

Module Title Mobile Computing	Reference CM4010 SCQF SCQF Level 10 SCQF Points 15 ECTS Points 7.5 Created December 2002 Approved April 2005 Amended August 2007 Version No. 3
Keywords Wireless Web, Mobile IP, data communication, mobile networks	

This Version is No Longer Current

The latest version of this module is available [here](#)

Prerequisites for Module

CM3020 Operating Systems
AND CM2007 Interactive
Object Oriented Programming or
equivalent.

Mobile IP: Network layer
principles. Agent Discovery.
Registration. Encapsulation.
Tunnelling. Security. Mobile
Transport layer protocols.

Corequisite Modules

None.

Mobile operating Systems (e.g.
Pocket PC), wireless LANS 802.11,
WiFi hotspots. Java 2 Micro Edition
(J2ME); Connected Limited Device
Configuration (CLDC); Mobile
Information Device Profile (MIDP);
MIDP persistent data storage;
Generic Connection Framework;
applications of XML in Mobile
Computing; data synchronization in
mobile devices; web service for
mobile devices; WAP2.0 and
XHTML.

Precluded Modules

This module may not be taken as
an elective if either CM3019 or
CM4015 have been studied
previously.

Aims of Module

To provide the student with a
basic understanding of the

Indicative Student Workload

Contact Hours

Full Time

technology underlying mobile computing devices and systems. To enable the student to develop effective mobile computing applications using appropriate software tools and technologies.

Lectures	24
Tutorials	12
Laboratories	20
Assessment	3
Coursework preparation	10

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1.Explain the capabilities and limitations of mobile computing technology including mobile phones, PDA, palmtops, notebooks and other wireless devices.
- 2.Explain and critically compare various mobile network standards and protocols for computing applications.
- 3.Describe how mobile devices can work with fixed network computers in implementing various types of application.
- 4.Select and make effective use of software tools to implement, simulate / test mobile applications for Personal Digital Assistants (PDA?s) and Wireless application (WAP enabled) mobile phones.
- 5.Design and develop effective mobile computing applications based on a considered choice of system architecture and integrating appropriate

Directed Study

Directed Reading	20
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Private Study

Private Study	61
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Mode of Delivery

Key concepts are introduced and illustrated through lectures. These are then reinforced through problem-solving tutorial sessions. The necessary practical skills are developed through a series of laboratory exercises.

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,2,3
Component 2	4,5

Component 2 - Coursework

Component 1 - This is a closed book examination.

Indicative Bibliography

software tools and technologies.

Indicative Module Content

Protocols and Standards: Current Circuit-switched data systems, SMS, General Packet Radio Service (GPRS), Global System for Mobiles (GSM), 2nd and 3rd generation digital mobile communication standards. Bandwidth. Compatibility. National and International standards. Future developments.

1. RISCHPATER, R., 2000. Wireless Web Development. Apress.
2. CHLAMTAC, I., 2000. Wireless and Mobile Network Architectures. Wiley.
3. HJELM, J., 2002. Creating Location Services for the Wireless web. Wiley.
4. SOLOMON, J., 1998. Mobile IP. Prentice Hall.
5. SCHILLER, J., 2003. Mobile Communications. Addison Wesley.
6. MAHMOUD, Q., 2002. Learning Wireless Java. O'Reilly.
7. JUNTAO, Y. M., 2003. Enterprise J2ME. Prentice Hall.
8. SKELTON, G. W., 2003. Wireless Application Development. Thomson Learning.