JAVA

COURSE OUTLINE AND OBJECTIVES A PROJECT BASED APPROACH

Trainer:
Rejaul Karim (Tirtho)
Arifuzzaman Tushar

Computer & Programming Club - DIU

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Course Name	Java
Course Content Duration and Delivery Duration	160 hours
Delivery Method(s)	130 hours classroom teaching, 30 hours project work
Course description	This Project Based Java course introduces JAVA programming language with object-oriented programming principles. Emphasis is placed on Unified Modelling Language, basic fundamental of programming Object Oriented-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools it also includes the workflow ,GUI Based Programing like Swing , Relational Database Management System like Mysql , Concepts of web application development using J2EE with framework like JSF and ORM like Hibernate And Java Persistence API. Students will be Familiar with Industry Standard Open Source JBoss Application Server with Integration of Eclipse, Source Code Optimization Tool PMD, Debugging Technique With Java Debugger, Manual Testing Tool Junit and Deployment Of Application on Any Cloud based deployment Environment. <u>Project Methodology</u> 1. On The Day One Make the students understand the Concept of Project Based Learning 2. Group of 4-5 Students Will be Created 3. Each Team will be assigned a Project Referred by Concern Trainer and Ensure that The project Should follow the Industry Standard Development Process. 4. To Ensure that each and every students should carry a Project Portfolio with their Resume <u>Type Of Project Students Can Perform</u> 1. GUI Based Application Which Can Be Deployed into Client Server Based Architecture 2. Rich web based Device Independent Distributed applications <u>Name Of Few Projects</u> 1. Smarter Inventory Management System 2. Smarter Calendar System 3. Smarter Distribution System 4. Smarter Workforce management System
Course Evaluation Method	Assignments Quiz (Multiple Choice) Mock Interview Projects

COURSE SECTIONS

1. OOPS
2. BASIC J2SE API
3. J2EE (SERVLET & JSP)
4. PROJECT

LEARNING GOALS BY COURSE SECTION

Instructions: Identify the learning goals for your course. Use the table below to show how learning goals are met by Section. For the course create a table similar to the one below.

List goals from the Learning Goals section on page 1. Use check marks (X) to show coverage (see ex amplebelow).

Goals/Sessions	Section OOPS	Section BASIC API J2SE	Section J2EE	Section FRAMEWORK	Section PROJECT
Goal 1: Understanding of Java Fundamental and programming structure in Java	X				
Goal 2: Students should be able to use API and build Application	X	X	X		
Goal 3: Can Develop Web Application	X	X	X		X
Goal 4: Understand Advance Framework and use to build applications		X	X	X	
Goal 5: Implementation of concepts					X

COURSE SECTION WISE BREAK-UP

#	Section Name	Total Duration	Project based Delivery Duration	Performance Evaluation Matrix
1	OOPS	30	30	**Assignments(All Assignment will be related to project only)** • UML Diagram Related to the projectUsing Violate • Designing Classes, Domain Objects and Put the classes with in package • Creating Executable Jar files Using eclipse • Unit Testing of the Classes **Assessment** **15 No Of Multiple Choice Questions Covering each Topic And Section Final Assessments will Practical Programing Approach**
2	BASIC J2SE API	50	50	**Assignments(All Assignment will be related to project only)** • Interact With Different Domain object Created on Section 1 Using Thread

				• Store Data on flat File and Access it through Class • Convert Entire Console Based Application Into GUI Based Application Applying Design Pattern Like MVC, Factory and Singleton Pattern • Integrate Unit Testing And Optimize Code Using PMD Also Integrate JDBC And Use Statement, Callable Statement and Prepared Statement **Assessment** **15 No Of Multiple Choice Questions Covering each Topic And Section Final Assessments will Practical Programing Approach**
3	J2EE	30	30	**Assignments(All Assignment will be related to project only)** • Installation Of JBoss Application Server, Change the Default Port. • Access the Home Page Of Application Server • Write Down Simple servlet and HTML and Deploy • Convert The Swing Based Application which Achieved on previous Steps And deploy It in JBoss • Integrate JDBC Connection Pooling In JBoss **15 No Of Multiple Choice Questions Covering each Topic And Section Final Assessments will Practical Programing Approach**
4	Framework	20	20	**Assignments(All Assignment will be related to project only)** • Creating Simple Project using JSF • Integrate JSF with the Code Achieved in Previous Section • Integrate Spring With project • Integrate Hibernate/JPA with the code previously achieved • Defining DAO Pattern • Integrate Spring With Hibernate. **15 No Of Multiple Choice Questions Covering each Topic And Section Final Assessments will Practical Programing Approach**
5	Project	30	30	
Total		**160**	**160**	

SECTION 1: OOPS

SECTION TOPICS

#	Topic Name	Topic Duration	Topic Delivery method	Topic Evaluation method	Learning goals supported by topic
A	Architecture, Data Type	2 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the basics of OOP
B	Conditional Operator and Statement	4 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the basics of OOP
C	Array	2 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the basics of OOP
D	Methods & convention	2 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the basics of OOP
E	Introduction to OOP , Static	6 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the basics of OOP
F	Inheritance	4 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understand what is inheritance and its type
G	Polymorphism	4 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to write method overloading and overriding and understanding polymorphism
H	Encapsulation	2 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding very clearly concept of encapsulation
I	Abstraction	2 hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to implements concept of OOP abstraction

Section Evaluation Method	Assignments MCQs Mock Interviews
Learning Goals Supported by the Section	Goal 1

SECTION 2: BASIC J2SE API

SECTION TOPICS:

#	Topic Name	Topic Duration	Topic Delivery method	Topic Evaluation method	Learning goals supported by topic
A	Exception Handling	2 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understand exception and its types and how to handle it
B	Multithreading	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understand threading and its methods
C	IO	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to do IO operations
D	Collections	8 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding the framework with various classes and interface for data and its structure
E	Generics	2 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding generics
F	Networking	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding what is networking and how will it happen with Java
G	JDBC	10 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to understand database and create connectivity with Java
H	AWT	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding heavy weight and GUI and Component
I	SWING	10 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding light weight and attractive GUI and Component
J	EVENT Handling	2 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to handle and write EVENT with GUI

SECTION 3: J2EE (SERVLET AND JSP)

SECTION TOPICS:

#	Topic Name	Topic Duration	Topic Delivery method	Topic Evaluation method	Learning goals supported by topic
A	Introduction to web	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding web and its use
B	Servlet and Its Life Cycle	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding servlet
C	Dispatcher & Configuration	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to understand dispatcher
D	Filters	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to create filter properly
E	JSP	10 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding JSP and its use with servlet
F	Basic Tags & JSTL	4 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Getting clear understanding of tags and JSTL

SECTION 4: FRAMEWORK

SECTION TOPICS:

#	Topic Name	Topic Duration	Topic Delivery method	Topic Evaluation method	Learning goals supported by topic
A	Hibernate	6 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Understanding ORM and able to write HQL
B	Spring	12 Hours	Classroom teaching And Project based	Project Based Assignments defined in Course Section Wise Break Up	Able to create a web application using hibernate and spring and JPA

SECTION 5: PROJECT

SECTION TOPICS:

#	Topic Name	Topic Duration	Topic Delivery method	Topic Evaluation method	Learning goals supported by topic
A	PROJECT Documentation And Presentation	40 Hours	Homework & Online teaching	Project Based Assignments defined in Course Section Wise Break Up	Able to implement concept to create a Industry Standard project