Report on Two Credit Course offered during odd semester 2016-17

OFFERED BY	MS/. FIDELITY INVESTMENTS
OFFERED TO	SEVENTH SEMESTER B.TECH CSE/IT/SWE STUDENTS
ORGANIZED BY	CSE DEPARTMENT - KTR
COURSE CODE	CS1301
COURSE TITLE	SOFTWARE CRAFTSMANSHIP -PRINCIPLES AND PRACTICES
COURSE DURATION	16TH July 2016 to 11th Nov 2016

The initial talk started in the month of Dec 2015 between Dr. E. poovammal, the department of Computer Science and Engineering and MS. Lakshmi, Director, M/S. Fidelity Investments, Chennai with the help of Dr. Ganapathy, Dean, placement.

A team of 3 members consisting of Dr. B. Amutha HOD/CSE, Dr. S. S. Sridhar and Dr. E. Poovammal professors had a visit to Fidelity office on12th Feb for a discussion with Mike Slovack, Exccecutive Vice president (Strategy and planning) at Fidelity, Texas, USA.

On 14th March 2016, A team from Fidelity with 3 directors and 3 project leads visited SRM campus to discuss on formation of syllabus and related guidelines for offering a two credit course. It took almost 3 iterations before finalizing the syllabus for the course.

The program was planned well ahead and session plan and evaluation scheme was given as handout to the students on the first day of their class, 16th July 2016. Handout is attached at the end of report.

Course Launch- Invocation on 16th July 2016

The classes happened for 15 hours duration and workshop planned for 20 hours duration which spread across (from 10AM to 4PM) 8 Saturdays.

One day, 3rd August (Wednesday) 2016, all the students with three faculty members visited Fidelity as a Field trip.

 Please find below the list of people from Fidelity who have visited SRM for the credit course Launch/Delivery.

1. Mr. Mohandoss Thulasidoss, Senior Vice President
2. Mr. Rangarajan Satagopan, Vice President
3. Mr. Ravi Krishnamurthy, Director
4. Ms. Lakshmi Rajagopal, Director
5. Mr. Srichand Jayaraman, Director
6. Mr. Eswar Kulandaisamy, Director
7. Mr. Murali Ganesan, Senior Manager
8. Mr. Lawrence Chellappa, Senior Manager
9. Mr. Albert Dixon, Project Manager
10. Mr. Giri Venkataramanan , Project Manager
11. Mr. Sethu Subramanian Chettiar, Architect
12. Ms. Shanthi Sivaprakasam, Project Lead
13. Mr. Senthil Narendran, Senior Architect
14. Mr. Aravind Arumugham, Lead – Software Engineering
15. Mr. Srijith Korolath, Project Manager
16. Mr. Prakash Jayakumar, Project Manager
17. Mr. Sriraman Vijayarangan, Project Manager
18. Ms. Anuradha Rao, Senior Specialist - HR
19. Mr. Suhel Khan, Director
20. Mr. Chinnakalai Arivazhagan, Lead – Software Engineering
21. Mr. Sanjay Ramachandran, Associate Software Engineer
22. Mr. Adil Ibrahim, Associate Software Engineer
23. Ms. Priyadarshini Gunasekaran, Associate QA Engineer
24. Ms. Sinduja Parthasarathy, Associate QA Engineer
25. Mr. Varsha Lakshman, Associate QA Engineer
26. Mr. Srinivas Andhavarapu, Project Manager
27. Mr.
28. Mr.

A session on 24th Sep 2016

All of them from Fidelity came in their own transport arrangement. SRM University hosted them with food and refreshments. Middle of August students divided into 5 teams, each with 6 members. Each team had a scrum master (students) and a project leader (fidelity person) and assigned with few maximum 8 story-boards.

