INFS 2006 OBJECT ORIENTED ANALYSIS

Credit Points 10

Legacy Code 300144

Coordinator Jiansheng Huang (https://directory.westernsydney.edu.au/search/name/Jiansheng Huang/)

Description The core strength of this subject is to analyse and model business objectives and critical requirements of software systems to be developed using object-oriented (OO) approaches. The system analysis is taken to greater depths within the context of Object Orientation. The Unified Modelling Language version 2.0 (notably use cases, user case diagrams, activity diagrams, class diagrams and sequence diagrams) is used as the modelling standard for creating OO models in the problem space. The subject also covers the rational unified process methodology and applications of design patterns for software development through practical case studies.

School Computer, Data & Math Sciences

Discipline Systems Analysis and Design

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) INFS 1006

Equivalent Subjects MATH 2013 Object Oriented Analysis (WSTC)

Assumed Knowledge

General understanding of what an information system is and how information systems development is undertaken and
• Introductory knowledge about system analysis and design, including
- basic problem solving experience in computerised information systems
- ability to derive systems requirements from problem definitions
- ability to produce system models using process, data, object and network modelling.
- understanding design and implementation issues include, (but may not be limited to), elementary database design, input, output and user interface design and prototyping.
• General knowledge on programming languages
- Understanding difference between procedure programming and object oriented programming
- Introductory knowledge of classes and objects and the class construction
- Introductory knowledge on object orientation, including encapsulation, inheritance.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explain the theoretical fundamentals underpinning Object Oriented Analysis.
2. Identify Unified Modelling Language (UML) of the Object Management Group (OMG) for analysing software requirements,
3. Outline an object oriented lifecycle and methodology and explain the process of object oriented analysis, especially within the context of iterative and incremental nature of the process,
4. Apply the iterative and adaptable process frame work of RUP in software development.
5. Construct well-documented UML-based artefacts from the early phases of the development process for the case study,
6. Construct the Model of the Problem Space based on the analysis in an industrial CASE tool,
7. Apply team work skills in a small development team, including: distributing the development workload, resolving disputes, running meetings, and taking minutes,
8. Identify and create operational (non-functional) requirements of a system including performance and security,
9. Develop a report based on verbal and written instructions about the performance of software development tasks and associated administrative duties,
10. Illustrate quality assurance, quality control and user-expectations via reports and theoretical explanation.
11. Explore possibilities of applying design patterns in software design.

Subject Content

1. The concepts of Object Orientation including the fundamentals, processes and application of the concepts to practical modelling and object-oriented analysis techniques,
2. Three modelling spaces: Problem, Solution and Background; Roles in Requirement Analysis,
3. Critical Requirement Analysis and Business Evaluation to arrive at high-level requirements and their prioritisation,
4. Package Diagrams and high-level slicing of packages as sub-systems,
5. Four phases of Rational Unified Process: Inception (RUP), Elaboration, Construction and Transition,
6. Documenting Actors and Use Cases,
7. Introduction to Use Case Diagrams, Use Case Notations, Relationships, Analysis & Testing,
8. Activity Diagrams as mechanisms to document the flow of the system/use case,
9. Class Notations and definition of a class including attributes and operations,
10. Documenting Class Diagram and Relationships between various classes such as Association and Inheritance,
11. Documenting Sequence Diagrams and the persistence design with Class and Sequence Diagrams,
12. Major ingredients and creation of State Chart Diagrams,
13. Prototypes and Operational (Non-Functional) Requirements including Performance, Scalability, Security & Volume,
14. Quality assurance, management and testing aspects of a system,
15. Emerging technologies and design,
16. Introduction to Creational, Structural and Behavioural design patterns.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Participation	Ten 2-hour Tut/Lab sessions	20	N	Individual

Applied Project	1 group project, equal score for every member in the group, take 30 - 40 hours for each member to complete his/her own work (group assessment).	30	N	Group
Final Exam	3 hours	50	N	Individual

Prescribed Texts

- Daoust, Norman, UML Requirements Modeling for Business Analysts: Steps to Modeling Success

Teaching Periods

Sydney City Campus - Term 2 (2023)

Sydney City

On-site

Subject Contact Antoinette Cevenini (https://directory.westernsydney.edu.au/search/name/Antoinette Cevenini/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFS2006_23-SC2_SC_1#subjects)

Autumn (2024)

Campbelltown

On-site

Subject Contact Jiansheng Huang (https://directory.westernsydney.edu.au/search/name/Jiansheng Huang/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS2006_24-AUT_CA_1#subjects)

Penrith (Kingswood)

On-site

Subject Contact Jiansheng Huang (https://directory.westernsydney.edu.au/search/name/Jiansheng Huang/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS2006_24-AUT_KW_1#subjects)

Parramatta - Victoria Rd

On-site

Subject Contact Jiansheng Huang (https://directory.westernsydney.edu.au/search/name/Jiansheng Huang/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS2006_24-AUT_PS_1#subjects)

Sydney City Campus - Term 2 (2024)

Sydney City

On-site

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