System Design and Implementation Techniques

Course features

This course takes a 'tool-kit' approach to systems design, presenting models from the Unified Modeling Language (UML), such as sequence diagrams and state machine diagrams, alongside established models like the normalised data model and structured English. It is appropriate to designers working in all software environments, including those primarily working on system enhancements. The aim is that, at the end of the programme, participants will have a good understanding of the models and methods used but, more importantly, will be able to apply them in project situations.

ISEB certificates

This course prepares participants to sit a one-hour, open book, examination leading to the certificate in Systems Design and Implementation Techniques offered by the Information Systems Examinations Board (ISEB). This certificate is a core requirement of the ISEB diploma in Systems Development.

Course Content

Introduction

- Objectives and constraints of design
- Design and implementation in the systems development life cycle
- The products of analysis
- Design approach and architecture

Input and output design

- The design boundary
- Output design and technology
- Input design and technology
- Selection of appropriate output and input technologies

Human-Interface Design

- Design of input and output screens
- Dialogue types
- Usability and style guides
- Dialogue modelling
- Prototyping the interface

Logical Data Design (normalisation)

- Notation and conventions of relational data analysis
- Principles of progressive normalisation
- Rationalising results
- Building the normalised (Third Normal Form) data model

Logical Process Design

- Class diagrams (UML)
- Interaction Diagrams (UML)
- Sequence Diagrams (UML)
- Communication Diagrams (UML)
- Structured English
- Data Action Diagrams

Systems Controls

- Risk in systems development
- Physical security
- Logical security
- State machine diagrams (UML)
- Backup and recovery procedures
- Software controls
- Audit trails
- Legal requirements of the designer
- Ethical issues affecting the designer

Physical Design

- Optimising the physical design
- Principles of physical data design
- Design of codes and keys
- Principles of physical process design
- Common design patterns
- Interface and sub-system design
- Component diagrams (UML)
- Deployment diagrams (UML)
- Principles of re-factoring
- Principles of round-trip engineering

Testing

- Test cases from design models
- Design and code inspections
- Unit or component testing
- Component integration testing
- System testing
- System integration testing
- User acceptance testing
- Requirement traceability

Systems Implementation

- Implementation planning and preparation
- Changeover methods
- Handover procedures

Training

- Analysing training needs
- Methods of training delivery
- Evaluating training

Post-implementation

- Post implementation and post project reviews
- Benefits realisation
- Types of maintenance
- Change control
- Build and release strategy
- Regression testing
- Objectives and constraints of design re-visited

Further Information

For further information on this course please contact us:
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