

**B.L.D.E.ASSOCIATION'S**  
**SB ARTS AND K.C.P. SCIENCE COLLEGE, VIJAYAPUR**  
**ACCREDITED AT THE 'A' LEVEL**  
**BCA PROGRAMME**

**PROGRAM OUTCOMES**

POs	DESCRIPTIONS
<b>PO1 : Professional Skills</b>	Ability to understand and develop computer programs, algorithms, web design, application software
<b>PO2: Problem Solving Skills</b>	Ability to apply standard practices and strategies in Project development
<b>PO3: Successful Carrier</b>	The ability to Employee Modern Computer Languages , environment, carrier paths and Higher Education

**PROGRAMME SPECIFIC OUTCOMES**

PSOs	DESCRIPTIONS
<b>PSO1: Engineering Knowledge</b>	Apply the knowledge of Mathematics, science , Engineering Fundamentals
<b>PSO2: Problem Analysis</b>	Identify, formulate, analyze and Review of Simple Engineering
<b>PSO3: Design &amp; Development Solution</b>	Design solutions for engineering problems, system components and process that meet the specified need with appropriate solutions
<b>PSO4: Find Innovative problems</b>	Knowledge based methods including experimental design, data interpretation and analysis
<b>PSO5: Modern Tools usage</b>	Create, select and Apply various techniques, Modern Engineering and IT tools
<b>PSO6: Environment and ethics</b>	Understand the impact of modern applied science in Environmental context apply ethical principle and commit to professional ethics and responsibilities.
<b>PSO7: Communication</b>	Develop effective communication skills, presentation, report writing
<b>PSO8: Project Management</b>	Project Management : Demonstrate and develop engineering methods, understand team member, leader and individual project management, multidisplinary methods.

**Semester: I**

**Subject: Computer Fundamental**

**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
CO1: Fundamentals To Computers	Definition, History , Evolution Of Computer, Peripherals Of Computer, Input, Output Devices.
CO2: Understanding Numbering System	Numbering System, Types Numbering System, Conversions, And Basic Binary Arithmetic Operations.
CO3: Learning Of Computer Storage Memory	Internal structure of processors and memory, secondary storage and primary storage. IO Devices
CO4: Study Of Software And Hardware	Types of Software , Relationship among Hardware, steps involved software development
CO5: Introduction To Operating System	Basic components of windows, Basic commands of Linux OS

### MAPPING OF COURSE OUTCOMES WITH POs AND PSOs

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	-	2	3	-	1	-	-	-	-	-
CO2	3	2	2	3	2	2	-	-	-	-	-
CO3	3	-	2	3	-	2	-	-	-	-	-
CO4	3	2	2	3	2	-	-	-	-	-	-
CO5	3	2	2	3	2	1	-	2	-	-	-

Semester I

**Subject:** Programming in C

**Course outcomes**

<b>COURSE OUTCOMES</b>	<b>DESCREPTIONS</b>
<b>CO1: Problem solving techniques</b>	Introduction to programming logic and development, algorithm and flowchart,
<b>CO2: Overview of C</b>	Basic programs and structure data types and variables and input output statements to design a program.
<b>CO3: Development of skills in Decision and control statements</b>	Conditional, decision statement and different looping statements on various applications
<b>CO4: enhancing skills through arrays, pointers, functions</b>	String functions, arrays, pointers and recursion with programs
<b>CO5: Acquiring skills on structured data types and implementations</b>	Declaring Structure, Accessing Structure Elements, Array of Structure and Nesting of Structure, Union. Command Line Arguments

### **MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

<b>COs/POs and PSOs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PSO6</b>	<b>PSO7</b>	<b>PSO8</b>
<b>CO1</b>	3	4	2	3	3	2	3	2	-	-	-
<b>CO2</b>	3	2	3	3	3	4	3	2	-	-	3
<b>CO3</b>	3	3	2	3	4	2	3	1	-	-	3
<b>CO4</b>	3	3	2	2	4	3	2	-	-	-	3
<b>CO5</b>	3	3	3	3	3	3	4	-	-	-	4

