WESTERN SYDNEY
UNIVERSITY

The College

OBJECT ORIENTED ANALYSIS

700039

2020

UNIT OUTLINE

Last amended:	October 2020

Western Sydney University The College

Nirimba Education Precinct

Eastern Road

Quakers Hill NSW 2763

Postal address:

PO BOX 224
Quakers Hill NSW 2763
Phone: (02) 9852 4488
Fax: (02) 9852 4480

Disclaimer

Unit name	Object Oriented Analysis
Unit number	700039
Coordinator	Dr Buddhima De Silva
Session	2020.3
Handbook summary	The core strength of this unit 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, activity diagrams, class diagrams and sequence diagrams) is used as a modelling standard for creating OO models in the problem space. The unit also covers the rational unified process methodology and applications of design patterns for software development through practical case studies.
Credit point value	10
Prerequisite/s	Students enrolled in 7004 Diploma in Information and Communications Technology Fast Track, 7005 Diploma in Information and Communications Technology, 7067 Diploma in Information and Communications Technology Extended, 7134 Diploma in Information and Communications Technology Extended – ICT, 7138 Diploma in Information and Communications Technology Extended - ICT, 7139 Diploma in Information and Communications Technology Extended, 7140 Diploma in Information and Communications Technology Extended - Information Systems, 7163 Diploma in Information and Communications Technology, 6035 Diploma/Bachelor of Information and Communications Technology, 6036 Diploma in Information and Communications Technology/Bachelor of Information Systems, 6039 Diploma/Bachelor of Information and Communications Technology and 6040 Diploma in Information and Communications Technology / Bachelor of Information Systems, must pass 700013 Systems Analysis and Design before enrolling in this unit.
Corequisite/s	N/A
Unit incompatible with and not to be counted for credit with	N/A
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.
Unit level	2

Attendance requirements	Students are expected to attend at least 80% of classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.
Enrolment restrictions	Students must be enrolled at Western Sydney University, The College. Students enrolled in Extended Diploma courses must have passed 40 credit points of preparatory units in order to enrol in this unit. Students enrolled in the combined Diploma/Bachelor courses listed below must pass all College Preparatory units listed in the course structure before progressing to the Year 2 units.
Learning outcomes	On successful completion of this unit, 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 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 framework 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 teamwork 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, and
11. explore possibilities of applying design patterns in software design.

Unit content	In this unit students will learn about:

- the concepts of object orientation including the fundamentals, processes and application of the concepts to practical modelling and object-oriented analysis techniques
- three modelling spaces: problem, solution and background; roles in requirement analysis
- critical requirement analysis and business evaluation to arrive at high-level requirements and their prioritisation
- package diagrams and high-level slicing of packages as sub-systems
- four phases of rational unified process (RUP): inception, elaboration, construction and transition
- documenting actors and use cases
- introduction to use case diagrams, use case notations, relationships, analysis and testing
- activity diagrams as mechanisms to document the flow of the system/use case

- class notations and definition of a class including attributes and operations
- documenting class diagrams and relationships between various classes such as association and inheritance
- documenting sequence diagrams and the persistence design with class and sequence diagrams
- major ingredients and creation of state chart diagrams
- prototypes and operational (non-functional) requirements, including performance, scalability, security and volume
- quality assurance, management and testing aspects of a system
- emerging technologies and design, and
- an introduction to creational, structural and behavioural design patterns.

Mode of delivery	This unit consists of two hours of online lecture and two hours of online practical session per week. In addition to that, there will be activities on the unit's vUWS website.
Online learning requirements	In addition to attending online classes the students are expected to access vUWS and check their student email account at least twice a week. Access to the unit's vUWS site is only available to students who are enrolled in the unit. Student enrolment can be cancelled for failure to meet financial obligations to the university, eg failure to pay library fines. If access is unavailable, students should contact Student Services to check enrolment.
Essential requirements	**Essential text** • Unhelkar, B 2005, *Practical object oriented analysis*, Thomson Learning, Southbank, Vic. (ISBN: 0170122980) **Further resources** For a list of additional readings, please see the unit's Learning Guide.

ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components:

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Participation	10%	1-11	Yes
2. Applied Project	25%	2,5,11	Yes
3. Quiz	15%	1–6	Yes
4. Report	50%	1–6, 8-10	Yes
Total	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College Assessment Policy.

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.

In order to pass this unit, students must:

- attempt/submit all mandatory assessments, and
- obtain a minimum overall mark of 50%.