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| **COURSE TITLE** | | | | | **SERVICE ORIENTED PROGRAMMING** | | | | | | | | | | | **CREDITS** | | | **3** | | |
| **COURSE CODE** | | | | | **CS 602** | | | | **COURSE CATEGORY** | | | | **Core** | | | **L-T-P** | | | **3-0-0** | | |
| **Version** | | | | | **2.0** | | | | **Approval Details** | | | | **ACM** | | | **LEARNING LEVEL** | | | **BTL-3** | | |
| **ASSESSMENT SCHEME** | | | | | | | | | | | | | | | | | | | | | |
| **During Semester Assessment(DSA)** | | | | | | | | | | | | | | | | | | | **Semester End Examination** | | |
| **MSE-1** | | | | | **MSE-2** | | | | **DSA Components** | | | | | | | **Attendance** | | | **SEE** | | |
| **10%** | | | | | **10%** | | | | **25%** | | | | | | | **5%** | | | **50%** | | |
| **Course Description** | | | | | This course will include basic implementation using Eclipse IDE and concepts of Service-oriented programming in java, XML, JDBC, servlet, and JSP’s. The Benefit of Service-oriented programming is large programs are very difficult to write. Object-Oriented Programs focus designers to go through an extensive planning phase, which makes for better designs with fewer flaws. In addition, once a program reaches a certain size, Object-Oriented Programs are actually easier to program than non-object-Oriented ones. The course also includes classes and objects, Encapsulation, Strings, Files and Streams, Inheritance, Packages, Exception Handling, Multithreading, Servlets, JSP, and Hibernate. | | | | | | | | | | | | | | | | |
| **Course Objective** | | | | | This course will enable the students to:   1. To understand Database Access through Java application. 2. To understand XML concepts and to create file structures   3. To understand JDBC architecture and server-side programming.  4. To implement Business logic with servlets and JSP  5. To make students understand the concepts of Object- Relational Mapping. | | | | | | | | | | | | | | | | |
| **Course Outcome** | | | | | Upon completion of this course, the students will be able to   1. Implement the basics of Object Orientation principles and their programs with Jar files 2. Apply basic concepts of XML and its file accessing. 3. Implement JDBC Java application with MySQL database programming 4. Develop an application on server-side programming using Servlets and JSP. 5. Develop an application for mapping using Hibernate over J2EE. | | | | | | | | | | | | | | | | |
| **Prerequisites: Programming in Java** | | | | | | | | | | | | | | | | | | | | | |
| **CO, PO AND PSO MAPPING** | | | | | | | | | | | | | | | | | | | | | |
| **CO** | **PO -1** | **PO-2** | | | | **PO-3** | **PO-4** | **PO-5** | | **PO-6** | **PO-7** | **PO-8** | **PO-9** | **PO -10** | **PO-11** | | **PO-12** | **PSO-1** | | **PSO-2** | **PSO-3** |
| **CO-1** | **3** | 1 | | | | - | **1** | **1** | | - | - | - | - | **-** | **-** | | **-** | **-** | | **-** | **2** |
| **CO-2** | **2** |  | | | | **1** | - | **1** | | **2** | **2** | **2** |  | **-** | **-** | | **-** | **3** | | **2** | **-** |
| **CO-3** | **2** | **1** | | | | **3** | **1** | - | | **1** | **1** | **1** |  | **-** | **-** | | **-** | **2** | | **-** | **3** |
| **CO-4** | **1** | **1** | | | | **2** | **1** | - | | **3** | **1** | **2** |  | **-** | **-** | | **-** | **-** | | **1** | **-** |
| **CO-5** | **1** | 1 | | | | **2** | **1** | - | | **2** | - | - |  | **-** | **-** | | **-** | **3** | | **-** | **3** |
| **1: Weakly related, 2: Moderately related and 3: Strongly related** | | | | | | | | | | | | | | | | | | | | | |