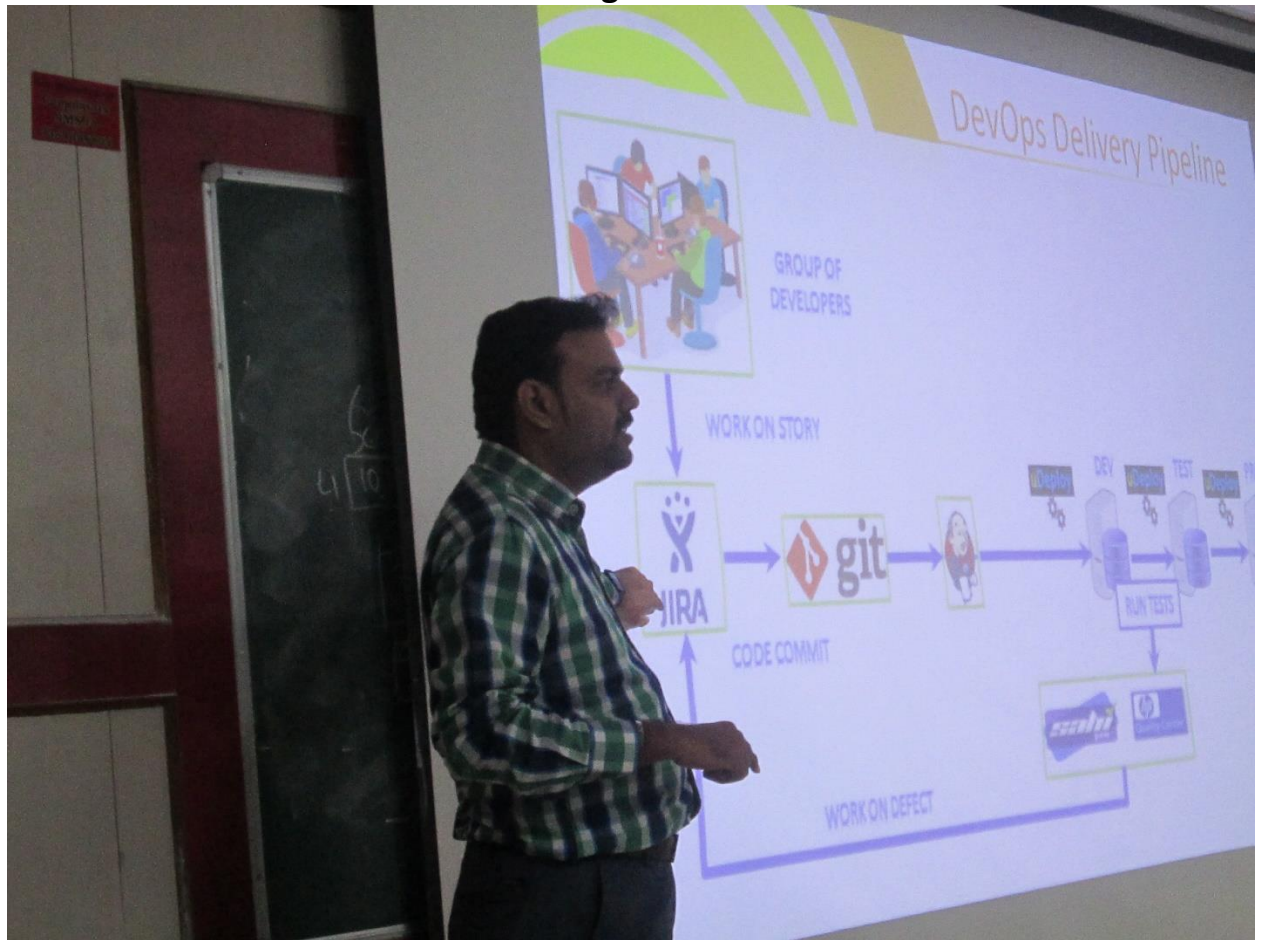*Team members from Fidelity and students of this course*

Introducing the agile methodology

Introducing "JIRA"

At the end of October they were able to show their individual modules and integrated version of the project was presented on the final demo day, 9th Nov 2016. In the final demo all the project leaders, senior manager and director from fidelity were present. From SRM, Dr. Vairamani, Dean, School of Bio-engineering and Dr. E. Poovammal, prof/Dept.CSE, were present.

Project leaders guiding their teams

Mentoring sessions

PANEL MEMBERS EVALUATING PROJECTS

Two Teams Explaining their integrated Modules

Wrap-up Session by Mr. Ravi, Director, Fidelity

During the wrap up session, which happened after demo and feedback session of the students, Mr. Ravi, and Mr. Sricharan, Director, Fidelity appreciated the performance of students and also expressed their thanks to SRM management for taking this kind of initiative.

Dean, School of Bio-Engineering also appreciated the demo shown by our students and thanked Fidelity for their training. Dr. E. Poovammal, in her thanking note conveyed her thanks to Director (Engg. & Tech.) who motivated to take such initiatives.

Also, She thanked Dr. Amutha HOD/CSE, Dr. S. S. Sridhar Professor/ CSE for their support in choosing the right students to offer the course. Also, thanked Ms. Lakshmi RR, Director, Mr. RangaRajan S, Vice president of fidelity who were very much involved and brought this course and also other members of Fidelity, who have contributed their time in sharing their experience and for mentoring our student teams.

Dr. E.Poovammal, specially mentioned about Mr. Srinivasan, Project manager who played a very essential role of single point of contact for the entire duration.

