BANGALORE UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, UVCE, BENGALURU B.Tech. PROGRAMME IN COMPUTER SCIENCE AND ENGINEERING

Course Code	**18CIOE51A**					
Category	Engineering Science Courses : Open Elective					
Course title	**ADVANCED JAVA AND J2EE - THEORY**					
Scheme and Credits	No. of Hours/Week					Semester - V CSE/ISE
	L	T	P	SS	Credits	
	2	2	0	0	3	
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100			Duration of SEE: 03 Hours
Prerequisites (if any): NIL						

COURSE OBJECTIVES:

The course will enable the students to

Gain the knowledge of Servlets and JavaBeans to develop server side and component-based software.
Identify the need for advanced Java concepts like Enumerations and Collections.
Apply skills to design GUI's using JavaFX.
Master the whole process of designing, implementing and deploying J2EE Database Applications.
Understand SOAP, Web Services and Service Oriented Architecture (SOA).

UNIT I: SERVLET AND JAVA BEANS **09 Hours**

The Life Cycle of a Servlet, A simple Servlet, The Servlet API, The Javax. servlet Package, Reading Servlet Parameter, The Javax. servlet. http package, Handling HTTP Requests and Responses, Using Cookies, Session Tracking. Java Beans: Overview of Java Beans with an example, Bound and Constrained Properties, The Java Beans API.

UNIT II: THE COLLECTIONS AND FRAMEWORK **10 Hours**

Collections Overview, The Collection Interfaces, The Collection Classes, Accessing a collection Via an Iterator, Storing User Defined Classes in Collections, The Random Access Interface, Working with Maps, Comparators, The Collection Algorithms, Arrays, The legacy Classes and Interfaces, Parting Thoughts on Collections, Formatter, Scanner.

UNIT III: STRING HANDLING AND GUI PROGRAMMING WITH JAVAFX **10 Hours**

The String Constructors, String Length, Special String Operations, Character Extraction, String Comparison, Searching String, Modifying a String, Data Conversion Using valueof(), Changing the Case of Characters Within a String, Joining Strings, Additional String Methods, String Buffer, String Builder.JavaFX Basic Concepts, Writing and Executing JavaFX Program, JavaFX Controls: Using Image and ImageView, ToggleButton, RadioButton, CheckBox, ComboBox, TextField.

UNIT IV: JDBC OBJECTS AND J2ME ARCHITECTURE **10 Hours**

The Concept of JDBC, JDBC Driver Types, JDBC Packages, Overview of the JDBC Process, Database Connection, Statement Objects, ResultSet, Transaction Processing, Metadata, Data Types. J2ME Architecture, Small Computing Device requirements, Run-Time Environment, MIDlet Programming, Java Language for J2ME, J2ME Software Development Kits, Hello World J2ME Style, Multiple MIDlet's in a MIDlet Suite, J2ME Wireless Toolkit.

UNIT V: J2ME WEB SERVICES **09 Hours**

Web Services Basics, J2EE Multi-Tier Web Services Architecture, Client Tier Implementation, Web Tier Implementation, Enterprise JavaBeans Tier Implementation, Enterprise Information Systems Tier Implementation, Inside WSDL, J2ME MIDlets and Web Services, Remote Method Invocation Concept, SOAP Basics, WSDL and SOAP, WSDL and HTTP Binding.

TEXT BOOKS:

Herbert Schildt, Java: The Complete Reference, 10th Edition, McGraw-Hill, 2017.
James Keogh, J2ME: The Complete Reference, McGraw-Hill, 2003.

REFERENCE BOOKS:

Kim Topley, J2ME in a Nutshell, O'Reilly, 2002.
Balaguruswamy, Programming with Java, 5th Edition, McGraw-Hill, 2014.
David Flanagan, Java in a Nutshell, 4th Edition, O'Reilly, 2002.
Sing Li And Jonathan Knudsen, Beginning J2ME: From Novice to Professional, 3rd Edition, Apress, 2005.
Uttam K Roy, Advanced Java Programming, Oxford University press, 2015.

e-BOOKS/ONLINE RESOURCES:

https://github.com/Shailendra-Java/Library/blob/master/Java%20%20The%20Complete%20Reference%2C%209th%2 0Edition%20-%Herbet%20Schildt.pdf.

https://s3-ap-southeast-1.amazonaws.com/tv-prod/documents/5570-HeadFirstJava2ndEdition/pdf

MOOCs:

https://onlinecourses.nptel.ac.in/noc19_cs07/preview.
https://www.youtube.com/watch?v=IKRqOHF4RHA&list=PLG1O8ca4ky0Q6XZgM3N6kbaR8rd2fdcL

COURSE OUTCOMES:

The students at the end of the course, will be able to

CO1: Understand the servlets, Java Beans, GUI Programming using JavaFX**.**

CO2: Apply string Functions, JavaFX and JDBC concepts to create applications.

CO3: Analyze J2ME architecture, run time environment to design MIDlet Programming.

CO4: Evaluate SOAP, WSDL, HTTP Binding.

CO5: Design application using JavaBeans, JavaFX and JDBC.

SCHEME OF EXAMINATION:

<table>
<tr><td rowspan="2">CIE – 50 Marks</td><td>Test I (Any Three Units) - 20 Marks</td><td>Quiz I – 5 Marks</td><td>25 Marks</td><td rowspan="2">Total: 50 Marks</td></tr>
<tr><td>Test II (Remaining Two Units) - 20 Marks</td><td>Quiz II – 5 Marks</td><td>25 Marks</td></tr>
<tr><td rowspan="3">SEE – 100 Marks</td><td colspan="2">Q1 (Compulsory): MCQs or Short answer type questions for 15 Marks covering entire syllabus.</td><td>15 Marks</td><td rowspan="3">Total: 100 Marks</td></tr>
<tr><td colspan="2">Q2 & Q3 from Units which have 09 Hours are compulsory.</td><td>17*2= 34 Marks</td></tr>
<tr><td colspan="2">Q4 or Q5, Q6 or Q7 and Q8 or Q9 from Units which have 10 Hours shall have Internal Choice.</td><td>17*3= 51 Marks</td></tr>
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Note: SEE shall be conducted for 100 Marks and the Marks obtained is scaled down to 50 Marks.

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