| **MODULE 1: INTRODUCTION (9 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Overview of Java concepts: Classes, Objects, Inheritance, Polymorphism and Abstraction, Concepts of interface, Object up casting and down casting. Exception Handling. Concept of Static blocks. J2EE and J2SE, Why J2EE? Client/Server, 3 tier and N tier Systems, Example Programs, Concepts of Lose-Coupling revisited, Generating JAR files, Concept of Class loading, J2EE Design Patterns, | | | | | | | | | | | | | | | | | | | **CO-1** | | |
| **MODULE 2: XML**   **(8 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Markup Languages, XML, What is XML? Document type Definitions (DTDs), XML namespaces, XML schema, XPath, XSL transformation, APIs, J2EE Best Practices and Frameworks, Example Programs, The Concept of JDBC, JDBC Driver Types; JDBC Drivers, JDBC Package, JDBC architecture | | | | | | | | | | | | | | | | | | | **CO-2** | | |
| **MODULE 3: MySQL. SQL client environment (9hrs)** | | | | | | | | | | | | | | | | | | | | | |
| MySQL. SQL client environment. Establishing Database Connection, DML operations using JDBC connection, Statement, Prepared Statement, Callable Statement, Result Set Object, Batch updates, Transaction Processing, Example Programs | | | | | | | | | | | | | | | | | | | **CO-3** | | |
| **MODULE 4: Web Servers (10 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Web Servers, Tomcat , Http Get Request, Http Post Request, Servlet Life cycle, Using Tomcat for Servlet Development, Preparing Dev environment, Deployment Descriptor, Configurations using XML, A simple Servlet, User login validation using servlet, Servlet Config and Context objects, Load on startup, Servlet chaining: Request Dispatcher, send redirect, Session Management: URL rewriting, Cookies, Java Server Pages (JSP), JSP tags, Implicit JSP Objects, Declaration of variables, objects and methods using JSP, JSP examples, Session management. | | | | | | | | | | | | | | | | | | | **CO-4** | | |
| **MODULE 5: Introduction to ORM (9 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Introduction to ORM, Importance of ORM concepts. Introduction to Hibernate, How to implement ORM concepts using Hibernate. Basic CRUD operations using Hibernate. Basic CRUD operations using Hibernate. Concept of Generators. Concept of Generators. Mapping Object oriented concepts to Relations. Mapping Object oriented concepts to Relations. Mapping Object oriented concepts to Relations , Example Programs. | | | | | | | | | | | | | | | | | | | **CO-5** | | |
| **TEXT BOOKS** | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | DT Editorial Services, “Java Server Programming Java EE7”, J2EE 1.7, 2011. ISBN-10: 0132575663, ISBN- 13: 978-0132575669 | | | | | | | | | | | | | | | | | | |
| 2. | | | James Keogh, “J2EE - The Complete Reference”, 1st Edition, McGraw-Hill, 2002. ISBN-10: 007222472X, ISBN-13: 978-0072224726 | | | | | | | | | | | | | | | | | | |
| **REFERENCE BOOKS** | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | Erik T. Ray, “Learning ***XML***”, 2nd Edition, O'Reilly Media, 2003. ISBN-10: 0596004206, ASIN:B00CVDXYQ6 | | | | | | | | | | | | | | | | | | |
| 2. | | | Dietel and Dietel, ***“Internet & World Wide Web How to Program”*** 3rd Edition with CD, 2004; Pub:Pearson Education, ISBN: 81-297-0408-0 | | | | | | | | | | | | | | | | | | |
| E BOOKS | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | | https://enos.itcollege.ee/~jpoial/allalaadimised/reading/Advanced-java.pdf | | | | | | | | | | | | | | | | | |
| MOOC | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | | <https://www.coursera.org/courses?query=advanced%20java> | | | | | | | | | | | | | | | | | |
| 2. | | | | <https://www.coursera.org/courses?query=java> | | | | | | | | | | | | | | | | | |