The performance of the students is evaluated by the Fidelity Panel, consisting of project leaders. The consolidated performance report is submitted on 15th Nov 2016

Software Craftsmanship - Principles and Practices

July – Sept 2016

Facilitated by

Fidelity Business Services India Private Limited

Organized by

Department of Computer Science and Engineering

SRM University

Introduction

In an attempt to help student community experience, appreciate and equip themselves with emerging techniques of software development in large organizations, Fidelity Business Services India Private Limited is offering a program titled 'Software Craftsmanship – Principles and Practices' in collaboration with SRM. This two-credit program will be facilitated by subject matter experts from Fidelity.

Pre-requisites:

GPA of 7+, with IT/Computer Science/Software Engineering majors, No Arrears, Knowledge of Software Development Life Cycle (SDLC).

Familiarity in Java, HTML, JSP (JQuery, AJAX), MySQL,TomCat Server.

SRM will short list 30 students and will share their names with the Fidelity team.

Learning Objectives

This course is designed to

- ❑ Provide an experiential learning of software development in a large scale organizational set-up
- ❑ Provide a simulation environment to experience the dynamics of software development processes, internalize the nuances and develop a working prototype

By the end of the session, you will be able to

- ❑ Gain conceptual understanding of how Software Projects are planned and executed in the industry. Ex: Financial Services
- ❑ Understand the big picture of the business problem, dissect into executable modules
- ❑ Get a first-hand feel of the methodologies, tools and techniques to be learnt and mastered to execute software projects
- ❑ Understand team dynamics in a multi-cultural working environment

Pedagogical Details

Lectures, applied developmental workshop, class room presentations will form the primary learning approaches

Session Plan

Session 1: (2.5 Hours)
Software Development Lifecycle methodology
	Objective:
	To understand the Software development Methodologies – Waterfall, Agile
	Topics Covered:
	• Waterfall- Methodologies
	   o Waterfall Stages
	   o Waterfall Model Challenges
	• Agile – Framework and Concepts
	   o Agile Manifesto
	   o Agile Principles
	   o Agile Frameworks/Methodologies
	   o Scrum Process& Roles
	   o Backlogs
	   o User Story
	   o Agile Planning and execution
	      • Planning Poker
	      • SCRUM WALL
	      • Product Burn-down Chart

Session 2: (2.5 Hours) **Requirements Engineering**	**Objective:** To give an overview of what all is part of Requirements Engineering and also looks at ways in which this is performed in software projects using the Jira tool **Topics Covered:** • Overview of Requirements Engineering • Types of Requirements • Gathering Techniques • Story Writing • Tools • Requirements Management
Session 3: (2.5 Hours) **Architecture & Design**in the Industry	Objective : This course will establish the importance of an Architecture practice and its influence in the Software development lifecycle especially during the Application design phase. **Topics Covered:** • Software Architecture • Importance of Architecture in the Industry (Enterprise).

	- Differentiators for and Architect vs Engineer (Viz. Architecture vs Design). - Why is Non-Functional Requirements a key parameter for Architecture? - Components of Architecture and its influence on Application Design. Architecture Roadmaps and its importance & influence on Application Design.
Session 4: (2.5 Hours) **Development & Testing**	**Objective:** Learn Software Development and Testing **Topics Covered:** - Development: - Software Craftsmanship - Code Construction – What is done and why it is important? - Developing good code - Managing the code - Best practices - Unit Testing and Test Driven Development (TDD) - Testing - practical approach to software testing in real world implementation - The Big Picture of Testing - What is Software Testing and Why? - Software Failures&Cost of Fixing Bugs - Software Testing Life Cycle - Software Quality Factors - Sample Testing Design Techniques - Test Strategy in Agile - Approaches to Automation - Continuous Testing - Performance Testing
Session 5: (1.5 Hours) **Deployment & Maintenance**	**Objective:** To learn the Dev-ops Practice **Topics Covered:**

	What is DevOps? • DevOps Introduction (Watsapp update like example etc.,) • What is operations team • DevOps & Agile • DevOps Business Value DevOps Culture • Industry examples DevOps Practices • Continuous Integration • Continuous Delivery

Session 6: (1 Hours)
Cyber Security
	Objective:
	To increase your awareness of "Cyber Security" so that you can apply the knowledge in your own context to protect both yourself/ business, and educate others. We will also cover different aspects of enterprise cyber security and concept of defense in depth, which will lead into various career streams in information security industry.
	
