NEW ZEALAND INSTITUTES OF TECHNOLOGY AND POLYTECHNIC QUALIFICATIONS IN INFORMATION & COMMUNICATIONS TECHNOLOGY

PRESCRIPTION: OO500 OBJECT-ORIENTED TECHNIQUES

AIM OF MODULE:	The student will be introduced to object-oriented concepts and processes and will practise object-oriented analysis and design at an introductory level.
CREDITS:	7
KNOWLEDGE ASSUMED FROM:	PD500 Program Development PP400 Programming Principles
STUDENT LEARNING HOURS:	70
CONTENT REVISED:	1998
PRESCRIPTION EXPIRY DATE:	Nov 2011

Level and Assessment Schedule

TOPICS	Highest Skill Level R	C	A	P	Suggested Assessment Percentage
1. Concepts and Terms		*			10
2. OO in Contrast to Procedural Development		*			10
3. OO Systems Analysis and Design		*			35
4. OO Class and Object Design			*		25
5. Comparison of OO Tools		*			10
6. Commercial Applications		*			10
					100

LEARNING OUTCOMES

The student will:

C 1 Describe the basic concepts and vocabulary of object-orientation.

C 2 Describe the differences between 'behaviour driven' (i.e. object-oriented) systems and 'data driven' (i.e. procedural) systems. Describe the advantages that object-orientation is meant to achieve and the problems which may arise when mixing object-orientation and other methodologies.

C 3 Describe the methods and techniques for; object-oriented analysis and modelling, dynamic object-oriented analysis and modelling, and of object-orientation systems design. Explain the importance of patterns in object-oriented development and describe common object-oriented design patterns.

A 4 Explain the methods and techniques of designing a class hierarchy of objects, explain the inheritance of data and methods for objects within a class hierarchy and design class hierarchy structures demonstrating these design methods.

C 5 List the current object-oriented languages used in a commercial environment and contrast the critical differences of the languages listed.

C 6 Describe current and possible future uses of object-oriented techniques, including transition from one methodology to another, and describe a commercial organisation that uses object-orientation.

CONTENT

1 CONCEPTS AND TERMS

- Basic concepts of object-orientation and understand the associated terms including:

  - Object
  - Encapsulation
  - Data abstraction
  - Association
  - Information hiding
  - State
  - Events
  - Method/Operation
  - Attributes
  - Message

- Class
- Superclass
- Subclass
- Patterns
- Inheritance
- Class Instance

2 OO IN CONTRAST TO PROCEDURAL DEVELOPMENT

- Differences between structured systems 'procedural' development and object-oriented systems development.

3 OO SYSTEMS ANALYSIS AND DESIGN

- Industry standard object-oriented system analysis techniques.

4 OO CLASS AND OBJECT DESIGN

- The process of class and object design in an object-oriented environment; the design of class structures that utilise inheritance and association.

5 COMPARISON OF OO TOOLS

- Current and commercially used object-oriented programming tools/environments used in the business environment.

6 COMMERCIAL APPLICATIONS

- Current and possible future use of object-oriented technologies and processes in commercial information systems.

NOTES

- This module is an overview concerned with analysis and design. It is recommended that any desired programming should be covered in an appropriate PP51(n) module.

- It is expected that students will derive the information from an existing case study of a commercial organisation.