

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	System Integration and Architecture	
2.	Course Code	TSI 2241	
3.	Status of Course [Applies to (cohort)]	Specialisation Core for B.IT (Hons) Data Communications and Networking	
4.	MQF Level/Stage	Bachelor – MQF Level 6	
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version :	-
		Date of current version :	June 2014
6.	Pre-Requisite	TCP1121 Computer Programming	
7.	Name(s) of academic/teaching staff	Subarmaniam Kannan	
8.	Semester and Year offered	Trimester 2, Year 2	
9.	<p>Objective of the course in the programme : This course focuses on the integration of information systems in organizations, the process by which different computing systems and software applications are linked together physically or functionally. It examines the strategies and methods for blending a set of interdependent systems into a functioning or unified whole, thereby enabling two or more applications to interact and exchange data seamlessly. The course will explore tools and techniques for systems integration as well as proven management practices for integration projects.</p>		
10.	<p>Justification for including the course in the programme : One of the roles of the IT professional is to design and build systems and integrate them into an organization. This knowledge area develops the skills to gather requirements, then source, evaluate and integrate components into a single system, and finally validate the system. It also covers the fundamentals of project management and the interplay between IT applications and organizational processes.</p>		
11.	Course Learning Outcomes :	Domain	Level
	LO1: Analyse appropriate computing requirements as a solution to for a specific IT problem	Cognitive	4
	LO2: Evaluate a computer-based system, process, component, or program to meet desired needs	Cognitive	6
	LO3: Organize effectively on teams to accomplish a common goal and to assist in the creation of an effective project plan	Cognitive	5
	LO4: Compare the best practices and standards and their application	Cognitive	6
	LO5: Devise effectively IT based solutions into the user environment based on best practices and standards and their application	Cognitive	5

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12.	Mapping of Learning Outcomes to Programme Outcomes :											
	Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9		
	LO1	X	X									
	LO2	X	X					X	X			
	LO3	X	X	X				X	X			
	LO4	X	X	X				X	X			
	LO5	X	X	X				X	X			
13.	Assessment Methods and Types :											
	Method and Type	Description/Details					Percentage					
	Final Exam	Written examination					50%					
	Assignment	Written report, group project, with teamwork scores, presentation					30%					
	Test	Written examination					20%					
14.	Mapping of assessment components to learning outcomes (LOs)											
	Assessment Components	%	LO1	LO2	LO3	LO4	LO5					
	Final Exam	50	50	50		50	62.5					
	Assignment	30	30	30	100	30	37.5					
	Test	20	20	20		20						
15.	Details of Course											
	Topics						Mode of Delivery					
							Lecture		Tutorial			
	1. Requirements Analysis. Requirements elicitation, documentation, and maintenance; Modeling requirements. Use case model ; Modeling tools and methodologies ; Testing Project lifecycle phases						4		2			
	2. Acquisition and Sourcing Build and buy; In-sourcing and outsourcing ; System architecture: hardware, software and virtual; Testing, evaluation and benchmarking ; Contracts and RFPs; Quality						4		2			

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3. Integration and Deployment Components, interfaces and integration; Infrastructure, middleware and platforms Techniques – data warehouses, extending frameworks, wrappers, glue, facades; Testing/evaluation/benchmarking ; System release: pilot and acceptance testing and defect repair; System support strategies and user support plans; Enterprise integration approaches; , standards, and best practices	4	2
4. Project Management Cost benefit analysis; Roles, responsibilities, accountability; Finance, estimation, budgeting; Planning; Risk management; Scheduling; Tracking; Lessons learned.	4	2
5. Testing and Quality Assurance Standards; Techniques; Usability; Acceptance / contract conformance; Stress testing; Performance	4	2
6. Organizational Context Business processes; IT environment; Organizational culture How business processes influence system architecture. Why business processes may have to change as a result of a system integration project. How the current IT infrastructure influences system architecture and system integration. Why it is crucial to take organizational culture into account when planning and executing a system integration project.	4	2
7. Information Architecture Representation/modeling; Information Architecture; Enterprise Architecture; System Architecture; Enterprise Integration Applications (CRM, ERP)	4	2
Total	28	14
Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
Lecture	28	28
Tutorials	14	14
Laboratory/Practical	0	0
Presentation	1	3
Assignment	0	10
Mid Term Test	1	3
Final Exam	2	16
Sub Total	46	74
Total SLT	120	
16. Credit Value	3	
17. Reading Materials :		
Textbooks		

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1. Beth Gold-Bernstein, William Ruh, (2005). Enterprise Integration: The Essential Guide to Integration Solutions, Addison-Wesley Professional.
2. Hans van Vliet, (2008). Software Engineering: Principles and Practice, 3rd edition, John Wiley & Sons.
Reference Material (including 'Statutes' for Law)
1. Boyd L. Summers, (2012). Effective Methods for Software and Systems Integration, Auerbach Publications.
2. David S. Linthicum, (2003). Next Generation Application Integration: From Simple Information to Web Services (1st Edition), Addison-Wesley Professional, ISBN-13: 9780201844566.
3. Gregor Hohpe and Bobby Woolf, (2003). Enterprise Integration Patterns: Designing, Building, and Deploying Messaging Solutions (1st Edition), Addison-Wesley Professional, ISBN-13: 9780321200686.
4. Thomas Erl, (2004). Service-Oriented Architecture: A Field Guide to Integrating XML and Web Services (1st Edition), Prentice Hall, ISBN-13: 9780131428980.

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning Outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement