

H.N.G. University, Patan
M.Sc.(C.A. & I.T.) SEMESTER - IX
901 : Project Management Practices and Evaluation

Unit : 1

[25%]

Project:

Projects versus Operations, Stakeholders, Project Characteristics, Project Management, Skills Every Good Project Manager Needs, Understanding Organizational Structures, Understanding Project Life Cycles and Project

Creating the Project Charter:

Exploring the Project Management Knowledge Areas, Understanding How Projects Come About, Kicking Off the Project Charter, Formalizing and Publishing the Project Charter

Developing the Project Scope Statement

Developing the Project Management Plan, Collecting Requirements, Documenting the Scope Management Plan, Defining Scope, Writing the Project Scope Statement, Creating the Work Breakdown Structure

Unit : 2

[25%]

Creating the Project Schedule:

Defining Activities, Understanding the Sequence Activities Process, Estimating Activity, Estimate Activity Durations, Developing the Project Schedule

Developing the Project Budget

Creating the Project Cost Management Plan, Estimating Costs, Establishing the Cost Performance Baseline, Communicating the Plan

Risk Planning

Planning for Risks, Planning Your Risk Management, Identifying Potential Risk, Analyzing Risks Using Qualitative Techniques, Quantifying Risk, Developing a Risk Response Plan

Unit : 3

[25%]

Planning Project Resources

Procurement Planning, Developing the Human Resource Plan, Quality Planning, Bringing It All Together

Developing the Project Team

Executing the Project Plan, Acquiring the Project Team, Developing the Project Team, Managing Project Teams

Conducting Procurements and Sharing Information

Conducting Procurements, Laying Out Quality Assurance Procedures, Distributing Project Information, Managing Stakeholder Expectations

Unit : 4

[25%]

Measuring and Controlling Project Performance

Monitoring and Controlling Project Work, Administering Procurements, Establishing Performance Measurements, Managing Perform Integrated Change Control

Controlling Work Results

Monitoring and Controlling Risk, Managing Cost Changes, Monitoring and Controlling Schedule Changes, Utilizing Perform Quality Control Techniques, Verifying Project Scope, Controlling Scope

Closing the Project & Applying Professional Responsibility

Formulating Project Closeout, Closing Out the Project, Closing Out the Procurements, Balancing Stakeholders' Interests at Project Close, Professional Responsibility, Applying Professional Knowledge

Text Books:

1. Project Management Professional Exam study guide, Sixth Edition, by Kim Heldman, Wiley India Pvt. Ltd.

Reference Books:

1. Head First PMP, Second Edition, by Jennifer Greene & Andrew Stellman, O'reilly
2. Project Management: A Managerial Approach, Seventh Edition, by Jack R. Meredith & Samuel J. Mental, Wiley India Pvt. Ltd.

H.N.G. University, Patan
M.Sc.(C.A. & I.T.) SEMESTER - IX
902 : Mobile Application

Unit : 1 **[10%]**

Introduction to Android

- History of Mobile Software Development
- The Open Handset Alliance
- The Android Platform
- Android SDK
- Building a sample Android application

Unit : 2 **[35%]**

Android Application Design Essentials

- Anatomy of an Android application
- Android terminologies
- Application Context, Activities, Services, Intents
- Receiving and Broadcasting Intents
- Android Manifest File and its common settings
- Using Intent Filter, Permissions
- Managing Application resources in a hierarchy
- Working with different types of resources

Unit : 3 **[20%]**

Android User Interface Design Essentials

- User Interface Screen elements
- Designing User Interfaces with Layouts
- Drawing and Working with Animation

Unit : 4 **[35%]**

Using Common Android APIs

- Using Android Data and Storage APIs
- Managing data using SQLite
- Sharing Data between Applications with Content Providers
- Using Android Networking APIs
- Using Android Web APIs
- Using Android Telephony APIs

Deploying Android Application to the World

- Selling your Android application

Text Book:

- 1 Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education, 2nd ed. (2011)

Reference Books:

1. Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)
2. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd (2009)
3. Sayed Y Hashimi and Satya Komatineni, "Pro Android", Wiley India Pvt Ltd (2009)

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M.Sc.(C.A. & I.T.) SEMESTER - IX
903 : Cloud Computing