## Semester I

### Subject: Programming in C LAB

#### PRACTICAL COURSE OUTCOMES

COURSE OUTCOMES	DESCREPTIONS
PCO1: Development of multi conditional logical programming switch	program to function as a basic calculator
PCO2:use of ternary Operator	program to check whether year is leap year or not
PCO3: Implementation of subscript data type and comparing	Function to find maximum and minimum element in an array.
PCO4: Development of skills in String manipulation	Program to check whether an alphabet is vowel or consonant. string library functions (copy, concat, uppercase to lower case and vice-versa, length of string, sort set of strings(use strcmp()).concatenate two strings without using library function, compare two strings without using library functions
PCO5: Implementation of Tasks using Recursion method & function	Function To generate Up to n prime numbers, function calculates factorial of a given integer.
PCO6: Implantation of Database structure, various types of database structures and Functions	Function to input five subjects marks Calculate percentage and grade. program to illustrate difference between structure and union , function to add two complex numbers.
PCO7: simple mathematical coding conventions have implemented with formulas	A. C program to enter P, T, R and calculate Simple Interest B. C program to enter length and breadth of a rectangle and find its perimeter and area. C. Write a program to find HCF (GCD) of two numbers.
PCO8: Implantation of Control Statements	Write a program to subtract/add/multiply two matrices

#### MAPPING OF COURSE OUTCOMES WITH POs AND PSOs

PCOs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PCO1	3	4	2	3	3	2	3	2	-	-	-
PCO2	3	2	3	3	3	4	3	2	-	-	3
PCO3	3	3	2	3	4	2	3	1	-	-	3
PCO4	3	3	2	2	4	3	2	2	-	-	3
PCO5	3	3	3	3	3	3	4	2	-	-	3
PCO6	2	2	3	2	2	2	2	2	-	-	3
PCO7	3	3	3	2	2	2	2	3	-	-	3
PCO8	2	3	3	3	3	2	2	1	-	-	3

Semester: I

Subject: Basic Computer (Lab)

**PRACTICAL COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
PCO1: Features of Linux OS, Windows OS	Features of Linux OS and description of the Linux commands
PCO2: Software and Hardware	Processor , secondary memory , and I/O Devices
PCO3: Setting of Page margin and font size of a document	Page margin, Page Size, Font Size and Save
PCO4: Alignment of Document	Alignment, Insert Symbols and subscript and super script.
PCO5: Insertion of Header & Footer	Header and Footer ,Page Number, Find and Replace Authentication
PCO6: Development of skills on Table menu	Draw Table , Merge ,Split ,Table Style and board
PCO7: Learning Mail Merge Concept	Merging Document file with non document file

**MAPPING OF COURSE OUTCOMES WITH POs and PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PCO1	-	-	2	3	-	-	-	-	-	-	-
PCO2	3	-	2	3	-	-	-	-	-	-	2
PCO3	3	-	3	3	-	-	2	2	-	-	3
PCO4	3	-	3	3	-	-	2	2	-	-	3
PCO5	3	-	3	3	-	-	2	2	-	-	-

**Semester: II**  
**Subject: Digital Logic and Computer Design**  
**COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Understanding Numbering System</b>	Numbering System, Types Numbering System, Conversions, And Basic Binary Arithmetic Operations.
<b>Co2: Introduction to Boolean Algebra</b>	Axioms and Laws of Boolean Algebra, Boolean functions, Canonical and Standard Forms
<b>Co3: Learning Of Logic Gates &amp; K-maps</b>	Level Minimization: The Map method, Implementation of NAND , NOR and Ex-OR
<b>CO4: Study Of Combinational Logic, Registers and Counters</b>	analysis and design procedure, Binary adder and subtractor, decimal adder, binary multiplier, Magnitude comparator, Decoders, Encoders, Multiplexers. Sequential circuits, Latches, Flip Flops, SR, JK, T, D Flip Flops, Registers, Shift registers, Ripple counters
<b>Co5: Learning Of Storage Memory through circuit diagrams</b>	RAM, ROM and Programmable logic array, Programmable array logic

