



Estd. 1962  
"A++" Accredited by  
NAAC (2021)  
With CGPA 3.52

**SHIVAJI UNIVERSITY, KOLHAPUR - 416004,  
MAHARASHTRA**

PHONE: EPABX-2609000, [www.unishivaji.ac.in](http://www.unishivaji.ac.in), [bos@unishivaji.ac.in](mailto:bos@unishivaji.ac.in)

**शिवाजी विद्यापीठ, कोल्हापूर - ४१६००४, महाराष्ट्र**

दूरध्वनी-ईपीएबीएक्स -२६०९०००, अभ्यासमंडळे विभाग दूरध्वनी ०२३१-२६०९०९४



**Ref./SU/BOS/Com & Mgt./156**

**Date : 25/05/2026**

The Principal  
All Concerned Affiliated Colleges/ Institutions,  
Shivaji University, Kolhapur

**Subject :Regarding syllabi of B.Com. (Computer Application) Part-III (Sem. V & VI)  
degree programme under the Faculty of Commerce & Management as per  
National Education Policy, 2020 (NEP 2.0)**

**Reference : शिवाजी वि.जा.क. संलग्नता/टी-२/1567 दिनांक 31 मे, 2024**

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the University authorities have accepted and granted approval to the syllabi of **B.Com. (Computer Application) Part-III (Sem. V & VI)** under the Faculty of Commerce & Management as per National Education Policy, 2020 (NEP 2.0)

This syllabi shall be implemented from the academic year **2026-2027** onwards subject to the approval from the state government. A soft copy containing the syllabus is attached herewith and it is also available on university website [www.unishivaji.ac.in](http://www.unishivaji.ac.in) (Online Syllabus).

The question paper on the pre-revised syllabi of above mentioned programme will be set for the examinations to be held in October/November 2026 & March/ April, 2027. These chances are available for repeater students, if any.

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Dy. Registrar

**Encl: As above  
for Information and necessary action**

**Copy to:**

|   |                                                    |    |                                 |
|---|----------------------------------------------------|----|---------------------------------|
| 1 | The I/c Dean, Faculty of Commerce & Management     | 6  | Appointment Section A & B       |
| 2 | The Director, Board of Examinations and Evaluation | 7  | I.T.Cell /Computer Centre       |
| 3 | The Chairman, Respective Board of Studies          | 8  | Eligibility Section             |
| 4 | B. Com. Section                                    | 9  | Affiliation Section (T.1) (T.2) |
| 5 | Internal Quality Assurance Cell (IQAC Cell)        | 10 | P.G. Seminar Section            |

# SHIVAJI UNIVERSITY, KOLHAPUR



Estd. 1962,  
NAAC "A++" Grade

**Faculty of Commerce and Management**

**Syllabus for**  
**Bachelor of Commerce (Computer Application)**  
**B.Com (CA)**  
**Part III (SEM-V & VI)**  
**CBCS Course Structure to be implemented from Academic Year 2026-27**  
**(Under NEP 2.0)**

(Subject to the modifications that will be made from time to time)

### SEMESTER V

| S. No.       | Course Code | Course Title                              | L | P | Credit | Theory |     |       | Practical |     |
|--------------|-------------|-------------------------------------------|---|---|--------|--------|-----|-------|-----------|-----|
|              |             |                                           |   |   |        | Int    | Uni | Total | Int       | Uni |
| 1            | DSC13       | RDBMS                                     | 2 |   | 2      | 10     | 40  | 50    |           |     |
| 2            | DSC14       | Java Programming                          | 4 |   | 4      | 20     | 80  | 100   |           |     |
| 3            | DSM5        | Fundamentals of Statistics –              | 4 |   | 4      | 20     | 80  | 100   |           |     |
| 4            | VSC4        | Software Testing –                        | 2 |   | 2      | 10     | 40  | 50    |           |     |
| 5            | DSE1.1      | Emerging Trends in Information Technology | 4 |   | 4      | 20     | 80  | 100   |           |     |
|              | DSE1.2      | Financial Technologies                    |   |   |        |        |     |       |           |     |
|              | DSE1.3      | Enterprise Resource Planning              |   |   |        |        |     |       |           |     |
| 6            | DSC15       | Lab on DSC13                              |   | 4 | 2      |        |     |       |           | 50  |
| 7            | DSC16       | Lab on DSC14                              |   | 4 | 2      |        |     |       |           | 50  |
| 8            | FP2         | Field Project                             |   | 4 | 2      |        |     |       |           | 50  |
| <b>TOTAL</b> |             |                                           |   |   | 22     |        |     | 400   |           | 150 |

