Object Oriented Analysis & Design

Duration: 3 Days **Course Code: OOAD**

Overview:

Object Oriented Analysis & Design Course Overview

English - Please note this course is only available in English.
Nederlands - Let op: deze training is alleen in het Engels beschikbaar.
Français - Veuillez noter que ce cours est uniquement disponible en anglais.
The Object Oriented Analysis & Design course focuses on the fundamental concepts of Object Orientation and UML as part of the

Target Audience:

Who will the Course Benefit?

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:

- Course 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

Prerequisites:

Delegates attending this course should have a basic understanding of programming in an object-oriented language such as Java,Python,Ruby,JavaScript,etc. Delegates should understand the concepts of classes,attributes and operations. This knowledge can be obtained by attendance on the pre-requisite Introduction to Programming course.

Follow-on-Courses:

Further Learning

- Java Programming 1 / Java Developer
- Python Programming 1
- Ruby Programming
- PHP Developer

Content:

Object Oriented Analysis ; Design Training Course Course Contents - DAY 1

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 Course Contents - DAY 2

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

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

- Generalisation in OO Analysis and Design
- Identifying GeneraliSations
- Generalised Classes or Interfaces?
- Mitigating Repeated Inheritance
- Dependency Object Oriented Analysis ; Design Training Course Course Contents - DAY 3

Further Information:

For More information, or to book your course, please call us on 0800/84.009

info@globalknowledge.be

www.globalknowledge.com/en-be/