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	2	2	3	2	2	-	-	-	-	-
<b>CO2</b>	-	3	2	3	2	-	-	-	-	-	-
<b>CO3</b>	1	3	2	2	3	3	2	-	-	-	-
<b>CO4</b>	-	-	2	2	2	2	-	-	-	-	-
<b>CO5</b>	-	-	2	2	-	2	-	-	-	-	-

**SEMESTER: II****SUBJECT : Data Structures using 'C'****COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Learning Advanced methods through Pointers and File management</b>	Pointer concept, dynamic memory allocation functions, Files-Defining, opening, closing, I/O operations.
<b>CO2: Introductions to data structures, Search &amp; sort Techniques</b>	Definition, classification of DS, Different types of searching and sorting techniques
<b>CO3: Acquiring Knowledge On Recursion method, stack and its application</b>	Recursion, stack its operations and stack applications
<b>CO4: Understanding and implementation of Queue</b>	Definition , types and programs
<b>CO5: Understanding and implementation Linked List</b>	Definition, components, types, operations and programs

**MAPPING COURSE OUTCOMES WITH POs AND PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	3	3	3	3	2	3	-	-	-	3
<b>CO2</b>	3	2	2	3	3	3	3	-	-	-	2
<b>CO3</b>	3	3	2	3	3	2	3	-	-	-	2
<b>CO4</b>	3	3	3	3	2	2	3	-	-	-	1
<b>CO5</b>	3	3	3	3	2	3	3	-	-	-	3

**SEMESTER: II**  
**SUBJECT : Data Structure using 'C' LAB**  
**PRACTICAL COURSE OUTCOMES**

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCO1: Dynamic Memory allocation	The Dynamic Memory Allocation for Structure and Array
PCO2: Implantation of Pointer Concept	Program on Pointer concept to add 2 matrices & sort array of integers and functions
PCO3: Implementation of File operations	Program to count the number of lines, convert the text from upper case to lower case using functions
PCO4: Learning the Recursion concept	To find Factorial & Fibonacci series using recursion
PCO5: Searching techniques	Program on Sequential search and Binary search
PCO6: Sorting techniques	Program on bubble, Quick, Merge and Insertion sort
PCO7: Implementation Of Stack	Program on Stack Operations and Applications
PCO8: Implementation Of Queue	Program on queue operations
PCO9: Implementation Of Linked List	Program to create Linked list and operations on the same

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PCO1	2	2	2	3	1	1	1	-	-	-	1
PCO2	2	2	1	3	2	1	2	1	-	-	2
PCO3	3	2	1	3	1	2	1	-	-	-	2
PCO4	2	3	2	3	2	3	2	-	-	-	2
PCO5	3	3	3	3	3	3	2	-	-	-	3
PCO6	3	3	3	3	3	2	2	-	-	-	2
PCO7	2	2	2	3	2	2	1	-	-	-	1
PCO8	2	2	2	3	2	2	1	-	-	-	2
PCO9	3	2	1	3	1	1	1	-	-	-	2



**Semester: II**

**Subject: Programming Lab- Digital Logic (LAB)**

**Practical Course outcomes**

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCo1: Construction of circuit diagram	Drawing circuit diagram and Truth Table & verifying truth table
PCo2: Learning of Boolean expressions	Simplifying Boolean expressions ,Verification of Boolean Theorems
PCo3: Construct & Design-map	Minimizing expression (SOP and POS), Don't Care Conditions.
PCo4: Designing of Adder circuits	Design and verify half/full Adder, half/full subtractor, magnitude comparator.
PCo5: Learning of flip-flops , Counters and Registers	Understanding of Flip flops and designing of counters and shift registers