Unit : 1

[25%]

ASP.NET AJAX:

Understanding AJAX Technology, Need of AJAX in Web Application, Building a ASP.NET Page with Ajax Using Update Panel, Update Progress and Timer AJAX Server Controls, AJAX Control Toolkit, Downloading and Installation AJAX Control Toolkit Extenders
(The controls available in AJAX Control Toolkit)

Unit : 2

[30%]

Cloud computing:

Introduction to Cloud Computing: What is Cloud Computing, A Short History of Cloud Computing, How Cloud Computing Works - Companies in the Cloud: Cloud Computing Today - Why Cloud Computing Matters - Are you ready for Computing in the Cloud? - The Pros and Cons of Cloud Computing - Who Benefits from Cloud Computing? - Who Shouldn't Be Using Cloud Computing? - Developing Cloud Services: Why Develop Web-Based Applications? - The Pros and Cons of Cloud Service Development - Types of Cloud Service Development - Discovering Cloud Services Development Services and Tools

Virtualization concepts: Types of Virtualization & its benefits, Introduction to Various Virtualization OS (VMware, KVM etc), SAN backend concepts, Cloud Fundamentals, Cloud Building Blocks, Understanding Public & Private cloud environments

Infrastructure as a Service (IaaS): Introduction to IaaS, Resource Virtualization, Server, Storage, Network

Platform as a Service (PaaS): Introduction to PaaS, Cloud platform & Management, Computation, Storage

Software as a Service (SaaS): Introduction to SaaS, Web services

Unit : 3

[30%]

WCF (Windows Communication Foundation) Programming:

Need for SOA (Service Oriented Architecture), Why WCF, WCF Architecture
WCF Concepts (Messages (Message Structure, Message Programs, Message Patterns) Channels, Services), WCF Programming Model, WCF Addresses & Programming (Address Types, Address Formats), WCF Binding using code and Configuration file, Programming WCF Contract (Data Contracts, Service Contracts, Message Contract)

Unit : 4

[15%]

OData Fundamentals (Problem/Solution/Technology) – OData Model – OData Protocol (REST/ AtomPub/JSON/SOA) – OData Client Libraries – OData Services

Text/Reference Books:

AJAX:

1. Professional ASP.NET 3.5 AJAX , Bill Evjen, matt Gibs, Dan Wahlin, Dave Reed, Wrox publications
- 1 Microsoft® ASP.NET and AJAX: Architecting Web Applications, Dino Esposito

WCF:

- 1 Professional WCF Programming, Scott Klein, Wrox publisher
- 2 Learning WCF, Michele Leroux Bustamante, O'Reilly

Cloud Computing:

- 1 Cloud Computing (A Practical Approach) Anthony T. Velte, Toby J Velte
- 2 Cloud Application Architectures (Building Applications and infrastructure in the cloud), George Reese, O'Reilly
- 3 Cloud Computing, Barrie Sosinsky, Bible
- 4 Cloud Computing Architected, John Rhoton and Risto Haukioja
- 5 *Cloud Computing with the Windows Azure Platform* by Roger Jennings, Wrox Publications
- 6 Windows Azure Programming Patterns for Start-Ups by Riccardo Becker

H.N.G. University, Patan
M.Sc.(C.A. & I.T.) SEMESTER - IX
904 : DSS with Artificial Intelligence [Elective – I]

Unit : 1

[30%]

AI and Knowledge Based Decision Support

Artificial Intelligence: Concepts, Definitions, Fields, AI v/s Natural Intelligence

Problem Solving: Defining the Problem as State Space Search, Water-jug Problem, Production System , Problem Characteristics, Production System Characteristics.

Heuristic Search Techniques: Generate and Test, Hill Climbing, Best First Search, A* Algorithm, Problem Reduction, Constraint Satisfaction, Means - End Analysis.

Expert System: Types of Knowledge Based DSS, Basic Concepts of ES, Structure of ES, Type of ES, Development Life Cycle of ES, Problem Area's and Example Of ES, Advantages and Limitations of ES, ES and Internet/Intranet/Web.

Unit : 2

[25%]

Knowledge Representation and Knowledge Acquisition

Knowledge Representation: Introduction, Representation in logic and Other Schemas, Rules in Knowledge Representation, Multiple, Experimental and Uncertain Knowledge Representation, Knowledge Representation Techniques: Semantic Net, Frame, Script.