# SEMESTER VI

| S. No. | Course Code | Course Title             | L | P | Credit | Theory |     |       | Practical |     |
|--------|-------------|--------------------------|---|---|--------|--------|-----|-------|-----------|-----|
|        |             |                          |   |   |        | Int    | Uni | Total | Int       | Uni |
| 1      | DSC17       | .Net Technology          | 4 |   | 4      | 20     | 80  | 100   |           |     |
| 2      | DSC18       | Foundations of Linux     | 4 |   | 4      | 20     | 80  | 100   |           |     |
| 3      | DSM6        | Bank Management          | 4 |   | 4      | 20     | 80  | 100   |           |     |
| 5      | DSE2.1      | Information System Audit | 4 |   | 4      | 20     | 80  | 100   |           |     |
|        | DSE2.2      | Web Application Security |   |   |        |        |     |       |           |     |
|        | DSE2.3      | Network Security         |   |   |        |        |     |       |           |     |
| 6      | DSC19       | Lab on DSC17             |   | 4 | 2      |        |     |       |           | 50  |
| 8      | OJT1        | On Job Training          |   | 8 | 4      |        |     |       |           | 100 |
| TOTAL  |             |                          |   |   | 22     |        |     | 400   |           | 150 |

# **SEMESTER-V**

| Course Code                    | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | L | T | P | Credit | Theory |     |       | Practical |      |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC13                          | RDBMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2 |   |   | 2      | Int    | Uni | Total | Int       | Uni  |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |        | 10     | 40  | 50    |           |      |
| Course Outcomes (COs):         | CO1: To understand core concepts of RDBMS<br>CO2: To identify programing features of RDBMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |        |        |     |       |           |      |
| Prerequisite                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                         | <b>Introduction to RDBMS:</b> <ul style="list-style-type: none"> <li>DBMS vs. RDBMS</li> <li>Keys: Primary, Foreign, Candidate, Super, Unique keys.</li> <li>Database Constraints: NOT NULL, CHECK, Referential Integrity.</li> <li>Functional Dependencies.</li> <li>Normalization Forms: 1NF, 2NF, 3NF, BCNF.</li> <li>Lossless and Dependency Preserving Decomposition.</li> <li>DDL (Data Definition Language): Create, Alter, Drop, Truncate.</li> <li>DML (Data Manipulation Language): Insert, Update, Delete, Select with WHERE, ORDER BY, GROUP BY, HAVING.</li> <li>Joins: Inner, Left, Right, Full.</li> <li>Built-in Functions: Numeric, Character, Date, Aggregate Functions (SUM, AVG, COUNT, MAX, MIN).</li> </ul> |   |   |   |        |        |     |       |           | 15   |
| UNIT II                        | <b>PL/SQL Basics:</b> <ul style="list-style-type: none"> <li>Introduction to PL/SQL, PL/SQL architecture, Variables, constants</li> <li>Data types (scalar, composite, %TYPE, %ROWTYPE attributes)</li> <li>Conditional statements (IF-THEN-ELSE, CASE)</li> <li>Loops (LOOP, WHILE, FOR, cursor FOR loops),</li> <li>Cursors: Understanding and managing explicit cursors, their attributes, and parameterized cursors</li> <li>Triggers: Creating DML, DDL, and database event triggers</li> </ul>                                                                                                                                                                                                                              |   |   |   |        |        |     |       |           | 15   |
| Text Books/<br>Reference Books | 1. Database Systems Using Oracle – Second edition – Nilesh Shah – PHI 2007<br>2. Database system concepts –Henry F.Korth.<br>3. Oracle 9i Complete reference – Loney Koch – Tata Mc Graw Hill 2005                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |        |        |     |       |           |      |

| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC14                       | Java Programming                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):      | CO1: Understand the basics of Java Programing.<br>CO2: Identify the Object Oriented Structure of Java Programming.<br>CO3: Analyze the error handling and multithreading mechanism of Java programming<br>CO4: Identify the GUI programing features of Java programming                                                                                                                                                                                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>Introduction to Java Programming</b><br>JDK, JRE, JVM architecture, setting up the environment, and first program. Data types, variables, type casting, operators (arithmetic, logical), and control statements (if-else, switch, loops).                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>Object-Oriented Programming (OOP)</b><br>Classes, objects, constructors, method overloading, inheritance, method overriding, this and super keywords, encapsulation, and abstraction (interfaces/ abstract classes).                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           | 15   |
| UNIT III                    | <b>Advance Features:</b><br>Exception handling (try-catch-finally, throw), String handling (String, StringBuilder), and wrapper classes. Multithreading (Thread class, Runnable, synchronization), File I/O (InputStream, OutputStream, File handling).                                                                                                                                                                                                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                     | <b>GUI Programing</b><br>Differences between command-line applications and GUI applications, Overview of Java AWT framework, AWT Components: Frame, Panel, Basic Controls: Button, Label, TextField, TextArea, Checkbox, Choice, List, Layout Management: FlowLayout, BorderLayout, GridLayout, CardLayout, Event Handling: Event-driven programming concepts, Event classes and listener interfaces.                                                                                                                                                                                                                                                       |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | 1. Programming with JAVA, A Primer by E Balagurusamy 2. Herbert Schildt, Java<br>2: The Complete Reference, Tata McGraw-Hill<br>3. The Java Tutorials: <a href="http://docs.oracle.com/javase/tutorial/">http://docs.oracle.com/javase/tutorial/</a> )<br>4. The Java Tutorials of Sun Microsystems Inc<br>5. Java Complete Reference by Patric Norton<br>6. Core Java Vol. I (Addison- Wesley) Sun Press ISBN – 981-405-861-0 2. Core Java Vol. II (Addison- Wesley) Sun Press ISBN – 981-4058-50-5<br>7. Thinking in Java, Bruce Eckel,, Addison – Wesley, ISBN: 9814035750<br>8. Java 2 Programming Black Book by Steven Holzner, Dream Tech Publication |   |   |   |        |        |     |       |           |      |

| Course Code                    | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | L | T | P | Credit | Theory |     |       | Practical |      |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSM5                           | Fundamentals of Statistics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):         | CO1: Identify methods to collect data<br>CO2: Represent the data in tabular and diagrammatic form.<br>CO3: Prepare the frequency distribution for qualitative and quantitative data.<br>CO4: Summarize the data using the measures of central tendency and measure of dispersion.                                                                                                                                                                                                                                                                                                                                                                                                        |   |   |   |        |        |     |       |           |      |
| Prerequisite                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                         | <b>Types and Presentation of Data:</b><br>Concept of statistical population and data. Qualitative & Quantitative data, Discrete & Continuous data, Frequency & Non-Frequency data, Geographical & Chronological data, Primary data & Secondary data with suitable examples.                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |        |        |     |       |           | 15   |
| UNIT II                        | <b>Tabular presentation of data-</b><br>Construction of tables, Types of tables. Frequency distribution —Discrete, grouped, continuous and cumulative. Graphical presentation of data- Histogram, frequency polygon, frequency curve, ogives, and Box-plot.                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |        |        |     |       |           | 15   |
| UNIT III                       | <b>Descriptive Statistics:</b><br>Measures of central tendency (mean, median, mode), dispersion (range, variance, standard deviation, coefficient of variation), skewness, and kurtosis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                        | <b>Bivariate Analysis:</b><br>Scatter diagrams, correlation coefficient (Karl Pearson/Spearman's rank), and simple linear regression.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |   |        |        |     |       |           | 15   |
| Text Books/<br>Reference Books | 1. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2005): Fundamentals of Statistics, Vol. I, 8th Edn. World Press, Kolkata.<br>2. Gupta, S.C. and Kapoor, V.K. (2007): Fundamentals of Mathematical Statistics, 11th Edn., (Reprint), Sultan Chand and Sons. 3. Hogg, R.V., Craig, A.T. and Mckean, J.W. (2005): Introduction to Mathematical Statistics, 6th Edn. Pearson Education.<br>4. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.<br>5. Mood, A.M., Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd. |   |   |   |        |        |     |       |           |      |



| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| VSC4                        | Software Testing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2 |   |   | 2      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        | 10     | 40  | 50    |           |      |
| Course Outcomes (COs):      | After completion of this course students will be able to –<br>CO1. Understand the theoretical aspects of software testing.<br>CO2. Identify software testing tools to test web applications and mobile applications.                                                                                                                                                                                                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>Software Testing Life Cycle (STLC):</b><br>Requirements analysis, test planning, test design, environment setup, execution, defect tracking, and test closure activities. <b>Levels of Testing: Unit Testing:</b> Testing individual components or sections of code, typically by developers, <b>Integration Testing:</b> Testing how different modules interact with each other, <b>System Testing:</b> Testing the complete and integrated software application, <b>User Acceptance Testing (UAT):</b> Final testing by end-users to ensure the software meets business requirements.                               |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>Test Design Techniques:</b><br>Methods for creating effective test cases, such as Boundary Value Analysis (BVA), Equivalence Partitioning (EP), Decision Table testing, and error guessing. Types of Testing: Functional Testing: Ensuring the software performs its intended functions, including smoke, sanity, and regression testing, Non-Functional Testing: Evaluating aspects like performance (load, stress), security, usability, and compatibility. Automation Tools: Hands-on experience with popular tools like Selenium WebDriver for web applications, Appium for mobile apps, and others like UFT/QTP. |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | Software Testing : A Practical Approach, Desai, Sandeep, Srivastava, Abhishek, Edition : Second, PHI Publications<br>Software Testing A Craftsman’s Approach Fourth Edition, Paul C. Jorgensen, CRC Press                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |        |        |     |       |           |      |

| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSE1.1                      | Emerging Trends in IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):      | CO1: Understand the role of E-commerce in the Business environment<br>CO2: Analyze the role of Cloud computing in the organization<br>CO3: Understand the basic concepts of IoT and its role in industry<br>CO4: Identify the different mobile communication techniques used in the business                                                                                                                                                                                            |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>E-Commerce Fundamentals</b><br>E-commerce Systems: B2B, B2C models, digital payment systems, electronic data interchange (EDI), and online marketing, E-commerce vs Quick commerce, Dark stores.                                                                                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>Cloud Computing</b><br>Introduction: Overview of Distributed Computing; Cloud introduction and overview; Cloud Computing in a Nutshell, Roots of Cloud Computing, Layers and Types of Clouds, Desired Features of a Cloud, Different types of cloud services; Deployment models; Advantages and Disadvantages; Companies in the Cloud. Cloud Models: IaaS, PaaS, SaaS, Public, Private, and Hybrid clouds, Infrastructure: Virtualization, containerization storage, and networking. |   |   |   |        |        |     |       |           | 15   |
| UNIT III                    | <b>Introduction to IoT &amp; Architecture</b><br>Definitions, Characteristics, and Applications (Smart Cities, Health, Industry), IoT Enabling Technologies and Physical/Logical Design, IoT Network Architecture (Core Stack, Data Management), Introduction to Sensors, Actuators, and Smart Objects, Hardware Platforms: Arduino Uno, Raspberry Pi, ESP8266/ESP32, Case Studies: Smart Agriculture, Home Automation                                                                  |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                     | <b>Mobile Computing</b><br>Introduction to Mobile Computing: Definition, applications, and architecture, Cellular Systems (Telecommunication): GSM, GPRS, UMTS, 4G, 5G architecture, Mobile Network & Transport Layer: Mobile IP, Packet Delivery, Dynamic Host Configuration Protocol (DHCP), Indirect TCP, Snooping TCP, and Mobile TCP, Mobile Application Development & Middleware: Mobile Agents, Application Servers, and development platforms (Android/iOS).                    |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | 1. Dr.C.S.Rayudu,  E-Commerce &E-Business  ,Himalaya Publishing House, New Delhi, 2004.<br>2. John W. itinghouse james F.Ransome, —Cloud Computing Implementation, Management and Security  , CRC Press.<br>3. Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547<br>4. Mischa Schwartz, Mobile Wireless Communications 1st Edition, Cambridge University Press, 2005                                          |   |   |   |        |        |     |       |           |      |

| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | L | T | P | Credit | Theory |     |       | Practical |     |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|-----|
| DSE1.2                      | Financial Technologies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |        | 20     | 80  | 100   |           |     |
| Course Outcomes (COs):      | CO1: To be able to understand elements and principles of Fintech<br>CO2: To be able to understand the basics of Crypto currencies.<br>CO3: To be able to understand dynamics of block chain.<br>CO4: To able understand the effect of Fintech in various sectors.                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        |        |     |       |           |     |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |        |        |     |       | Hrs.      |     |
| UNIT I                      | Introduction to Fin-tech Evolution of Fin-tech across the world. Impact of digital disruption and innovations by Fin-tech on the Banking and Financial Sector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |        |        |     |       | 15        |     |
| UNIT II                     | The Technology with Fin-tech Understanding the associated technology with respect to Cloud, Blockchain &Crypto currencies, RoboAdvisors, Biometrics and IoT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |        |        |     |       | 15        |     |
| UNIT III                    | Fin-tech Trends Understand the key Fin-tech trends which will disrupt the Financial Sector. Open Banking and Digital Only Banking Introduce the students to the transition to open banking and digital only banking, the technologies involved and the requirement for convenience and user experience.                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |        |        |     |       | 15        |     |
| UNIT IV                     | Fin-tech affecting different sectors Learn the effects of Fin-tech on Payment Innovations, Health, Real-Estate, and Insurance Sector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |        |        |     |       | 15        |     |
| Text Books/ Reference Books | 1. Bitcoin for Non-Mathematicians: Exploring the foundations of Crypto, SlavaGomzin/ Universal Publishers, USA, Latest 1 ST Edition 2020<br>2. The Robotics Process Automation, Handbook: A Guide to Implementing, Tom Taulli/ Apress, Latest 1 ST Edition 2020<br>Website Reference:<br>1. <a href="https://www.ibm.com/industries/banking-financial-markets/resources/omnichannelbankingpaper/">https://www.ibm.com/industries/banking-financial-markets/resources/omnichannelbankingpaper/</a><br>2. <a href="https://thefinancialbrand.com/111080/evolution-future-digital-banking-baastransformation/">https://thefinancialbrand.com/111080/evolution-future-digital-banking-baastransformation/</a> |   |   |   |        |        |     |       |           |     |

[illegible]

| Course Code            | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | L | T | P | Credit | Theory |     |       | Practical |      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC15                  | Lab on DSC13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 |   |   | 2      | Int    | Uni | Total | Int       | Uni  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |   |        | 10     | 40  | 50    |           |      |
| Course Outcomes (COs): | After completion of this course students will be able to –<br>CO1: Apply DDL and DML oprations on data<br>CO2. Implement PL/SQL concepts for preparing and manipulating data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |        |        |     |       |           |      |
| Prerequisite           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |   |        |        |     |       |           | Hrs. |
| Programs               | Create the following relations-<br>Customer, Account, Loan, Branch, Depositor, Borrower, Supplier.<br>Perform following DDL operations on the relations <ul style="list-style-type: none"> <li>Alter :Add-add columnsAdd-constraints</li> <li>Modify-modify the data type and size</li> <li>Drop-delete column</li> </ul> Perform following DML operations <ul style="list-style-type: none"> <li>Insertion of records</li> <li>Arithmetic, Logical, Comparison operations</li> <li>String Operations</li> <li>Aggregate functions</li> <li>Aggregate functions with group by and having clause</li> <li>Nested sub-queries</li> <li>Update records</li> </ul> PL/SQL programs<br>Reverse the String <ul style="list-style-type: none"> <li>Factorial of given number</li> <li>Pay Roll preparation and updation using cursor and trigger</li> <li>Student Mark Sheet Preparation and updation using cursor and trigger</li> </ul> |   |   |   |        |        |     |       |           | 15   |

| Course Code            | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | L | T | P | Credit | Theory |     |       | Practical |      |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC16                  | Lab on DSC14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2 |   |   | 2      | Int    | Uni | Total | Int       | Uni  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |        | 10     | 40  | 50    |           |      |
| Course Outcomes (COs): | After completion of this course students will be able to –<br>CO1: Apply object oriented concepts through java<br>CO2. Implement GUI concepts for preparing interactive java applications.                                                                                                                                                                                                                                                                                                                                                  |   |   |   |        |        |     |       |           |      |
| Prerequisite           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |        |        |     |       |           | Hrs. |
| Programs               | 1. Java programs based on branching and looping statements.<br>2 Java programs based Type Casting<br>3 Java programs based on command line arguments<br>4 Java programs based on constructors<br>5 Java programs based on inheritance<br>6 Java programs based on method overloading<br>7 Java programs based on method overriding<br>8 Java programs based on interfaces<br>9 Java programs based on packages<br>10 Java programs based on multithreading<br>11 Java programs based on exception handling<br>12 Java programs based on AWT |   |   |   |        |        |     |       |           | 60   |

