

Course Title:	Computer Network Applications
Course Code:	ENEL611
Descriptor Start Date:	31/01/2025
Descriptor End Date:	31/12/2025
POINTS:	15.00
LEVEL:	6
PREREQUISITE/S:	COMP504 or ENEL504
COREQUISITE/S:	None
RESTRICTION/S:	None

LEARNING HOURS

Hours may include lectures, tutorials, online forums, laboratories. Refer to your timetable and course information in Canvas for detailed information.

Total learning hours: 150

PRESCRIPTOR

To provide the knowledge and skills required to build a scalable switched and routed Wide Area Network.

LEARNING OUTCOMES

1. Understanding basic switching concepts and the operation and security of Cisco switches, Cisco routers and routing tables (a, b, c, f, i, j).
2. Understand how VLANs operate and how they can route between them (a, b, c, i).
3. Understanding Static and Dynamic Routing Protocols (a, b, c, i).
4. Configure Dynamic Host Configuration Protocol (DHCP) for IPv4, SLAAC and DHCP for IPv6 (a, b, c, i).
5. Discuss Spanning Tree Protocol (STP), EtherChannel, First Hop Redundancy Protocol, (a,b,c,i,j).
6. Apply WLAN Concepts, Troubleshooting Techniques (a,b,c,i,j).
7. First Hop Redundancy concepts and applications

Disclaimer: Course descriptors may be amended between teaching periods/semesters

CONTENT

- Revise Classless Routing and Variable Length Subnet Masking
- Advanced Ethernet technologies and switching.
- Routing configuration. Static and Dynamic.
- Routing Protocols. RIPv2
- Security at Layer 2
- Managing IOS software, Device Discovery and Device Management.
- Switching concepts and techniques
- Switch Security
- VLAN Implementations. Inter-VLAN Routing.
- DHCPv4 and DHCPv6
- Planning and documentation

Key to Graduate Capabilities Profile

- Engineering knowledge
- Problem analysis
- Design/development of solutions
- Investigation
- Modern tool usage
- The engineer and society
- Environment and sustainability
- Ethics
- Individual and teamwork
- Communication
- Project management and finance
- Lifelong learning

LEARNING & TEACHING STRATEGIES

- Lectures
- Labs using networking hardware and simulators.

ASSESSMENT PLAN

Assessment Event	Weighting %	Learning Outcomes
Labs and Quizzes	40.00	1-5
Mid-semester test	20.00	1-3
Final Exam	40.00	1-5

Grade Map

MAP1

A+ A A- Pass with Distinction
B+ B B- Pass with Merit
C+ C C- Pass
D Fail

Overall requirement/s to pass the course:

To pass this course, students must attempt all summative assessments and achieve a minimum overall grade of C-.

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LEARNING RESOURCES

Cisco Networking Academy Site www.netacad.com A recommended reading list will be provided

For further information, contact: Te Ara Auaha - Faculty of Design & Creative Technologies

Principal Programme: **AK3719, Bachelor of Engineering Technology**

Related Programme/s: **AK3697**
AK3698
AK3756
ICE1
INEXCH1
SABRD1

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