| | | DOMAIN | | |
|---|---|---|---|---|
| CUTM | **STCU2010** | **Software Technology** | **20** | 0+7+13 |
| | CUST2010 | Web Services Using JAVA | 5 | 0+4+1 |
| | CUST2011 | Advanced JAVA Programming | 4 | 0+3+1 |
| | CUST2012 | Web Programming Using AngularJS | 3 | 0+2+1 |
| | CUST2013 | Product Development | 8 | 0+0+8 |

# Course Outline

***Please use this template as applicable and remove key points and other text.***

| Code | Course Title | T-P-Pj (Credit) | Prerequisite |
|---|---|---|---|
| **STCU2010** | Software Technology | 0-9-11 | • Java Technologies<br>• Advanced Web Programming |

**Courses Division ( list all divisions):**

1: Web Services Using JAVA (0-4-1) 75 hours
2: Advanced JAVA Programming (0-3-1) 60 Hours
3: Web Programming Using AngularJS (0-2-1) 45 hours
4: Product Development (0-0-8) 120 hours

**Objective**

**Key points:** *Briefly explain why the course is to be studied. Specify who should study the course and requirement of prior knowledge and skill, if any.*

- Develop knowledge-based force to serve the IT industry with the latest technologies.
- To explore methods of capturing, specifying, visualizing and analyzing software requirements.
- To learn and explore Spring Framework, Android, AngularJS, GIT.

**Course outcome**

***Key points****: State clearly what knowledge and skill a student is expected to learn at the end of the course and will be able to apply.*

- *Develop skills to analyze, design, and prepare SRS.*
- *To design and develop web applications using Spring, AngularJS.*

- *To design and develop Android Applications.*

## Course content

**1.** CUST2011:**Advanced JAVA Programming (0-3-1) (75 hrs)**

1.1 Understanding Web Architecture
1.2 Installation and configure java environment.
1.3 Understanding MVC Architecture
1.4 Create GIT repository for version control and teamwork
1.5 Create a web project and define a landing page.
1.6 Create controller using servlet in web project
1.7 Retrieve value from page in controller through the request parameter.
1.8 Establish Connection with database
1.9 Perform CRUD operation
1.10 Present data in JSP page using scriptlet, expression and action tag.
1.11 Declare method and variable in JSP page.
1.12 Transferring control from one resource to another using RequestDispatcher and ResponseRedirect
1.13 Set and get values in ServletContex and ServletConfig parameter.
1.14 Set and get values in application, session and request attribute.
1.15 Perform session tracking.
1.16 Upload file to the server.
1.17 Working with JSTL

**2.** CUST2010 : **Web Services Using JAVA (0-4-1) (60 hrs)**

2.1 Setting Spring environment
2.2 Understanding Maven and define POM
2.3 Create project using Spring and Understanding Spring Architecture
2.4 Setting bean in IOC container and understand Dependency Injection
2.5 Working with Spring AOP
2.6 Access data using JdbcTemplate; CRUD operation
2.7 Create Spring Boot projects using Spring Initializr
2.8 Implement DevTools for rapid application development
2.9 Implement application logs using application.properties

2.10 Implement Global Exception handling mechanism
2.11 Implement Security using Spring Boot
2.12 Configure Email in application.properties
2.13 Implement Testing using Spring Boot Test
2.14 Implement application monitoring using Actuator
2.15 Create Spring MVC project and define controller
2.16 Implement form handling using SpringMVC
2.17 Implement RESTful Web Service using GET Method
2.18 Implement RESTful Web Service using POST, PUT, DELETE and validations
2.19 Implement End to End testing using Spring Boot Testing - @AutoConfigureMockMvc
2.20 Handle cyclic dependency during JSON creation in Web Service
2.21 Understanding ORM and Hibernate
2.22 Hibernate Configuration using XML and annotation
2.23 Implement DML using Spring Data JPA on a single database table
2.24 Implement Query Methods feature of Spring Data JPA
2.24 Implement O/R Mapping using Spring Data JPA
2.25 Implement Hibernate Query Language (HQL) and Native Query
2.26 Explain the need and benefit of Criteria Query

**3.** CUST2012:**Web Programming Using AngularJS ( 0-2-1)**
**(45 hrs)**
3.1 Create AngularJS app and configure the environment
3.2 Understanding AngularJS Architecture
3.3 Get different value in page with AngularJS Expressions
3.4 Filtering data using AngularJS Filters, Creating Custom Filters
3.5 Working with Directives and Creating a custom directive
3.6 Working with Tables, $index, $even & $odd
3.7 Working with ng-disabled directive, ng-show directive, nd-hide directive
3.8 Define controller in angularJS application
3.9 Understanding scope and gloabScope used in controller and view
3.10 AngularJS Modules: Introduction to Angular JS Modules, Bootstrapping Angular JS
3.11 Create factory, service & provider in application
3.12 Working with Angular Forms, Model Binding, Forms Events, Updating Models with a Twist, Form Controller, Validating Angular Forms, $error object
3.13 Consume web service using $http service in application
3.14 Understanding SPA
3.15 Implement route service in application
3.16 Implement AngularJS Animation

**4.** CUST2013 :**Product Development (0-0-8) (45 hrs)**

*Text Books:*

1. *Craig Walls, Spring in Action, Fifth Edition*
2. *Keogh Jim, J2EE: The Complete Reference*
3. *Ken Williamson, Learning AngularJS: A Guide to AngularJS Development*

*Reference Books:*

1. *Kogent Learning, Java Server Programming Java Ee7 (J2EE 1.7), Black Book*
2. *Alef Arendsen, Professional Java Development with the Spring Framework*
3. *Adam Freeman, Pro AngularJS*

***Course outline Prepared by; Rakesh Kumar Ray Date: 04/07/2020***

***Source of reference;***

http://courseware.cutm.ac.in/courses/software_technology/

***Note: 1 credit theory=10 hrs lecture, 1 credit practice/project=12.5 hrs lab/workshop/field work in a semester***