



**B.C.A. (Honours) & B.C.A. (Honours with Research)**  
**(Semester - 3 and Semester - 4)**  
**Saurashtra University**  
**To be effective from June – 2024**

<b>CS – 25 Practical Based on CS - 22, CS- 23 and CS -24</b>		
<b>Objectives:</b> <ul style="list-style-type: none"><li>• To apply theoretical concepts through practical applications.</li><li>• To develop practical skills in various aspects of JAVA, C# .Net and Shell Scripting</li></ul> <b>Prerequisites:</b> <ul style="list-style-type: none"><li>• Knowledge of Object Oriented Programming</li><li>• Knowledge of DBMS</li><li>• Knowledge of computer operating</li></ul>		
<b>No</b>	<b>Topics</b>	<b>Details</b>
1	<b>JAVA Basics with OOP Concepts</b>	<ul style="list-style-type: none"><li>➤ Practically implementation of Java Program which includes:<ul style="list-style-type: none"><li>• Java Array</li><li>• Command Line Argument Array</li><li>• OOP concepts</li><li>• Java Access Specifiers and Inheritances</li><li>• IIB and VARARGs in JAVA</li><li>• Java Packages</li></ul></li></ul>
2	<b>JAVA Exception Handling, Threading and JAVAFX</b>	<ul style="list-style-type: none"><li>➤ Practically implementation of Java Program which includes:<ul style="list-style-type: none"><li>• Exception Handling</li><li>• Threading</li><li>• Classes of JavaFx</li><li>• JavaFx UI Controls</li><li>• JavaFx Listeners, Event Handlers</li><li>• JavaFx Multimedia</li></ul></li></ul>
3	<b>C# Basics</b>	<ul style="list-style-type: none"><li>• Practically implementation of C# program which includes:<ul style="list-style-type: none"><li>• Jagged Array</li><li>• Keywords in C# (Ref, out)</li><li>• Indexers</li><li>• Delegates</li><li>• Collections</li></ul></li></ul>
4	<b>C# GUI and ADO .NET</b>	<ul style="list-style-type: none"><li>• Practically implementation of C# program which includes:<ul style="list-style-type: none"><li>• Windows Controls</li><li>• Dialog Controls</li><li>• MDI Form</li><li>• Connected Architecture</li><li>• Disconnected Architecture</li></ul></li></ul>



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5	<b>Unix Shell Script</b>	<ul style="list-style-type: none"><li>• Unix Shell script which includes:<ul style="list-style-type: none"><li>• Redirection and piping</li><li>• File and directory related command</li><li>• Finding Pattern in Files</li><li>• Positional Parameters</li><li>• Decision, Looping Statements in Script</li><li>• Logical Operators in Script</li></ul></li></ul>
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**Course Outcomes:**

- Able to get knowledge about a comprehensive understanding of Object Oriented Programming and their features.
- Student will get practical skills in GUI Development, clear the basics of OS, and implementation of shell scripting too.