

Module Title	Mobile Communications & Programming	School	Mathematical and Computer Sciences				On or Off-Campus	On	
Module Co-ordinator	Peter King	SCQF Level	11	Module Code	F21MC	Semester	1	Credits	15

1. Pre-requisites	F28IM Internet, Communications and Mobility or knowledge of network communications and object oriented programming								
2. Linked Modules (specify if synoptic)	None								
3. Excluded Modules	None								
4. Replacement Module	Code:	5. Availability as an Elective		Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
	Date Of Replacement:								
6. Degrees for which this is a core module	Mandatory module for MSc in Distributed and Multimedia Information Systems, MSc in Mobile and Handheld Applications Optional module for BSc Computer Science & MEng Software Engineering, MSc IT (software systems), MSc Software Engineering, MSc IT (software engineering)								
7. Aims									
<ul style="list-style-type: none"> ◆ To introduce students to the particular problems of building networks which include mobile computing devices and to explain how they may be overcome using current technology ◆ To introduce students to the issues surrounding ad hoc networking and give an understanding of how these can be addressed ◆ To introduce students to programmable mobile and handheld devices ◆ To develop students' skills in developing applications for mobile and handheld devices 									
8. Syllabus									
Fixed node IP routing - routing techniques for conventional wired networks Mobile IP routing - routing for wireless mobiles to IP Ad hoc networks and routing Security protocols - identification and authorisation, infra structure security Small device characteristics - screen size, memory, power consumption, input mechanisms Current devices - tablet PC, mobile phone, PDA Application development environments - Java APIs, C# and .NET									

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9. Learning Outcomes (HWU Core Skills: Employability and Professional Career Readiness)

Subject Mastery	<p><i>Understanding, Knowledge and Cognitive Skills</i> <i>Scholarship, Enquiry and Research (Research-Informed Learning)</i></p> <ul style="list-style-type: none"> ◆ To understand and apply the principles of secure, effective communication over networks including mobile elements. ◆ To be able to explain the operation of current and proposed protocols for communication over networks which include mobile elements ◆ To be able to explain the particular problems in security created by wireless connections in networks and their practical solution. ◆ To understand and be able to explain the issues introduced by ad-hoc networking. ◆ To have detailed knowledge of common ad-hoc routing protocols and to compare these critically ◆ To explain and critically evaluate current and proposed mobile devices ◆ To design applications for mobile devices including use of wireless communications where appropriate. ◆ To program such applications using current application development environments
Personal Abilities	<p><i>Industrial, Commercial & Professional Practice</i> <i>Autonomy, Accountability & Working with Others</i> <i>Communication, Numeracy & ICT</i></p> <ul style="list-style-type: none"> ◆ To be able to select and apply suitable techniques of analysis in assessing the effectiveness of a technical solution ◆ To be able to critically review the issues of security and privacy relating to networking ◆ To be able to write good technical documents in support of problem solving within the domains of mobile networking and of mobile and handheld device solutions.

10. Assessment Methods				11. Re-assessment Methods	
Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?	Method	Duration of Exam (if applicable)
Exam	2 hours	80%		Exam	2 hours
Coursework		20%			

12. Date and Version							
Date of Proposal	26/11/07	Date of Approval by School Committee	December 2007	Date of Implementation	15/9/2008	Version Number	1