**MAPPING OF PRACTICAL COURSE OUTCOMES WITH POs AND PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	-	-	2	2	2	2	-	3	-	-	-
CO2	-	-	3	2	3	3	-	3	-	-	-
CO3	-	3	2	2	3	3	-	3	-	-	-
CO4	-	1	2	2	2	2	-	3	-	-	-
CO5	-	-	2	3	1	3	-	3	-	-	-

**SEMESTER: III**  
**SUBJECT: OOP'S USING JAVA**  
**COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Fundamental concepts of OOP's, Decision and control statements</b>	Basic OOP's concepts, JVM, JRE, Types of data, all types of decision making, looping statements and definition. of array with types
<b>CO2: Understanding and development of Java Classes</b>	How to create class, object, constructors, inner & outer classes, wrapper classes, string and its methods
<b>CO3: Methods of learning Inheritance, Packages &amp; Interfaces</b>	Types of inheritance, user defined packages and their creation, defn. & creation of interface, know about util. package: vector, scanner and calendar, date
<b>CO4: Knowiong about Exception handling &amp; Thread</b>	Types of Exception, How to handle the exception, types of files and their methods, creation of thread along with priority, methods & synchronization
<b>CO5: Enhancement of skills in GUI through Applet</b>	How to create executable applet, all HTML tags, The graphics class and their methods & drawing the bar & line chars.

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POS & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	3	3	3	2	2	1	1	-	-	3
<b>CO2</b>	3	3	3	3	2	3	1	-	-	-	3
<b>CO3</b>	3	3	2	3	2	2	2	2	-	-	3
<b>CO4</b>	3	3	2	3	1	2	2	1	-	-	3
<b>CO5</b>	3	2	2	3	1	3	3	3	-	-	3

**Semester: III**

**Subject: Data Communications & Computer Networks**

**COURSE OUTCOMES**

<b>COURSE OUTCOMES</b>	<b>DESCREPTIONS</b>
<b>CO1:Introduction of Computer Networks and Services</b>	Definitions, Evolution of CN, types of network topologies and protocols, Enumerate the layers of the OSI model & TCP/IP
<b>CO2:Study of Digital Transmission</b>	Representing the digital information, Basic properties of Transmission System, Problems on Shannon Channel Capacity, Digital Modulations
<b>CO3:Learning Of Transmission System</b>	Properties of Media and Digital Transmission Systems, Error Detection and Error Corrections, Multiplexers
<b>CO4:Study Of Peer to Peer Protocols and services</b>	Automatic Repeat Request, protocols, Time recovery synchronous service, Reliable Stream Service.
<b>CO5: Learning Of LAN &amp; MAC</b>	Analyze MAC Layer and Protocols, LAN Technologies

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

<b>COs/POs &amp; PSOs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PSO6</b>	<b>PSO7</b>	<b>PSO8</b>
<b>CO1</b>	3	-	2	3	-	-	-	-	-	-	-
<b>CO2</b>	3	1	2	3	2	2	1	2	-	-	2
<b>CO3</b>	3	2	2	3	2	2	1	2	-	-	2
<b>CO4</b>	3	2	2	3	2	2	2	2	-	-	2
<b>CO5</b>	3	2	2	3	2	2	1	2	-	-	2

**Semester III**

**Subject: Operating System Principles**

**COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1:Introduction Basics of Operating System</b>	Definition, types, services, system calls, virtual machine
<b>CO2:Learning of Process Management and its algorithms</b>	Process state transition, process control block, Thread, types, process scheduling algorithms
<b>CO3:Understatnding of Inter-Process-Communication and Numerical problems</b>	Race condition, critical section, producer consumer problem, Deadlock
<b>CO4:Ability to learn Memory Management System and its algorithms</b>	Logical and physical map, allocation, fragmentation, segmentation, page replacement algorithms
<b>CO5: Study of I/O Management and disk scheduling algorithms</b>	Disk structure, disk scheduling algorithms, file types directory structure

