SLIIT Discover Your Future	**DEPARTMENT OF COMPUTER SCIENCE AND SOFTWARE ENGINEERING** **FACULTY OF COMPUTING**

MODULE OUTLINE

Module Name	**Software Architecture**		
Module Code	SE3030	Version No.	2017 -1
Year	3	Semester	1
Credit Points	4		
Pre-requisites	None		
Co-requisites	None		
Methods of Delivery	Lectures (Face-to-face) Tutorials Labs	2 Hours/Week 1 Hours/Week 2 Hours/Week	
Course Web Site	http://courseweb.sliit.lk/		
Date of Original Approval	January, 2017		
Date of Next Review	January, 2022		

MODULE DESCRIPTION

Introduction	This module will introduce the concepts, principles, and state of the arts and models of the software architectures. The module contents are organized in a way that the students will get an in depth knowledge in the design and evolution of sotware architectures. Students will be able to develop software architectures by analysing and comparing various architectural patterns. The module also focuses on mectrices related to software architectures. Furthermore it aims to validate and test software architectures by applying architectural methods based on existing frameworks.	
Learning Outcomes	At the end of the module student will be able to:	
	LO1:	Explain and differentiate architectural patterns.
	LO2:	Compare and contrast the process of architecture evolution.
	LO3:	Apply Software architecture validation methods.
	LO4:	Evaluate the architecture of complex case studies.

	LO5:	Select a suitable architecture for a given requirement.		
Assessment Criteria	During the semester, there will be an Assignment, Project and a final exam. The distribution of marks for the assessed components of the unit are as follows:			
	Continuous Assessments • Assignment 1	20	%	LO5
	• Assignment 2	20	%	LO1-LO4
	End Semester Assessment • Final Examination	60	%	LO1-LO5
	TOTAL	100	%	
Estimated Student Workload	Contact Hours			
	• Lecture	26 hours		
	• Tutorial	13 hours		
	• Laboratory	26 hours		
	Time Allocated for Assessments			
	• Continuous Assignments	05 hours		
	• Final Examination	02 hours		
	Reading and Independent Study	128 hours		
	TOTAL	200 hours		
Module Requirement	To pass this module, students need to obtain a pass mark in both "Continuous Assessments" and "End of the Semester Examination" components which would result in an overall mark that would qualify for a "C" grade or above			
Primary References	1. Humberto C., Rick K.,(2016). *Designing Software Architectures*: A Practical Approach Book, 2016 2. Gorton, I., *Essential software architecture,* Springer Science & Business Media, 2006 3. Bass, L., *Software architecture in practice,* Pearson Education India, 2007			

CONTENTS OF THE MODULE	
Topic	**Learning Outcomes covered**
1. Introduction to Architecture • Introduction • Architectural Activities & Design Process	**LO1**
2. Software architectural patterns • Microkernel Architectural Pattern Apache Felix (OSGi) • MVC, SOA, ESB, Cloud, Pipeline	**LO1, LO4**
3. Layered Architecture • UI layer patterns (MVC, Front Controller) • Business Layer / Presentation Layer / Integration Layer Patterns discussion • Data Layer Patterns (Fowlers Data Access Layer patterns)	**LO1**
4. Software Architecture Evolution • Trade off analysis	**LO2**
5. Validating Software Architecture • Verification and Validation of Software Architectural Solutions	**LO3**
6. Case study discussion • Analyze and implement system for given case studies scenarios and deliver mini group projects with covering all software architectural aspects.	**LO4, LO5**

GENERIC INFORMATION

Any type of plagiarism is not allowed.

Plagiarism: Academic honesty is crucial to a student's credibility and self-esteem, and ultimately reflects the values and morals of the Institute as whole. A student may work together with one or a group of students discussing assignment content, identifying relevant references, and debating issues relevant to the subject. Plagiarism occurs when the work of another person, or persons, is used and presented as one's own.

----------End of Module Outline----------

Updated 17.5.2019