	Topics Covered :
	  o What does "Cyber Security" Mean?
	  o What do we want to protect?
	  o Who are you trying to protect Information from?
	  o What Tools & Techniques are there for "Cyber Attack"?
	  o Why does "Cyber Security" Matter?
	     Does "Cyber Security" Matter to me as an Individual

Session 7: (1 Hours) **Team Building**	• Working in Teams

Workshop: (5 Sessions of 4 Hours each)
• To practice software development using the agile methodology learnt during the training

Students will be –
1. exposed to a business problem;
2. guided to understand and kick-start solutioning;
3. mentored to explore, learn and develop a working prototype

Evaluation Components

- Classroom Quiz : (Weightage – 30 points)
    1. Software Development Lifecycle methodology (6 points)
    2. Deployment & Maintenance (6 points)
    3. Requirements Engineering (6 points)
    4. Architecture & Design (6 points)
    5. Development & Testing (6 points)

- Project/Workshop: (Weightage – 70 points)
    o Analysis (Requirements Gathering)(10 points)
    o Design of the application(10 points)
    o Functionality/Working Model (10points)
    o Unit Testing (10 points)
    o Quality Assurance (10 points)
    o Playing multiple roles in Scrums (5 points)
    o Team Player (5 points)
    o Creativity/Innovation (5 points)
    o Presentation (5 points)

Recommended Books / Links

1.	**Software Development Lifecycle methodology** 1. 1. Agile Project Management: http://training-course-material.com/training/Agile_Project_Management_with_SCRUM 2. Agile Roles and Responsibilities : http://www.pmdocuments.com/2012/09/15/agile-scrum-roles-and-responsibilities/ 3. Scrum: https://agilefaq.wordpress.com/scrum/start-here/
2.	**Requirements Engineering** 1. "Mastering the requirements process: Getting Requirements Right" by Suzanne Robertson and James Robertson. 2. Introduction to the subject: http://www.sei.cmu.edu/productlines/frame_report/req_eng.htm
3.	**Architecture & Design** 1. Enterprise Software Architecture and the Financial Services Industryhttp://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.455.3401&rep=rep1&type=pdf 2. A Practical Guide to Enterprise Architecture – James McGovern, Scott W. Ambler, Michael E. Stevens, James Linn, Vikas Sharan, Elias K. Jo
4.	**Development & Testing** 1. Java - http://www.tutorialspoint.com/java/index.htm 2. Maven - http://www.tutorialspoint.com//maven/index.htm 3. Spring - http://www.tutorialspoint.com//spring/index.htm
5.	**Deployment & Maintenance** 1. Dev-ops http://theagileadmin.com/what-is-devops/ http://www.ibm.com/ibm/devops/us/en/ 2. Benefits http://devops.com/2015/09/29/business-benefits-devops/ http://www.datical.com/10-benefits-of-devops-for-enterprise-it/
6.	**Cyber Security** - None
7.	**Team Building** **-**None

8.	**Workshop Phase**
	Familiarity with the following technology Stack
	    • Java
	    • HTML, JSP (JQuery, AJAX)
	    • MySQL
	    • TomCat Server

Schedule

Event	Date	Time
Introduction	Jul 16 2016	09.00 – 10.00
Lecture –Software Development Lifecycle methodology	Jul16 2016	10.00 – 12.30
Lunch Break	Jul16 2016	12.30 – 13.30
Lecture – Requirements Engineering	Jul16 2016	13.30 – 16.00
Lecture – Architecture & Design	Jul23 2016	10.00 - 12.30
Lunch Break	Jul23 2016	12.30 - 13.30
Lecture – Development & Testing	Jul 23 2016	13.30 - 16.00
Lecture – Deployment & Maintenance	Jul 30 2016	10.00 - 11.30
Project Phase – Smoke Test/Intro	Jul 30 2016	11.30 – 12.30
Meeting with Fidelity Senior Leaders , Lecture on Cyber Security, Team Building	Planned to be before project phase.	9 .00 – 17.00
Project Phase – Sprint 1	Aug 6th 2016	10.00 – 12.30
Lunch Break	Aug 6th 2016	12.30 – 13.30
Project Phase – Sprint 1& Demo	Aug 6th 2016	13.30 – 16.00
Project Phase – Sprint 2	Aug 20th 2016	10.00 – 12.30
Lunch Break	Aug 20th 2016	12.30 – 13.30
Project Phase – Sprint 2 & Demo	Aug 20th 2016	13.30 – 16.00
Project Phase – Sprint 3	Aug 27th 2016	10.00 – 12.30
Lunch Break	Aug 27th 2016	12.30 – 13.30
Project Phase – Sprint 3 & Demo	Aug 27th 2016	13.30 – 16.00
Project Phase – Sprint 4 (Integration)	Sept 3rd 2016	10.00 – 12.30
Lunch Break	Sept 3rd 2016	12.30 – 13.30
Project Phase – Demo	Sept 3rd 2016	13.30 – 16.00

** The schedule is subject to change and any changes will be informed one week in advance.