**MAPPING OF COURSE OUTCOMES WITH POs and PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	-	3	3	-	-	-	-	-	-	1
<b>CO2</b>	3	3	3	3	3	2	2	1	-	-	2
<b>CO3</b>	3	3	3	3	3	-	2	1	-	-	1
<b>CO4</b>	3	3	3	3	3	-	2	1	-	-	1
<b>CO5</b>	3	3	3	3	3	-	2	1	-	-	2

**Semester III****Subject: Operating System Principles (Lab)****PRACTICAL COURSE OUTCOMES**

<b>PRACTICALCOURSE OUTCOMES</b>	<b>DESCREPTIONS</b>
<b>PCO1: Solution for Producer-Consumer Problem</b>	Implementation of producer-Consumer system
<b>PCO2: Implementation of Semaphore</b>	program to find solution for critical section problem using Semaphores
<b>PCO3: Implementation of Round-robin scheduling algorithm</b>	program to implement Round Robin CPU scheduling
<b>PCO4: Implementation of SJF scheduling algorithm</b>	program to implement SJF CPU scheduling
<b>PCO5: Implementation Of FCFS CPU scheduling algorithm</b>	program to implement FCFS CPU scheduling
<b>PCO6: Development of Priority based CPU scheduling algorithm</b>	program to implement Priority based CPU scheduling
<b>PCO7: Implementing Of FIFO page replacement</b>	program to implement FIFO page replacement
<b>PCO8: Implementation LRU scheduling algorithm</b>	program to implement LRU scheduling

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

<b>COs/POs and PSOs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PSO6</b>	<b>PSO7</b>	<b>PSO8</b>
<b>CO1</b>	3	3	3	3	3	-	-	-	-	-	1
<b>CO2</b>	3	2	2	3	2	-	-	-	-	-	1
<b>CO3</b>	3	3	2	3	3	-	-	-	-	-	1
<b>CO4</b>	3	3	2	3	3	-	-	-	-	-	1
<b>CO5</b>	3	3	2	3	3	-	-	-	-	-	1

SEMESTER: III  
 SUBJECT : OOPS using 'JAVA'LAB  
 COURSE OUTCOMES

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCO1: Implementation the Command line argument concept	Program to find the factorial of a number reading input as command line argument
PCO2: Demonstration of Method overloading concept	Program to demonstrate method overloading
PCO3: Implementation of String Methods	Program to demonstrate 5 string methods using scanner class
PCO4: Implementation Of File Operations	Learn the file operations
PCO5: Demonstration of Inheritance	Program on multilevel inheritance
PCO6: Illustration of Packages	Program on user defined packages
PCO7: Implementation Of Interfaces	Program to implement interfaces
PCO8: Demonstration of Exceptions	Program to handle exceptions & the use of multiple catch statements
PCO9: Demonstration of Thread	Program to create thread using Thread class and Runnable class
PCO10: Implementation of application through Applet	Program to create applet using different controls

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/Pos & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO
PCO1	3	3	1	3	3	1	3	-	-	-	1
PCO2	3	3	2	3	3	3	2	-	-	-	1
PCO3	3	3	2	3	3	2	1	-	-	-	1
PCO4	3	3	2	3	2	2	1	-	-	-	2
PCO5	3	3	3	3	1	2	1	-	-	-	1
PCO6	3	2	2	3	1	2	1	-	-	-	1
PCO7	3	1	2	3	1	2	1	-	-	-	2
PCO8	3	1	2	3	2	3	1	-	-	-	2
PCO9	2	2	1	3	2	1	2	-	-	-	2
PCO10	1	1	1	3	1	1	2	-	-	-	1

