SLIIT Discover Your Future	**DEPARTMENT OF SOFTWARE ENGINEERING**
	FACULTY OF COMPUTING

MODULE OUTLINE

Module Name	**Programming Applications and Frameworks**		
Module Code	IT3030	Version No.	2017 - 1
Year	3	Semester	1
Credit Points	4		
Pre-requisites	IT1100 , IT2020 , IT2040		
Co-requisites	IT1050		
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 discusses the contemporary concepts, technologies, frameworks/libraries, tools, and industry best practices used to engineer the Enterprise Systems. Students will be exposed to both standard web-based applications development as well as the rich web-based applications development, using heavy client-side components.	
Learning Outcomes	**LO1:**	Demonstrate the understanding of the basic concepts of frameworks
	LO2:	Incorporate industry standard software development practices
	LO3:	Develop web-based applications using Java frameworks
	LO4:	Apply the REST architectural style for web services
	LO5:	Develop client-side components of full stack rich web-based applications using JavaScript frameworks/libraries/plugins (jQuery, AngularJS)

Assessment Criteria	During the semester there will a mid-term examination, a practical test, assignments and a final exam. The distribution of marks for the assessed components of the unit are as follows:			
	Continuous Assessments • Assignments • Midterm Examination • Practical test End Semester Assessment • Final Examination	 30 % 20 % 10 % 40 %		 LO1- LO5 LO1-LO4 LO1-LO5 LO1-LO5
	TOTAL	100 %		
Estimated Student Workload	Contact Hours			
	• Lecture	26 hours		
	• Tutorial	13 hours		
	• Laboratory	26 hours		
	Time Allocated for Assessments			
	• Continuous Assessment	03 hour		
	• Final Examination	03 hours		
	Reading and Independent Study	129 hours		
	TOTAL	200 hours		
Module Requirement	To pass this module, a student needs to obtain a pass mark (45%) for each of "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]Ambler, T., Cloud, N., & Hawkes, R. A. (2015). *JavaScript Frameworks for Modern Web Dev*. Apress. [2]Fenton, S. (2014). *Pro TypeScript: Application-scale JavaScript Development*. Apress.			

CONTENTS OF THE MODULE	
Topic	**Learning Outcomes covered**
1. Introduction to Frameworks • Programming paradigms • software runtime architecture • development tools • frameworks vs libraries vs plugins	**LO1**

2. Industry Best Practices • Version controlling with Git • CDN • Virtualization • Code quality • Dependency/package management • Build tools	**LO2**
3. Using Java basics for Web-based applications development • Distributed systems ▪ Distributed systems types ▪ Distributed systems architectures and styles ▪ Communication in Distributed systems – RMI/CORBA/SOAP/REST, XML/JSON • Java Web Application Development JSP, Servlets	**LO3**
4. Using Java Frameworks • SOAP web services – JAX-WS • Data persistence – ▪ Files VS DB, DB types (un/semi/fully structured), parametric statements ▪ ORM/JPA with Hybernate/Spring	**LO3**
5. RESTful web service development • REST architectural style • RESTful web services using server-side MVC	**LO4**
6. Introduction to client-side development with JavaScript Frameworks • Core features of a typical JavaScript Framework • jQuery • Rich Web-based Applications, Delta-Communication, AJAX	**LO5**
7. Using AngularJS • Introduction to AngularJS Framework. • Angular and typescript with client-side MVC • Modules, controllers, Directives, Scope Object, Router	**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----------