| Course Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cours Title                                                                                                                                                                                                         | L | T | P | Credit | Theory |     |       | Practical |      |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|----|
| FP2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Field Project                                                                                                                                                                                                       |   |   | 4 | 2      | Int    | Uni | Total | Int       | Uni  |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           | 50   |    |
| Course Outcomes (COs):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | After completion of this course student should be able to<br>CO1. Understand domain knowledge of Relational Database Management System<br>CO2. Identify the implementation of Relational Database Management System |   |   |   |        |        |     |       |           |      |    |
| Prerequisite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           | Hrs. |    |
| <b>Guidelinesfor Project</b><br>1. A group of maximum two to four students prepare a Field project under the guidance of internal teacher.<br>2. Students should adopt Field Visit approach<br>3. Students should visit any organization and collect the information about RDBMS used by the organization<br>4. Number of Copies: The student should submit one Spiral copy of the Field Project Report to College /University & also prepare one individually spiral copy.<br>5. The Field project report is duly signed by Principal or Head of Department, Project Guide and Student.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           |      |    |
| <b>Guidelines for submission of the Project Report.</b><br>a. Paper: The Report shall be typed on white paper, A4 size, for the final submission. The report to be submitted must be original and subsequent copies may be photocopied on any paper.<br>b. Typing: The typing shall be of standard letter size, 1.5 spaced and on both side of the paper. (Normal text should have Times New Roman, Font size 12. Headings can have bigger size)<br>c. Margins: The typing must be done in the following margins: Left 1.5 inch, Right ----- 1 inch Top ----- 1 inch, Bottom 1 inch<br>d. Front Cover: The front cover should contain the following details:<br>TOP : The title in block capitals of 6mm to 15mm letters.<br>CENTRE: Full name in block capitals of 6mm to 10mm letters.<br>BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing with center alignment. |                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           |      | 15 |
| <b>Documentation Format</b><br>a) Cover Page<br>b) Institute/College Recommendation<br>c) Guide Certificate<br>d) Declaration<br>e) Acknowledgement<br>f) Index<br>g) Chapter Scheme<br>1) Organization Profile<br>2) Objectives of Tally<br>3) Scope of tally<br>4) Features of Tally<br>5) Advantages and Disadvantages of Tally<br>6) Reports (with valid data minimum 4 reports)<br>7) Conclusion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                     |   |   |   |        |        |     |       |           |      | 15 |

# **SEMESTER-VI**



| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                           | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC17                       | .Net Technology                                                                                                                                                                                                                                                                                                                                                                       | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):      | CO1: To understand the features of windows and web-based application<br>CO2: To understand the techniques for developing windows-based application using C#<br>CO3: To understand the techniques for developing web-based application using ASP.NET<br>CO4: To identify skills pertaining to data access technology through the systems using .NET platform.                          |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>NET Framework &amp; Fundamentals</b><br>.Net Framework, Exploring Visual Studio .NET, .NET Architecture: CLR (Common Language Runtime), CTS (Common Type System), CLS (Common Language Specification), Assembly & Deployment: Modules, Manifests, Garbage Collection, Assemblies, Visual Studio IDE: Project structure, debugging, and testing.                                    |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>Introduction to C#</b><br>Inside a C# Program, Data Types, Statements, Arrays, Using Strings, Objects, Classes and Structs, Properties, Inheritance, Indexers, Delegates, Events, Namespaces, Exception Handling, Assemblies, Windows Forms, Controls, Data binding to Controls, MDI Form, Advanced Database Programming using ADO.net.                                            |   |   |   |        |        |     |       |           | 15   |
| UNIT III                    | <b>Introduction to ASP.net</b><br>Building a Web Application, Examples Using Standard Controls, Using HTML Controls, Validating Form Input Controls using Validation Controls, Understanding Applications and State, Applying Styles, Themes, and Skins, Creating a Layout Using Master Pages,                                                                                        |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                     | <b>Database Management System</b><br>Working with relational databases: MS-Access, MSSQL Server, Creating Table, Editing and Updating table information, SQL Query, Binding to Databases using Controls, Data Management with ADO.net, Creating a Site Navigation Hierarchy, Navigation Controls, Membership and Role Management, Login Controls, Using Crystal Reports in Web Forms. |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | 1. C# 4.0 The Complete Reference by Herbert Schildt<br>2. Essential C# 4.0 by Mark Michaelis and Eric Lippert<br>3. —C# in Depth by Jon Skeet<br>4. —Head First C#: A Learner's Guide to Real-World Programming with C#, XAML, and .NET by Jennifer Greene and Andrew Stellman<br>5. —Microsoft Visual C# Step by Step by Sharp John<br>6. —Let Us C# by Yashavant P Kanetkar         |   |   |   |        |        |     |       |           |      |

| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                              | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC18                       | Foundations of Linux                                                                                                                                                                                                                                                                                                                                                                                     | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):      | CO1: To understand fundamental concepts of Linux.<br>CO2: To identify the techniques of Linux System administration.<br>CO3: To implement basic commands in Linux<br>CO4: To develop shell scripts for commands and systems calls in Linux                                                                                                                                                               |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>Introduction to the Linux</b><br>Environment History and evolution of the Linux operating systems, Comparison between free and proprietary software, Pros and cons of using Linux, Popular Linux distributions An overview of the Linux environment, Linux Architecture, Introduction to the Bourne Shell (bash) The vim editor                                                                       |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>Linux System Administration</b><br>Devices and file system management, User management, managing basic file system permissions Configuring the system - display, network, desktop, etc. System configuration files, System start-up and shutdown, Backup and system recovery Tools, An introduction to common applications and file formats on Linux, An introduction to tools for Linux development. |   |   |   |        |        |     |       |           | 15   |
| UNIT III                    | <b>Introduction to the CLI</b><br>Shell environment, commands, syntax, options, getting help Basic commands and utilities File system navigation and manipulation Process management Command line processing I/O redirection and filters.                                                                                                                                                                |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                     | <b>Basic Shell Scripting</b><br>The built-in constructs of the shell, Basics of filters and regular expressions, Common Linux Commands using shell scripts, Programming using system calls under Linux, utility programs, Examples.                                                                                                                                                                      |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | 1. LINUX with Operating System Concepts by Richard Fox, CRC Press<br>2. Linux Commands- Instant Reference by Bryan PF affenberge<br>3. The Design of the Unix Operating System- Bach Page   9<br>4. Unix Shell Programming- Yashwant Kanetkar<br>5. Unix Concepts and Application – Sumitabhadas<br>6. Linux : The Complete Reference- Richard Peterson                                                  |   |   |   |        |        |     |       |           |      |

| Course Code                 | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | L | T | P | Credit | Theory |     |       | Practical |      |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSE2.1                      | Information System Audit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):      | CO1: Understand system audit phases and functions<br>CO2: Describes IS assets and audit controls<br>CO3: Explain VAPT process and tools<br>CO4: Understand IT ACT and various provisions in IT Act                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |        |        |     |       |           |      |
| Prerequisite                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                      | <b>Systems Audit –</b><br>An Overview – Nature, Significance and Scope of Systems Audit – Steps Involved in Conducting Systems Audit – Systems Audit and Management Functions – Systems Audit of Computerized Secretarial Functions – Norms and Procedure for Computerization, Computers Control and Security – Testing of Computer Systems – Documentation Standards, Policies and Procedures, Audit Approach, preparation of audit report.                                                                                                                                                                            |   |   |   |        |        |     |       |           | 15   |
| UNIT II                     | <b>IS Assets and Controls:</b><br>Information System Assets, Types of IS assets , Need of audit of computers effects of computers on auditing, types of audit, audit procedure, audit risks, Information System Control: framework of management control, introduction, top management control, evaluating the planning, organizing, leading and controlling function,                                                                                                                                                                                                                                                  |   |   |   |        |        |     |       |           | 15   |
| UNIT III                    | <b>Vulnerability Assessment &amp; Penetration Testing (VAPT) :</b><br>Introduction and purpose of VAPT, VAPT goals and scope, Vulnerability Assessment Methodology, Types of Vulnerability, Tools for Vulnerability Scanning-Host based, network based and database based; Advantages and disadvantages of Vulnerability Assessment, Vulnerability testing methods and tools Penetration testing methods and tools                                                                                                                                                                                                      |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                     | <b>Information Technology Law –</b><br>Information Technology Act – Definitions, Important terms under Information Technology Legislation – Digital Signatures – Electronic Records – Certifying Authority – Digital Signature Certificate – Cyber Regulation Appellate Tribunal – Offences and Penalties                                                                                                                                                                                                                                                                                                               |   |   |   |        |        |     |       |           | 15   |
| Text Books/ Reference Books | 1 EDP Auditing - Ron Weber<br>2 PC and LAN security – Stephen Cobb<br>3 Enterprise Security - Protecting Information Assets - Michel E. Kabey<br>4 Enterprise Disaster Recovery Planning – Miora<br>5 Computer Security -Summies<br>6 Internet Security – Derek, Alkins<br>7 Information security policies procedures and standards by Thomas Pettier<br>8 Information System Security: security Management frameworks and best Practices by NinaGodbole<br>9.. D.P. Mittal : Law of Information Technology (Cyber Law) with Information Technology (Certifying Authorities) Rules, 2000, TaxmannPublications Pvt. Ltd. |   |   |   |        |        |     |       |           |      |

