

Subject Description Form

Subject Code	COMP5223
Subject Title	Middleware and Distributed Objects
Credit Value	3
Level	5
Pre-requisite/ Exclusion	Nil
Objectives	<p>The objectives of this subject are to enable students to:</p> <ol style="list-style-type: none"> 1. Learn the need and applications of middleware; 2. Apply and use the theories and concepts underlying the design of middleware to solve related problems; 3. Understand the concepts philosophy and design of CORBA; and 4. Acquire the concepts of system integration using a scripting programming language.
Intended Learning Outcomes	<p>After completing this subject, students should be able to:</p> <ol style="list-style-type: none"> a) understand the problems and issues encountered in building large-scale distributed systems and enterprise application integration; and b) solve various tasks in the construction of large-scale distributed systems and enterprise application integration using object-oriented middleware and scripting programming language.
Subject Synopsis/ Indicative Syllabus	<p>Introduction to Distributed Systems</p> <ul style="list-style-type: none"> • Distributed system requirements • Transparency in distributed systems • Object-oriented approach to distributed systems • Local versus distributed objects <p>Principles of Object-Oriented Middleware</p> <ul style="list-style-type: none"> • Why middleware • Types of middleware • Object-oriented middleware • Developing systems with object-oriented middleware <p>CORBA</p> <ul style="list-style-type: none"> • Architecture and system development • Communication modes: synchronous requests, oneway requests, deferred synchronous requests, asynchronous requests • Portable Object Adaptor (POA) • Portable interceptors • CORBA services: naming service and event service

	System Integration using Scripting Programming Language <ul style="list-style-type: none"> • Fundamentals of Ruby programming • Database integration using Ruby • Distributed applications in Ruby 			
Teaching/Learning Methodology	Class activities including - lecture, tutorial, lab, workshop seminar where applicable			
Assessment Methods in Alignment with Intended Learning Outcomes	Specific Assessment Methods/Tasks	% weighting	Intended subject learning outcomes to be assessed	
			a	b
	Assignments, Tests & Projects	55	✓	✓
	Final Examination	45	✓	✓
	Total	100		
Student study effort expected	Class Contact:			
	Class activities (lecture, tutorial, lab)			39 hours
	Other student study effort:			
	Assignments, Quizzes, Projects, Exams			65 hours
	Total student study effort			104 hours
Reading list and references	<p>(1) Emmerich W., 2000, Engineering Distributed Objects. Wiley.</p> <p>(2) Bolton F., 2002, Pure CORBA. Sams.</p> <p>(3) Fulton, H., 2006, The Ruby way: solutions and techniques in Ruby programming (2nd edition). Addison Wesley.</p> <p>(4) Schmidt, M., 2006, Enterprise integration with Ruby. The Pragmatic Programmers.</p> <p><i>Others</i></p> <p>IEEE Distributed Systems Online. http://dsonline.computer.org.</p> <p>Articles from journals, magazines, and conference proceedings, including ACM TOCS, IEEE TPDS, IEEE TSE, IEEE TOC, CACM, IEEE Computer, ICDE, DOA.</p>			