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## SECOND-YEAR OF BACHELOR OF COMPUTER SCIENCE MAJOR REVISED SYLLABUS ACCORDING TO CBCS NEP2020

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COURSE TITLE: ADVANCED JAVA  
SEMESTER-IV, W.E.F. 2024-2025

**Recommended by the Board of Studies in Computer Science  
And**

**Approved by the Academic Council**

Devrukh Shikshan Prasarak Mandal's

Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and  
Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.  
Tal. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra,  
India

Academic Council Item No: \_\_\_\_\_

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Computer Science
Name of the Class	:	Second Year
Semester	:	Fourth
No. of Credits	:	02
Title of the Course	:	Advance Java
Course Code	:	S402CST
Name of the Vertical in adherence to NEP 2020	:	Major and Minor
Eligibility for Admission	:	Any 12 <sup>th</sup> Pass seeking Admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024-2025
Ordinances /Regulations (if any)		

*Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce and Vid. Dadasaheb Pitre Science College, Devrukh (An Autonomous College Affiliated with University of Mumbai)*

## Syllabus for Second Year of Bachelor of Science in Computer Science

(With effect from the academic year 2024-2025)

**SEMESTER-IV**

**Paper No.– 2**

**Course Title: Advanced Java**

**No. of Credits - 02**

**Type of Vertical: Major and Minor**

**COURSE CODE: S402CST**

**Learning Outcomes Based on BLOOM's Taxonomy:**

After completing the course, the learner will be able to...

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Understand	Understand the concepts related to Java Technology Designing using Swing
CLO-02	Analyze	Understand and Analyze use of Java Server Programming
CLO-03	Apply	Explore Java Server Programming using beans ,JSP and Jason.

## Syllabus for Second Year of Bachelor of Science in Computer Science

(With effect from the academic year 2024-2025)

**SEMESTER-IV**

**Paper No.– 2**

**Course Title: Advanced Java**

**No. of Credits - 02**

**Type of Vertical: Major and Minor**

**COURSE CODE: S402CST**

<b>COURSE CONTENT</b>			
<b>Module No.</b>	<b>Content</b>	<b>Credits</b>	<b>No. of Lectures</b>
1	<p><b>Unit-I</b>  <b>Swing:</b> Need for swing components, Difference between AWT and swing, Components hierarchy, Panes, Understanding of Components</p> <p><b>JDBC:</b> Introduction, JDBC Architecture, Types of Drivers, Statement, ResultSet, Read Only ResultSet, Updatable ResultSet, Forward Only ResultSet, Scrollable ResultSet, PreparedStatement, Connection Modes, SavePoint, Batch Updatations, CallableStatement, BLOB &amp; CLOB</p> <p><b>Servlets:</b> Introduction, Web application Architecture, Http Protocol &amp; Http Methods, Web Server &amp; Web Container, Servlet Interface, GenericServlet, HttpServlet, Servlet Life Cycle, ServletConfig, ServletContext, Servlet Communication, Session Tracking Mechanisms</p>	01	15
2	<p><b>Unit II</b>  <b>JSP:</b> Introduction, JSP LifeCycle, JSP Implicit Objects &amp; Scopes, JSP Directives, JSP Scripting Elements, JSP Actions: Standard actions and customized actions.</p> <p><b>Java Beans:</b> Introduction, JavaBeans Properties, Examples Struts 2: Basic MVC Architecture, Struts 2 framework features, Struts 2 MVC pattern, Request life cycle, Examples, Configuration Files,</p>	01	15

	Actions, Interceptors, Results & Result Types, Value Stack/OGNL <b>JSON:</b> Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java		
	<b>Total</b>	<b>02</b>	<b>30</b>

### **Required Previous Knowledge**

Students should know basic concepts related to Java

### **Access to the Course**

The course is available for all the students admitted for Bachelor of Science (Computer Science).

### **Forms of Assessment**

The assessment of the course will be of Diagnostic, Formative and Summative type. At the beginning of the course diagnostic assessment will be carried out. The formative assessment will be used for the Continuous Internal Evaluation whereas the summative assessment will be conducted at the end of the term. The weightage for formative and summative assessment will be 60:40. The detailed pattern is as given below.

**Semester End Evaluation (60 Marks)**

**Question Paper Pattern**

**Time: 2 hours**

Question No.	Unit/s	Question Pattern	Marks
Q.1	I & II	MCQ/Fill in the blanks/One line sentence	20
Q.2	I	Descriptive Questions	20
Q.3	II	Descriptive Questions	20
<b>Total</b>			<b>60(converted to 30)</b>

**Internal evaluation (20 Marks)**

Sr. No.	Description	Marks
1	Classroom Tests	10
2	Project/ Viva/ Presentations/ Assignments	05
3	Attendance	05
<b>Total</b>		<b>20</b>

**Grading Scale**

10 points grading scale will be used. The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

**Reference book:**

- Cay S. Horstmann, Gary Cornell, Core Java™ 2: Volume II– Advanced Features Prentice Hall PTR,9th Edition
- Herbert Schildt, Java2: The Complete Reference, Tata McGrawHill,5th Edition
- Joe Wigglesworth and Paula McMillan, Java Programming: Advanced Topics, Thomson Course Technology (SPD) ,3rd Edition

**Text book:**

- Techmax publication book

**Additional References:**

- Advanced Java Programming, Uttam K. Roy, Oxford University Press
- The Java Tutorials: <http://docs.oracle.com/javase/tutorial/>
- The Java Tutorials of Sun Microsystems Inc