Teachers Notes

Details
Module number: MM32021/CO32006
Module name: Computer Networks and Distributed Systems
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Email: w.buchanan@napier.ac.uk
WWW reference: http://www.dcs.napier.ac.uk/~bill/cnds/cdsMOa.html
PDF reference: http://www.dcs.napier.ac.uk/~bill/cnds/cdsMOa.PDF
RTF reference: http://www.dcs.napier.ac.uk/~bill/cnds/cdsMOa.doc

Timetable (Lecture/Tutorial)
The usage of Tutorial sessions is flexible and may vary depending on whether the main material has been covered in the Lecture session.

Week 1  The first unit contains an introductory chapter which gives an overview of networking and the Internet. This should then follow onto a discussion on the OSI model and the typical applications used at each layer. In the first week, the students should also be introduced to the local network, and be given login’s, as well as being shown how to access the Internet. The first Practical Worksheet is provides a gentle introduction to the WWW, and its search facilities.

Week 2  The second unit covers some of the fundamentals of networking, and discusses networking topology, networking elements, and an introduction to network cabling. In the tutorial session, the students will be given the first multiple-choice tutorial, which is based on the material in Unit 1.

Week 3  The third unit covers Ethernet, and should provide a foundation in the methods that Ethernet uses to communicate, and the different types of Ethernet. In the tutorial, the students will be given the second multiple-choice tutorial, which is based on the material in Unit 2.

Week 4  This is a continuation of the Ethernet material and discusses vLANs and ARP. In the tutorial, the students will be given the third multiple-choice tutorial, which is based on the material in Unit 3.

Week 5  The forth unit gives an introduction to ATM. The main points to emphasize are that ATM integrates different types of networking traffic, and the method that ATM uses to route cells around the network. If possible discuss a practical network which uses ATM (see EaStMAN and SuperJANET structure, for an example).

Week 6  The fifth unit provides the first formal coverage of TCP/IP (although students should have encountered IP and TCP in the Practical sessions). The main points to emphasize are data encapsulation, the IP header, IP classes and IP allocation.

Week 7  The sixth unit provides a foundation in TCP/UDP. The main point to emphasize is the functions of the Transport Layer, such as flow control and windowing.

Week 8  This is a continuation of the TCP/UDP material. The main points to emphasize are the TCP/UDP headers, and usage of sockets. The three-way handshake is not important and should only be covered if time permits.

Week 9  The seventh unit discusses the WWW.

Week 10  The eight unit discusses security. If possible, relate security to the local institution, and how security is implemented locally. Also, a practical example of a security breach helps to
make the subject more interesting (such as Melissa or the Love Bug).

**Week 11**
The ninth unit discusses firewalls. Again, if possible, relate the usage of firewalls to the local institution, or a local company.

**Week 12**
The tenth unit discusses electronic mail. The main points to emphasize are how the header information integrates with the message, and how MIME improves the basic electronic mail system.

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### Timetable

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<th>Lecture/Tutorial 2</th>
<th>Practical/Project (see below)</th>
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<td>Unit 1 (OSI Model)</td>
<td>Worksheet 1 (Network Introduction and Introduction to the WWW)</td>
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Note 1. Practicals and the Project require customization for the local network, and will change depending on each College/University. Drafts of the Practicals and the Project are enclosed, and final versions will depend on the local College/University.

### Reference material

