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

PRESCRIPTION: QA600 QUALITY ASSURANCE

AIM OF MODULE:	Students will gain an understanding of the role of quality assurance in business computing.
CREDITS:	7
STUDENT LEARNING HOURS:	70
CONTENT REVISED:	2000
PRESCRIPTION EXPIRY DATE:	Nov 2011

Level and Assessment Schedule

TOPICS	Highest Skill Level R	C	A	P	Suggested Assessment Percentage
1. Theory of Quality Assurance			*		15
2. Software Quality Assurance Reviews			*		10
3. Testing and Testing Strategies			*		25
4. Application Package Test			*		50
					100

LEARNING OUTCOMES

Students will:

A 1 Critically evaluate the reasons for software quality assurance and validation and explain where it can be applied in the software development process.

A 2 Critically evaluate the types of SQA reviews and the kinds of SQA organisation.

A 3 Distinguish between the different types of testing and testing strategies.

A 4 Design test cases, create a test implementation plan, and conduct a full SQA test project for a module/application package.

CONTENT

1 THEORY OF QUALITY ASSURANCE

- The origins and application of quality, quality control and quality assurance, including such other aspects as:
  - Total Quality Management
  - Dr W. Edwards Deming
  - guidelines for implementing a Quality Management System
  - quality system standards/objectives of standards
  - an overview of the ISO 9000 Standards, particularly as to how they apply to the software industry
  - the role of quality assurance in the software development life cycle

2 SOFTWARE QUALITY ASSURANCE REVIEWS

- The principles and practices of software quality assurance, including such other aspects as:
  - generally accepted principles of good software
  - quality assurance and validation techniques and organisation
  - software measurement techniques (function points or metrics)
  - planning for and the various plans involved in software reviewing
  - code review guidelines
  - an in-depth look at review procedures, including formal and informal reviews, self management and peer reviews

3 TESTING AND TESTING STRATEGIES

- The principles and practices of software testing and testing strategies, including such other aspects as:
  - the difference between testing to specification and testing to code
  - the difference between testing "on-the-fly" and testing to plan
  - myths about testing
  - testing axioms
  - items traditionally done badly
  - terms and techniques and Bug Classification
  - the principles of proof of error
  - the principles of "good enough" software, including Ed Yourdan's theory of operational capability

4 APPLICATION PACKAGE TEST

- For a module of code or an application package, students will carry out a full software quality assurance programme, including:
  - design test cases and develop data and expected results for all conditions
  - create a test implementation plan
  - conduct a full test with detailed results, including, for the application package, testing "on-the-fly" and testing to planned test cases.
  - detailed results are also to include proof and classification of errors