALYSIS

- Steps in Domain Modelling
- Identifying Candidate Classes
- Noun Extraction Approach
- Common Categories Approach
- Evaluate Candidate Classes
- Elimination/Retention Review
- CRC Cards
- Identify Candidate Attributes and Operations
- Creation of the Static Domain Model

Session 6: CLASS MODELS

- Encapsulation
- Messaging
- UML object notation
- Object attribute values
- Classes
- UML class notation
- Name compartment
- Attribute compartment
- Visibility
- Multiplicity
- Operation compartment

Session 7: MODELLING RELATIONSHIPS

- Association
- Types of Associations
- Aggregation
- Composition
- Reflexive Association
- Navigability
- Associations and attributes
- Association Classes
- Guidelines for Identifying and Modeling Associations

Session 8: GENERALISATION AND INHERITANCE

- Generalisation
- Class generalisation
- Class inheritance
- Overriding
- Generalisation in OO Analysis and

Session 9: MODELLING BEHAVIOUR

- Activity Diagrams
- Defining the Behaviour
- Identifying Steps
- Pre and Post Conditions
- Special Action Types
- Identifying Control and Data Flows
- Data Flows
- Identifying Expansion Regions
- Grouping Actions into Partitions
- Identifying Exceptions and Exception Regions

Session 10: STATE MACHINE DIAGRAMS

- State machines and classes
- Basic state Machine syntax
- States
- State syntax
- Transitions
- Events
- Call events
- Signal events
- Change events
- Time events
- Super States

Session 11: REALISATION AND DESIGN

- Sequence Diagrams
- Detailing Class Operations from Sequence Diagrams
- Creating Sequence Diagrams
- Iteration
- Branching and self-delegation
- Concurrency - Active Objects
- Object State and Constraints

Session 12: IMPLEMENTATION AND DEPLOYMENT

- Solution Modelling
- Solution Architecture
- Infrastructure Architecture 5
- Modelling the Presentation and Data Layers
- Design Modelling
- OO Design Principles
- Modelling Object Behaviour
- Effective Package Design

Design

- Identifying GeneraliSations
- Generalised Classes or Interfaces?
- Mitigating Repeated Inheritance
- Dependency Object Oriented Analysis ; Design Training Course

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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