[illegible]

|  |                                                                                                                                                                                                                                                                                              |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>SIMA</p> <p>3. The Web Application Hacker's Handbook Discovering and Exploiting Security Flaws By DafyddStuttard, Marcus Pinto</p> <p>4. Rich Bowen, Ken Coar, —Apache Cookbookl, O'Reilly</p> <p>5. Web Application Security, A Beginner's Guide, Bryan Sullivan, Vincent Liu, 2011,</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

[illegible]

| Course Code                    | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                             | L | T | P | Credit | Theory |     |       | Practical |      |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSM6                           | Bank Management                                                                                                                                                                                                                                                                                                                                                                                                                         | 4 |   |   | 4      | Int    | Uni | Total | Int       | Uni  |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        | 20     | 80  | 100   |           |      |
| Course Outcomes (COs):         | CO1: To aquire thorough knowledge of banking laws and operations.<br>CO2: To identify the new concepts introduced in the banking system.<br>CO3: To understand the functions and services of bank.<br>CO4: To identify the initiatives of bank in financial inclusion and financial literacy.                                                                                                                                           |   |   |   |        |        |     |       |           |      |
| Prerequisite                   |                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |        |        |     |       |           | Hrs. |
| UNIT I                         | <b>Indian Financial System &amp; Types of Banks: -</b><br>Overview of the Indian Financial System, History - Structure - Role of Financial System in Economic Development. - Types of Banks: Central Bank, Commercial Banks, Co-operative Banks, Small Finance Banks, Payment Banks, Scheduled & Non-Scheduled Banks.                                                                                                                   |   |   |   |        |        |     |       |           | 15   |
| UNIT II                        | <b>Banking Regulation Act, 1949 &amp; Banking Related Laws:</b><br>Introduction of Banking Regulation Act, 1949, History, Objectives, Features, Important provisions, Offences & Punishment and Amendments to the Banking Regulation Act, 1949. - Know Your Customer Norms, Consumer Protection Act, Anti Money Laundering Standards, Banking Ombudsman Scheme.                                                                         |   |   |   |        |        |     |       |           | 15   |
| UNIT III                       | <b>Banker Relationship &amp; Functions of Banks: -</b><br>Introduction & Definition of Customer, Banker-Customer Relationship: General & Special, Termination of relationship, Banker's Special Relationship. - Primary & Secondary Functions & Ancillary Services.                                                                                                                                                                     |   |   |   |        |        |     |       |           | 15   |
| UNIT IV                        | <b>Financial Inclusion &amp; Financial Literacy: -</b><br>Introduction, Objective, Need, Different Financial Inclusion Programmes and Schemes in India, Operations. - Meaning, Fundamental Components, Importance & Benefits.                                                                                                                                                                                                           |   |   |   |        |        |     |       |           | 15   |
| Text Books/<br>Reference Books | 1. Principles and Practice of Banking – Indian Institute of Banking and Finance.<br>2. Modern banking and Insurance – Jain J. N – JainR.K.<br>3. Banking Law and Practice in India- Tannan – DattaC.R.<br>4. Indian Banking – Nature and Problems – DesaiVasant.<br>5. Fundamentals of Banking Theory and practice – BasuA.K.<br>6. Principles & Practices of Banking - By Indian Institute of Banking & Finance Macmillan Publication. |   |   |   |        |        |     |       |           |      |

| Course Code            | Cours Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | L | T | P | Credit | Theory |     |       | Practical |      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------|-----|-------|-----------|------|
| DSC19                  | Lab on DSC17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2 |   |   | 2      | Int    | Uni | Total | Int       | Uni  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        | 10     | 40  | 50    |           |      |
| Course Outcomes (COs): | After completion of this course students will be able to –<br>CO2: To develop windows-based application using C#<br>CO3: To develop web-based application using ASP.NET                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |   |        |        |     |       |           |      |
| Prerequisite           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |        |        |     |       |           | Hrs. |
| Programs               | 1) Debug and deploy ASP.NET web applications<br>2) Discuss the insights of internet programming and implement complete application over the web<br>3) Use the features of Dot Net Framework along with the features of C#<br>4) Build and host web applications using ASP.NET<br>5) Develop and deploy Windows applications<br>6) Handle data by using ADO.NET architecture<br>7) Create database-driven ASP.NET web applications<br>8) Present data by using crystal report in .net framework<br>9) Validate Form Input Controls using Validation Controls<br>10) Understand Applications and State in .net programming |   |   |   |        |        |     |       |           | 15   |