



Module Descriptor

Code: CE00997-3**Version:** 2**Approval Status:** Qa in progress**Title:** NETWORKS AND PROTOCOLS**Section:** Computing, Engineering & Technology**Field:** CS**Level:** 3

Contact	E-mail Address	VLE
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Pattern Of Delivery

Credits	Contact Hours	Independent Study Hours	Total Learning Hours	Description of Pattern of Delivery
15	48	102	150	Pattern 1, study 100% in period 1
				Pattern 2, study 100% in period 2

Site
STAFFORD

Registration Conditions	Module Version Condition Text
None	

Module Details	
Assessment Details	A Project weighted at 70%. A CLASS TEST length .83 HOURS weighted at 30%. Class Test, 50 minutes 30% - learning outcomes 1, 2 and 3. Project - Report on a set of network simulation tutorials using Opnet simulation software weighted at 70%. Learning outcome 4
Indicative Content	Communication architecture and network protocol layering. Network hardware - local area networks and wide area networks with consideration of alternative methods and newer communication technologies such as ISDN, ATM, wireless and cellular networking technology, and satellite networks. LAN Topologies (e.g. bus, ring, star), LAN standards (e.g. IEEE802.x series). Network Protocols - hierarchical protocol layer models. The ISO OSI model (layers 1-7). General concepts of routing, flow control and error recovery. Internetworking - principal concepts and architecture of heterogeneous networks and internetworking protocols such as ARP, HTTP, ICMP, IP, TCP and UDP. WAN technologies and services (e.g. leased lines, ISDN, Frame Relay) Application-layer software (e.g. e-mail, FTP, Web browsers and Web servers) Network management (e.g. network management categories, SNMP, MIB, RMON)
Learning Strategies	Lectures 2 hours per week, tutorial/practical 2 hours per week, directed reading and research. The practicals will go through exercises that will help students to understand and give practical application to the lecture material. (1:n)2 (1:20)2
	This module starts with an overview of the development and operation of computer networks covering data communication and network infrastructure. Then it moves on to communication

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Prospectus Information	architecture and protocol layering to prepare the grounds for computer networking software, services and protocols. This module is also supported by practical work which involves work areas of computer networks. It uses tools such as network simulation software and students will be able to model and simulate appropriate computer networks.
Resources	Standard network laboratory facilities. Opnet IT Guru Academic Edition.
Special Admissions Requirements	Students must be registered on the special programme run for EFREI.
Texts	Communications and Networking: An Introduction, John Cowley, 2007, Springer, ISBN: 1-84628-488-0 Computer Networks and Internets with Internet Applications, Douglas E Comer and Ralph E Droms, 2004, 4th Ed, Prentice Hall, ISBN: 013123627 X Computer Networks, 4th Edition (International Edition), Andrew Tanenbaum, Publisher: Prentice Hall PTR, 2003, ISBN: 0-13-038488-7

Learning Outcome	
1. EXPLAIN HOW NETWORKING COMPONENTS WORK AND HOW THEY CAN BE PUT TOGETHER TO IMPLEMENT A SYSTEM.	Knowledge & Understanding
2. EXPLAIN AND CRITICALLY EVALUATE LAYERED PROTOCOLS (INCLUDING OSI AND TCP/IP), LAN AND WAN STANDARDS, HARDWARE AND SOFTWARE COMPONENTS.	Learning
3. CRITICALLY COMPARE AND EVALUATE LAN AND WAN TECHNOLOGY AND ARCHITECTURES.	Knowledge & Understanding
	Learning
4. DESIGN, IMPLEMENT AND INVESTIGATE NETWORKS USING APPROPRIATE SIMULATION SOFTWARE, INTERNETWORKING TOOLS AND TECHNOLOGY IN MULTI-PROTOCOL ENVIRONMENTS.	Application
	Enquiry