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

PRESCRIPTION: NC500 NETWORK CABLING

AIM OF MODULE:	To enable students to install a basic cabling system for use with telecommunications and computer systems.
CREDITS:	7
STUDENT LEARNING HOURS:	70 student learning hours
CONTENT REVISED:	2008
PRESCRIPTION EXPIRY DATE:	Nov 2011

Level and Assessment Schedule

TOPICS	Highest Skill Level R	C	A	P	Suggested Assessment Percentage
1. Cabling Systems		*			15
2. Installation Facilities		*			10
3. Installation Documentation		*			5
4. Systems Hardware		*			20
5. Cable Installation			*		50
					100

LEARNING OUTCOMES

The student will:

C	1	Describe typical cabling system features.
C	2	Explain telecommunications pathways requirements.
C	3	Describe basic installation documentation requirements.
C	4	Describe the various hardware components of a cabling system.
A	5	Practice correct cabling installation techniques.

CONTENT

1 Cabling Systems

- A description of the structured building cabling systems for telephone and computer LAN networks installed according to the most recent New Zealand Standard; e.g. AS/NZ 3080, will include:
  - Star structure
  - Distributors
  - Backbones
  - Telecommunication closets
  - Equipment rooms
  - Horizontal cabling
  - Telecommunications outlets
  - Work areas
  - The standard system cable lengths

2 Installation Facilities

- An explanation of the telecommunications pathways and spaces for commercial buildings according to the most recent standard; e.g. Australian Standard AS 3084, will include:
  - Intra-building elements
  - Horizontal pathways
  - Backbone pathways
  - Entrance facilities

3 Installation Documentation

- A description of the basic requirements for identification of cabling and pathway system components and recording of installation particulars according to the most recent standard; e.g. Standard AS/NZ 3085.1, will include:

- The use of identifiers
- The use of labels
- The requirements for keeping of records
- The use of indoor and outdoor infrastructure diagrams

4 Systems Hardware

- A description of the various types of cabling and hardware used in a systems network will include:
  - UTP
  - STP
  - Coaxial cable
  - Optical fibre
  - The IBM cabling system or any other current system
  - Telecommunications plugs and sockets
  - Data plugs and sockets
  - Patch-cords
  - Patch panels and Baluns
  - Terminations

5 Cable Installation

- Practicing correct cable system installation techniques will include factors which affect system integrity such as:
  - Stress
  - Crush
  - Length
  - Termination
  - Markings and colour codes

- The requirements for minimising electrical interference (noise) including:
  - Shielding
  - Grounding
  - Earthing
  - Cable separation

- Correct wiring of system connectors, such as:
  - Three-wire telephone cable
  - Two-wire telephone cable

- UTP cable
- STP cable and co-axial cable

➢ Requirements for testing such as:
- Acceptance testing
- Trouble shooting
- Compliance testing

Resources

➢ Cabling: The Complete Guide to Network Wiring (1st edition) by David Groth & Jim McBee. ISBN-13: 978-0782126457 (Published by Sybex Inc; May 15, 2000

➢ Communications Cabling by James Abruzzino. ISBN-13: 978-0967163000 (Published by CNC Press, December 1, 1998)

Web links:

➢ Telecommunications and networking Cabling Tips: http://searchnetworking.techtarget.com/generic/0,295582,sid7_gci1050450,00.html# (Accessed August 2008)