

Subject Description Form

Subject Code	COMP324
Subject Title	Project Methodology and Implementation
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: COMP302, COMP311 Co-requisite: Nil Exclusion: COMP322
Objectives	<ul style="list-style-type: none"> • To teach students the techniques of using dynamic scripting languages. • To deliver the methods of using dynamic scripting languages for solving various tasks in enterprise application integration. • To deliver project management theory, principle and stages.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <p><i>Professional/academic knowledge and skills</i></p> <p>(a) understand the basic components of an enterprise system architecture;</p> <p>(b) understand the problems and issues encountered in enterprise application integration;</p> <p>(c) use a dynamic scripting language, namely Ruby, to solve various tasks in enterprise application integration;</p> <p>(d) gain knowledge and hands-on experience (through a course project) in planning, organizing, and managing large projects.</p> <p><i>Attributes for all-roundedness</i></p> <p>(e) enhance the problem solving skill, team working skills, technical report writing and presentation skill through the group project.</p> <p>Alignment of Programme Outcomes:</p> <p>Programme Outcome 1: This subject contributes to having students practice their writing skills with project document and report writing.</p> <p>Programme Outcome 3: This subject contributes to developing student understanding and valuing ethical issues in developing information systems through tutorials and working on project and assignments.</p> <p>Programme Outcome 5: This subject contributes to problem solving with Ruby and other programming skills through lab exercise and project with proper design and implementation.</p> <p>Programme Outcome 7: This subject contributes to team work with group-based</p>

	project for students to practice team spirit.												
Subject Synopsis/ Indicative Syllabus	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 5px;">Topic</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> 1. Introduction to enterprise application integration Basic components of an enterprise system architecture; problems and issues in enterprise application integration; common tasks in enterprise application integration; advantages of using dynamic scripting languages for enterprise application integration. </td> </tr> <tr> <td style="padding: 5px;"> 2. Introduction to Ruby programming Object-oriented programming in Ruby; basic features of Ruby; Arrays and Hashes; Blocks and Iterators. </td> </tr> <tr> <td style="padding: 5px;"> 3. Integrating databases Integrating heterogeneous databases; Ruby's database interface (DBI); ActiveRecord: object-relational mappers. </td> </tr> <tr> <td style="padding: 5px;"> 4. Processing XML with Ruby Generating, processing, and validating XML. </td> </tr> <tr> <td style="padding: 5px;"> 5. Distributed applications in Ruby Integration using HTTP; remote procedure call (RPC) in Ruby; talking to web services; </td> </tr> <tr> <td style="padding: 5px;"> 6. Project Management Project scheduling, critical path method, software project risk management, PERT evaluation of uncertainty, critical chain approach, managing people in virtual projects, ethical and legal issues. </td> </tr> </tbody> </table> <p style="margin-top: 10px;">Laboratory Experiment:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="text-align: center; padding: 5px;">Topic</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1. Ruby programming exercises</td> </tr> </tbody> </table> <p style="margin-top: 10px;">Tutorial:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="text-align: center; padding: 5px;">Topic</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1. Project management skills</td> </tr> <tr> <td style="padding: 5px;">2. Group project</td> </tr> </tbody> </table>	Topic	1. Introduction to enterprise application integration Basic components of an enterprise system architecture; problems and issues in enterprise application integration; common tasks in enterprise application integration; advantages of using dynamic scripting languages for enterprise application integration.	2. Introduction to Ruby programming Object-oriented programming in Ruby; basic features of Ruby; Arrays and Hashes; Blocks and Iterators.	3. Integrating databases Integrating heterogeneous databases; Ruby's database interface (DBI); ActiveRecord: object-relational mappers.	4. Processing XML with Ruby Generating, processing, and validating XML.	5. Distributed applications in Ruby Integration using HTTP; remote procedure call (RPC) in Ruby; talking to web services;	6. Project Management Project scheduling, critical path method, software project risk management, PERT evaluation of uncertainty, critical chain approach, managing people in virtual projects, ethical and legal issues.	Topic	1. Ruby programming exercises	Topic	1. Project management skills	2. Group project
Topic													
1. Introduction to enterprise application integration Basic components of an enterprise system architecture; problems and issues in enterprise application integration; common tasks in enterprise application integration; advantages of using dynamic scripting languages for enterprise application integration.													
2. Introduction to Ruby programming Object-oriented programming in Ruby; basic features of Ruby; Arrays and Hashes; Blocks and Iterators.													
3. Integrating databases Integrating heterogeneous databases; Ruby's database interface (DBI); ActiveRecord: object-relational mappers.													
4. Processing XML with Ruby Generating, processing, and validating XML.													
5. Distributed applications in Ruby Integration using HTTP; remote procedure call (RPC) in Ruby; talking to web services;													
6. Project Management Project scheduling, critical path method, software project risk management, PERT evaluation of uncertainty, critical chain approach, managing people in virtual projects, ethical and legal issues.													
Topic													
1. Ruby programming exercises													
Topic													
1. Project management skills													
2. Group project													
Teaching/Learning Methodology	Project planning and management techniques and the different enterprise application integration technologies will be covered in the lectures. In the tutorials, students will work on exercises in software project management and project management tools (e.g. Microsoft Project). Also, students will develop programming skills required to complete the application integration project.												

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
			a	b	c	d	e
	1. Assignments	70%	✓	✓	✓		
	2. Project				✓	✓	✓
	3. Mid-term		✓	✓	✓		
	4. Examination	30%	✓	✓	✓		
	Total	100 %					
<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Students are required to work as a team to complete an integration project. The project can be used to assess the students on their ability to (c) solve various problems in enterprise application integration and (d) gain knowledge and hands-on experience (through a course project) in planning, organizing, and managing large projects. Also, the group project can (e) enhance the students' problem solving skills, team working skills, technical report writing and presentation skills.</p> <p>Assignment(s), mid-term(s) and the final examination will be used to assess the students on their (a) understanding in the basic components of an enterprise system architecture, (b) the problems and issues encountered in enterprise application integration, and (c) their skills in writing programs to solve various tasks in enterprise application integration.</p>							
Student Study Effort Expected	Class contact:						
	▪ Lecture		39 Hrs.				
	▪ Laboratory		0 Hrs.				
	▪ Tutorial		0 Hrs.				
	Other student study effort:						
	▪		Hrs.				
	▪		Hrs.				
Total student study effort		At least 39 Hrs.					
Reading List and References	<p>References:</p> <ol style="list-style-type: none"> Hal Fulton. The Ruby Way, Second Edition: Solutions and Techniques in Ruby Programming (2nd Edition), Addison-Wesley Professional, 2006. Peter Cooper. Beginning Ruby: From Novice to Professional, Second Edition, 2009. Apress. Huw Collingbourne. The Book of Rudy. Available at 						

<http://www.sapphiresteel.com/The-Book-Of-Ruby> as of Apr 21, 2010.

4. Kathy Schwalbe. Information Technology Project Management (with Microsoft Project 2007 CD-ROM), Sixth Edition, 2009. Course Technology.
5. Harold Kerzner. Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 2003. Wiley; 8 edition.
6. Andrew Stellman and Andrew Stellman. Applied Software Project Management, 2005. O'Reilly.