

Subject Code	COMP5701
Subject Title	Pervasive and Smart Computing
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Smart computing is emerging as an important multidisciplinary area, which can be broadly classified into two major topics: how to design and build smart computing systems, and how to use computing technology for resource sustainability to improve the human experience. The objective of this subject is to introduce students the different aspects of smart computing such as pervasive/ubiquitous computing, cloud computing, sensor networks, internet of things, social computing, cognitive computing, smart cities and grids.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: <ul style="list-style-type: none"> a) Understand and appreciate the technological impact of pervasive and smart computing for future enterprises, and the technologies underpinning it; and b) Apply systematic and principled practices to utilize technologies and to design systems of smart computing; and c) Review and assess the risks, opportunities, costs and steps towards migrating existing systems to smart computing services.
Subject Synopsis/ Indicative Syllabus	<ul style="list-style-type: none"> • Smart computing technologies • Ubiquitous data access, sensing and actuation, Internet of Things and cloud services • Location and context awareness • Smart human environments, health, entertainment, and social activities • Security, privacy and economics in smart environments • Smart Cyber-Physical environments • Smart energy management and analytics • Future smart computing paradigms
Teaching/Learning Methodology	A mix of lectures and workshop sessions is used to deliver the various topics in this subject. Lectures are conducted to initiate students with the concepts and techniques of smart computing. Workshops will include case studies of how smart computing is applied in transportation, energy, environmental protection, resource management, healthcare, security, banking, entertainment, and social media will be discussed.

	<p>Relevant online materials will be developed for students to enable blended learning and flipped classroom arrangement under a SPOC (small private online class) set up is considered when appropriate.</p>																																														
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1"> <thead> <tr> <th data-bbox="517 412 826 613" rowspan="2">Specific assessment methods/tasks</th> <th data-bbox="826 412 983 613" rowspan="2">% weighting</th> <th colspan="6" data-bbox="983 412 1469 546">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th data-bbox="983 546 1062 613">a</th> <th data-bbox="1062 546 1142 613">b</th> <th data-bbox="1142 546 1222 613">c</th> <th data-bbox="1222 546 1302 613"></th> <th data-bbox="1302 546 1382 613"></th> <th data-bbox="1382 546 1469 613"></th> </tr> </thead> <tbody> <tr> <td data-bbox="517 613 826 748">1. Class exercises, assignments and term projects</td> <td data-bbox="826 613 983 748">60</td> <td data-bbox="983 613 1062 748">√</td> <td data-bbox="1062 613 1142 748">√</td> <td data-bbox="1142 613 1222 748">√</td> <td data-bbox="1222 613 1302 748"></td> <td data-bbox="1302 613 1382 748"></td> <td data-bbox="1382 613 1469 748"></td> </tr> <tr> <td data-bbox="517 748 826 815">2. Examination</td> <td data-bbox="826 748 983 815">40</td> <td data-bbox="983 748 1062 815">√</td> <td data-bbox="1062 748 1142 815">√</td> <td data-bbox="1142 748 1222 815">√</td> <td data-bbox="1222 748 1302 815"></td> <td data-bbox="1302 748 1382 815"></td> <td data-bbox="1382 748 1469 815"></td> </tr> <tr> <td data-bbox="517 815 826 891">Total</td> <td data-bbox="826 815 983 891">100 %</td> <td colspan="6" data-bbox="983 815 1469 891"></td> </tr> </tbody> </table>							Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c				1. Class exercises, assignments and term projects	60	√	√	√				2. Examination	40	√	√	√				Total	100 %								
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<p>Reading List and References</p>	<p>IEEE Smart Computing Conferences 2014, 2015.</p> <p>Nigel Davies, Sarah Clinch, Florian Alt (2013) <i>Pervasive Displays: Understanding the Future of Digital Signage</i>.</p> <p>Jason Flinn (2012) <i>Cyber Foraging: Bridging Mobile and Cloud Computing via Opportunistic Offload</i>.</p> <p>Don Tapscott and Anthony D. Williams (2008) <i>"Wikinomics: How Mass Collaboration Changes Everything"</i>.</p> <p>John L. Martin. <i>Social Structure</i>. Princeton University Press 2009</p> <p>Laurie Collier Hillstrom (2010) <i>"Online social networks"</i>.</p> <p>David S. Linthicum, <i>"Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide"</i>, Addison-Wesley, 2009.</p> <p>John Rhoton, <i>"Cloud Computing Explained: Implementation Handbook for Enterprises"</i>, Recursive Press, 2009.</p>																																														