Diploma of Network Engineering

COURSE OUTLINE
The diploma program provides a student-centred program of theoretical coursework and practical technical skills, tailored to the curricula recommendations of both national and international professional Information Technology bodies.

The program is designed to produce both discipline-specific outcomes and generic skills. These include: the development of advanced skills in communication and problem solving; a broad understanding of information technology issues and IT’s relation to other disciplines; the ability to apply these new capabilities to a wide range of related situations in order to access information efficiently and adapt to future changes in information storage and retrieval.

GRADUATE OUTCOMES
Graduates of this course will have the skills and knowledge to design, commission and maintain an IT network that matches client expectations.

CAREER OPPORTUNITIES
Study opportunities are also provided to assist students to undertake sought-after industry training modules, including Cisco and Microsoft.

PROFESSIONAL RECOGNITION / MEMBERSHIP
Graduates are eligible for membership at associate level of the Australian Computer Society.
COURSE STRUCTURE

DIPLOMA OF NETWORK ENGINEERING

Semester 1

**Cultural Intelligence and Capability**

Design and Innovation provides students with the opportunity to learn about design, sustainable community development, team work and communication whilst contributing towards real international development projects. Students work in multidisciplinary teams to design solutions for projects ranging from water supply and quality to sanitation, health and education programs, and other infrastructure developments. Developing creative solutions and building prototypes is a major focus in this unit. The other component, academic literacy skills, is approached in the context of researching and communicating about the design project.

**Computing Fundamentals**

This unit provides an overview of the discipline of IT, the historical perspectives and fundamental concepts of computation. It describes IT relates to other computing disciplines. It covers topics related to both computer and systems’ architecture, with an overall focus on the services and capabilities that IT infrastructure solutions enable in an organizational context. This unit equips students with the appropriate skills to troubleshoot hardware problems for a computer. An introduction to web development technologies xhtml and css will also be explored.

**Operating Systems and Applications**

This unit covers the fundamentals of multiple operating systems and their associated applications. Students will gain insight into both the differences and similarities between operating system architectures. This is the first of two units that prepare students to undertake the necessary examinations to qualify for an IT Professional Certification. The unit covers specific technologies and methodologies that will help provide students with knowledge and skills required by industry. To achieve an IT Professional Certification, students will have to pass an examination external to CDU.

**Network Engineering Concepts**

Virtually all IT applications involve networking. This unit provides students with an introduction to the principles and concepts associated with contemporary data communications systems and networks. In particular the student is introduced to the underlying principles of a Data Communications system. These principles are then applied to explain the operating and functioning of the internet and its associated TCP/IP protocol family. This is an introductory unit to networking with more advanced networking topics covered in HIT174.

Semester 2

**Design and Innovation: Communicating Technology**

CUC107 Cultural Intelligence and Capability explores important issues related to living, studying and working in the diverse social and cultural environments of contemporary society. The unit examines the broad interactions between knowledge, experience and behaviour, the way in which these relate to our perceptions of culture and how they shape our interactions within the workplace and at a social and academic level. CUC107 explores the notion of cultural intelligence and the need for people to be capable of identifying and analysing the cultural dynamics of social, academic and workplace interactions. This unit establishes the importance of developing spaces for people to operate safely and effectively to be inclusive of all members of the community and broader society. The study program provides a structure for students to reflect upon, analyse and articulate how to respond to the diverse cultural circumstances into which people are immersed as a student and as a graduate.

**Software Now**

The unit will provide an introduction to a first programming language including basic control structures common across languages. It introduces concepts and technologies associated with platform-independent, object-oriented programming. Students will combine practical experience in using professional standard Integrated Development Environments (IDEs) such as Netbeans and Eclipse to create applications with associated theoretical concepts.

**Network Infrastructure**

This unit introduces students to the infrastructure of modern computer networks and their associated client-server technologies. It also prepares them to determine and solve current computer network issues within organizations. This is the second of two units that prepare students to undertake the necessary examinations to qualify for an IT Professional Certification. The unit covers specific technologies and methodologies that will help provide students with knowledge and skills required by industry. To achieve an IT Professional Certification, students will have to pass an examination external to CDU.

**Choose 1 of the following electives**

**Network Engineering Applications**

This unit covers a broad aspect of networking and prepares students to undertake the necessary examination to qualify for Cisco Certified Entry Networking Technician (CCENT). Students will learn about the TCP/IP; OSI networking models and on how to operate Cisco routers and LAN switches. They will also learn to troubleshoot network problems that include wired and wireless configurations. This unit carry on from HIT174 to give the students a practical understanding of networking.

**Organisational Security**

This unit gives an overview of electronic and web-enabled business within the context of security and risk management; E-Business models, process, strategies and relationships. The legal and ethical issues in E-Business, computer and Internet crime, the risks of insecure systems and risk management strategies for E-Business are also covered. Further investigation of Internet security standards; cryptography and authentication, firewalls and securing payments over the Internet will also be done.

**Project Management**

Introduction to project management; the project; ethical issues in conducting projects; statement of work and the specification; project work breakdown structure and team recruitment; generating a project task list; project Garnt chart; critical path analysis; risk analysis basics and time buffer calculations; budgeting and costing; project plan review; project execution; project change; project communication and team building; achieving closure; types of projects: basic projects, major projects, macro projects; international projects in the global environment. A team project activity will form an integral part of this unit to practice project management concepts.