

Computer Communications and Networks (INFR09027): Current DRPS Entry

School	School of Informatics
College	College of Science and Engineering
Credit level (Normal year taken)	SCQF Level 9 (Year 3 Undergraduate)
Availability	Availability to all students
SCQF Credits	10

Summary

This is an introductory course on Computer Communications and Networks, focusing on fundamental concepts, principles and techniques. The course will introduce basic networking concepts, including: protocol, network architecture, reference models, layering, service, interface, multiplexing, switching and standards. An overview of digital communication from the perspective of computer networking will also be provided. Topics covered in this course include: Internet (TCP/IP) architecture and protocols, network applications, congestion/flow/error control, routing and internetworking, data link protocols, error detection and correction, channel allocation and multiple access protocols, communication media and selected topics in wireless and mobile networks. This course will also give hands-on experience in network programming using the socket API.

Course description

- * Introduction to Computer Networking and the Internet
- * Digital Communication Basics
- * The Application Layer
- * The Transport Layer
- * The Network Layer
- * The Data Link Layer
- * The Medium Access Control Sub-Layer
- * The Physical Layer

Relevant QAA Computing Curriculum Sections: Computer Communications, Computer Networks

Pre-requisites

None

Learning and Teaching Activities

Total Hours: 100 (Lecture Hours 18, Summative Assessment Hours 2, Programme Level Learning and Teaching Hours 2, Directed Learning and Independent Learning Hours 38, Coursework 40)

Assessment

Written Exam 60 %, Coursework 40 %, Practical Exam 0 %

One programming assignment: you should expect to spend approximately 40 hours on the coursework for this course.

Learning Outcomes

On completion of this course, the student will be able to:

1. Be able to explain key networking concepts, principles, design issues and techniques at all protocol layers.
2. Be able to contrast between different types of networks (e.g., wide area networks vs. local area networks, wired vs. wireless) in terms of their characteristics and protocols used.
3. Be able to describe the Internet architecture, salient features of TCP/IP protocols, and unique characteristics of Ethernet and Wireless LANs.
4. Have obtained hands-on experience in programming applications and protocols using TCP/UDP sockets.