

## SYSTEMS ANALYSIS AND DESIGN

### Course Description

To introduce students to the basic concepts of IT project definition, initiation, scoping, requirements management and object oriented design. Learning outcomes: upon completion of this course, students will be able to \* Appreciate the criteria for ensuring successful IT projects, including project management and planning \* Understand the phases of a typical IT project (systems development life cycle) in order to identify the steps for analyzing, documenting, designing and deploying systems \* Produce basic models required for OO and traditional requirements analysis and documentation

Course Length: 4 Days

Course Tuition: \$1000 (US)

### Prerequisites

None

### Course Outline

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| <ul style="list-style-type: none"><li>• Introduction to systems analysis and design</li><li>Nature of systems development</li><li>SDLC / phases / objectives and deliverables</li><li>Skills / people involved</li><li>• IT project management</li><li>What is a project</li><li>Why do we need project management</li><li>What is different about IT projects</li><li>Elements of the IT project</li><li>IT project stakeholders</li><li>The effective project manager</li><li>IT project teams and staffing</li><li>• Planning phase</li><li>Vision and objectives</li><li>Problem statement</li><li>Project planning concepts and best</li></ul> | <ul style="list-style-type: none"><li>• Evaluating Alternatives</li><li>Identifying alternatives</li><li>Build / buy - customize / modify existing</li><li>Evaluating alternatives</li><li>Identifying / quantifying benefits</li><li>Estimating hardware and software costs</li><li>Other cost factors</li><li>Performing an analysis / selecting an alternative</li><li>• Design phase</li><li>UML</li><li>OO concepts</li><li>Conceptual -&gt; logical model</li><li>Designing the application architecture</li><li>Designing the user interface</li><li>Designing forms and reports</li><li>Designing the system interfaces</li></ul> |
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practices  
Why plan / why do plans fail  
The project plan  
The triple constraint / the project triangle  
Feasibility study  
Resource plan  
Scope / plan / budget  
User sign-off (go/no go decision)  
• Analysis phase  
Conceptual / logical / physical requirements and models  
Information gathering  
Types of requirements  
Defining the current state: present system and processes  
Identifying the future state  
Describing processes  
Describing data requirements  
Describing roles  
Describing system boundaries and interfaces  
Producing conceptual models  
Confirm scope, plan and budget  
Prioritize development requirements  
• User verification of requirements  
Pilots Storyboards  
Structured walk through  
• Modeling system requirements  
Why model  
Information needed to model  
Traditional approach to modeling requirements  
OO approach to modeling requirements  
Models:  
• \* Context models  
\* Collaboration diagrams  
\* Sequence diagrams  
\* State diagrams  
\* Use case diagrams  
\* Process models (activity diagrams)  
\* Data flow diagrams  
\* Entity relationship diagrams

Designing the logical database model  
• Database design  
Translating the requirements to a physical database  
Data integrity  
Data normalization  
• Development  
Managing the development effort  
Project management success criteria  
Project completion criteria  
Managing risk  
Scope control  
Project administration and control  
Prototyping  
Release planning / versioning  
The development team  
Coding  
• Testing  
Test planning  
Types of tests  
Use cases  
• Deployment  
User training  
Data conversion  
Implementation strategies  
Post implementation review  
• Maintenance  
Change management / change requests  
Configuration management  
Support  
Maintenance