**Semester IV**

**Subject: Design and Analysis of Algorithm**

**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1:Introduction to Algorithm performance and design strategies</b>	Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, algorithm measures
<b>CO2:Knowing Applications of sorting techniques using divide and conquer</b>	Applications - Binary search, Quick sort, Strassen's Matrix multiplication, Finding Max Min, Selection sort.
<b>CO3:Learning Applications of GREEDY METHOD</b>	Applications-Job sequencing with deadlines, Knapsack problem, Single source shortest path, Minimum cost spanning trees, Optimal storage on tapes.
<b>CO4: Acquiring knowledge on Dynamic programming and its Applications</b>	Applications- Multistage graph, All pairs shortest path problem, Travelling sales person problem
<b>CO5: Study of various Traversal and Search Techniques</b>	Binary search tree, techniques for binary trees, techniques for graphs and applications-N-queen problem, sum of subsets problem, Hamiltonian cycles.

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	4	2	3	3	2	3	2	-	-	-
<b>CO2</b>	3	2	3	3	3	3	3	2	-	-	3
<b>CO3</b>	3	3	2	3	4	2	3	1	-	-	3
<b>CO4</b>	3	3	2	2	4	3	2	2	-	-	3
<b>CO5</b>	3	3	3	3	3	3	4	2	-	-	4

**Semester: IV**  
**Subject : Data Base Management System**  
**Course outcomes**

COURSE OUTCOMES	DESCRIPTIONS
<b>CO1: Understanding definition, Architecture and types of users of Database</b>	Database System Concepts and Architecture: Data Models, Schemas, and Instances, Three Schema Architecture and Data Independence, Database language and interfaces
<b>CO2: Study of ER Model and diagram</b>	Relationship(ER) model: High level conceptual data models Entity types, Entity sets, Attributes and Keys, Relationship types, Relationship sets, Roles
<b>CO3: Learning Relational Model and its Algebra</b>	Relation Data Model and Relational Database Constraints, Relation Algebra, Relational Database Design by ER to Relational Mapping.
<b>CO4: Knowing the Concepts of Normalization, its types</b>	Normal Forms based on Primary Keys, General Definition of 2NF and 3NF, Boyce-Codd Normal Form(BCNF).
<b>CO5: Experimental methods SQL and PL/SQL</b>	Queries in SQL, Insert, Delete and Update Statements inSQL, Views in SQL,PL/SQL: Introduction, Datatypes, The PL/SQL syntax, Logical Comparison in PL/SQL.

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	1	2	3	1	1	2	2	-	-	-	2
<b>CO2</b>	2	3	3	3	2	2	1	-	-	-	3
<b>CO3</b>	3	2	3	3	3	2	2	-	-	-	3
<b>CO4</b>	3	3	3	3	3	2	3	2	-	1	3
<b>CO5</b>	3	3	3	3	3	3	3	3	-	-	3



**Semester IV****Subject: Advanced Java Programming****Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Understanding of Event Handling</b>	Event, Event Source, Event Classes, Event Listener interface, Examples, Handling Windows Events, Adapter Classes, Inner classes.
<b>CO2: Study of Swing</b>	Introduction to JFC (Java Foundation Classes), Swing, Swing Features, JComponent, JApplet, JFrame, JPanel, JButtons, checkboxes and Radio buttons, JTabbedPane, JScrollPane, JList
<b>CO3: Knowing JDBC Architecture:</b>	Introduction to JDBC, Java and JDBC, JDBC VS ODBC, JDBC DRIVER MODEL, JDBC Driver Types, Types of Driver Managers, JDBC Connection process, Statement object, PreparedStatement object, operations on Resultset (Read, insert, update and delete), transaction processing, Metadata, Resultset Metadata, Data types.
<b>CO4: Experimental methods Servlet Interaction &amp; Advanced Servlet</b>	Life cycle of Servlet, Java Servlet Development Kit, javax.servlet package, Reading Servlet Parameters, Reading Initialization Parameters, The javax.servlet.http Package, Handling HTTP. Java Server Pages(JSP): JSP, JSP Tags, Request string, Cookies, User session, Session object
<b>CO5: Learning Basic Networking through JAVA</b>	InetAddress, URLConnection, HTTPURLConnection, Cookies, Datagram classes, Introduction To EJB, Types of EJB