Knowledge Acquisition: KE Introduction, Scope Of Knowledge: Sources, Level and Categories, Difficulties in KA, Methods Of Knowledge Acquisition: Interview, Tracking Methods, Observation And Manual Methods, Expert Driven Method, RGA, Role Of Knowledge Engineer, Machine learning, KA from Multiple Experts ,V & V in Knowledge Base, Analyzing, coding, Documenting, Diagramming knowledge, Numerical and Documented KA, KA and Internet/Intranet.

Game Playing: The Minimax Search Procedure, Alpha - Beta Cutoffs.

Unit : 3

[30%]

Neural Network and Natural Language Processing

Neural Network: Machine Learning, Neural computing, Analogy, Fundamental NN, NN application Development, Data Collection and Preparation, Architecture, Back propagation Network, learning Algorithm, testing, Implementation ,Software and Hardware of NN, Benefits and Limitations, NN in ES, NN for Decision Support, Example Of NN.

Application of NN and AI: Overview, credit Approval, Bankruptcy Prediction with NN, Stock Market Prediction with NN, Integrated NN and ES, Genetic Algorithm, Optimization Algorithm, QR, Intelligent System Integration, Data mining and Knowledge Discovery.

Perception: Speech recognition, Vision, Action,

Natural Language Processing: Introduction, Phases of NLP, Syntactic Processing, Semantic Analysis, ATN (Augmented Transition Network)

Unit : 4

[15%]

Fuzzy Logic

Fuzzy Set: Introduction, Basic Types and Concepts, Basic Operation, Arithmetic and Relation, Fuzzy Decision Making

Text Books:

- 1 Decision Support System and Intelligent System
Author: Efraim Turban and Jay E. Aronson, Pub: PHI.
- 2 Fuzzy Sets and Fuzzy Logic: Theory and Applications
Author: GEORGE J. KLIR AND BO YUAN, Pub: Prentice Hall

Reference Books:

- 1 Principles of Artificial Intelligence and Expert System Development.
Author: David W. Rolston, Pub: McGraw Hill Book Company
- 2 Artificial Intelligence - Author: Elaine rich, Kevin Knight, Pub: Tata McGraw Hill

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905 : Object Oriented Analysis & Design [Elective – II]

Unit : 1

[25%]

The object Oriented Paradigm, Management of Object Oriented Software Projects, Object Oriented Analysis: Domain Analysis, Generic components of the Analysis Model, The A Process, The Object-Relationship Model, The Object-Behavior Model, Object Oriented Design: Design for Object Oriented Systems, The System Design Process, The Object Design Process, Design Patterns

Unit : 2

[25%]

Introduction to Web Engineering, Web Engineering team, Analysis for Web Application: Requirements Analysis for Web Apps, The Analysis Model for Web Apps, The content Model, The Interaction Model, The Functional Model, The Configuration Model, Relationship-Navigation Analysis, Design for We Apps: Design Issues for Web Engineering, The Web E-Design Pyramid, Web App Interface Design, Aesthetic Design, Content Design, Architecture Design, Navigation Design, Component level Design, Hypermedia Design Patterns, Object-Oriented Hypermedia Design Method

Unit : 3

[25%]

Introduction to UML, Classes, Advanced Classes, Relationships, Advanced Relationships, Interfaces, types, Roles, Packages, Class Diagram, Use-case Diagram

Unit : 4

[25%]

Interaction Diagram: Sequence Diagram, Collaboration Diagram, Forward and Reverse Engineering, Activity Diagram, State Chart Diagram, Patterns and Frameworks, Component Diagram, Deployment Diagram

Text Books:

1. Software Engineering By Roger S. Pressman Fifth Edition McGraw Hill Publications
2. Software Engineering By Roger S. Pressman Sixth Edition McGraw Hill Publications
3. The Unified Modeling Language User Guide By Booch, Rumbaugh, Jacobson Low Price Edition Publication

Reference Books:

1. Use Case Driven Object Modeling with UML, Doug Rosenberg
2. Object Oriented Software Engineering, Ivan Jacobson
3. Object Technology Application Development, Daniel Tkach and Richard Puttick