Subject Description Form

Subject Code	COMP 5228				
Subject Title	Embedded Software Engineering				
Credit Value	3				
Level	5				
Pre-requisite/ Exclusion	Nil				
Fre-requisite/ Exclusion	NII				
Objectives	This subject aims to provide students with comprehensive				
	knowledge on embedded software design, modelling,				
	implementation, simulation, testing, and verification.				
Intended Learning	After completing this subject, the students should be able to:				
Outcomes	 a) have an understanding of definitions, scope and common properties of embedded systems from a variety of embedded applications in different industrial domains; b) possess the ability to represent behaviour of embedded applications with computation models; c) possess the knowledge of basic organization and architecture of embedded systems; d) have an understanding of basic design flows for implementing embedded systems with hardware/software co-design; e) have an understanding of pros and cons of major programming languages for embedded systems; f) design and implement embedded software for application-specific systems by utilizing specialized compliers, real-time operating systems, and application software development platforms; and g) design and conduct experiments with basic simulation, testing and verification techniques for embedded systems. 				
Subject Synopsis/ Indicative Syllabus	 Introduction to embedded systems. Introduction to models of computation for representing behaviours for embedded applications. Organizations and architectures of embedded systems. Implementation of embedded systems with hardware/software codesign. Introduction to programming languages for embedded systems. Design and optimization for embedded software. Simulation, testing and verification. 				
Teaching/Learning Methodology	class activities including - lecture, tutorial, lab, workshop seminar where applicable				
Assessment Methods in Alignment with Intended Learning Outcomes	Specific Assessment Weighting Methods/Tasks Specific Assessment Weighting Learning outcomes to be assessed a b c d e f g				

	Assignments, Tests & Projects	55	V V V V	V V		
	Final Examination	45	V V V V			
	Total	100				
Student study effort	Class Contact:					
expected	Class activities (lecture, tutorial, lab) 39 hours					
	Other student study effort:					
	Assignments, Quizze	65 hours				
	Total student study effort 104 hours					
Reading list and references	 J. A. Fisher, P. Faraboschi, and C. Young, 2005, Embedded Computing: A VLIW Approach to Architecture, Compilers and Tools, San Francisco, CA: Morgan Kaufmann. W. Wolf, 2012, Computers as Components: Principles of Embedded Computer Systems Design, San Francisco, CA: Morgan Kaufmann. D. E. Simon, 1999, An Embedded Software Primer, MA: Addison Wesley. A. S. Berger, 2001, Embedded Systems Design: An Introduction to Processes, Tools and Techniques, Lawrence, KA: CMP Books. T. A. Pender, 2002, UML Weekend Crash Course, New York, NY: Wiley. 					