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	-	3	3	-	-	-	-	-	-	2
<b>CO2</b>	3	-	3	3	-	1	-	-	-	-	2
<b>CO3</b>	3	-	3	3	-	2	-	-	-	-	3
<b>CO4</b>	3	-	3	3	-	2	-	-	-	-	3
<b>CO5</b>	3	-	3	3	-	-	-	-	-	-	3

**Semester: IV**

**Subject: Advanced Computer Networks and Security**

**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Introduction Of Networks</b>	Types of Connections – Topologies, Protocols and Standards and OSI Model, TCP/IP and Wireless WANS
<b>CO2: Studying Of Network Layer</b>	Logical addressing , Routing Algorithms and IPV4 and IPv6
<b>CO3: Learning Of Transport Layer</b>	Congestion Control, and Connection Establishment, TCP time Management
<b>CO4: Understanding Of Application Layer</b>	DNS- Namespace, E-Mail- Architecture and World Wide Web – HTTP
<b>CO5: Knowing Of Network Management</b>	Network Security- Security Services-Message Confidentiality Message Integrity, Message Authentication and Firewalls

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO
<b>CO1</b>	3	-	-	3	2	2	1	2	-	-	-
<b>CO2</b>	3	2	2	3	2	2	1	2	-	-	2
<b>CO3</b>	2	1	2	3	1	2	2	1	-	-	2
<b>CO4</b>	2	-	3	2	2	2	1	2	-	-	2
<b>CO5</b>	3	-	3	3	2	2	1	2	-	-	2

Semester: IV

Subject : Data Base Management System Lab

Practical Course outcomes

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCO1: Implementation of DDL and DML Commands	Library Data Base: Table creation and inserting values, use of clauses (order by) and aggregate functions
PCO2: Implementation of Query and Subquery language	Movie Data base: Table creation insertion and query within query solving, IN clause usage with group by clause
PCO3: Implementation of Multidependancy through DDL and DML	Customer and Order Processing DB: Table creation and inserting values, foreign key accessing and join operation with deferent clauses and aggregate functions.
PCO4: Building two tier architecture	PL/SQL finding greater value: new coding format with innovative logic and skill development in PL/SQL use of if statements
PCO5: Application development applying control methods	PL/SQL using for loop: use of looping statements and new coding conventions wit PL/SQL
PCO6: Real –time Example of Application	PL/SQL program on Employee detail generation : project oriented coding building and project handling skills through PL/SQL

#### MAPPING OF COURSE OUTCOMES WITH POs AND PSOs

PCOs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PCO1	3	4	2	3	3	2	3	2	-	-	-
PCO2	3	2	3	3	3	4	3	2	-	-	3
PCO3	3	3	2	3	4	2	3	3	-	-	3
PCO4	3	3	2	2	4	3	2	2	-	-	3
PCO5	3	3	3	3	3	3	4	2	-	-	3
PCO6	3	2	3	3	3	3	3	3	-	-	3

**Semester IV**

**Subject: Advanced Java Programming Lab**

**Practical Course outcomes**

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Implementation of Mouse Events</b>	Write a java program to implement mouse events like mouse pressed, mouse released and mouse moved by means of adapter classes
<b>CO2: Demonstration of Keyboard Events</b>	Write a java program to implement keyboard events.
<b>CO3: Implementation Exception Handling</b>	Write a program that creates a user interface to perform integer divisions. The user enters two numbers in text fields ,button click events of divide zero error and display error in dialog box
<b>CO4: Application of Simple Calculator</b>	Write a Java program to illustrate basic calculator using grid layout manager.
<b>CO5: Building two tier architecture</b>	Write a Java program that loads names and phone numbers from a database file. It takes a name or phone number as input and prints the corresponding other value.
<b>CO6: Demonstration of application program through servlet</b>	Ask the user for a color in a JSP in say "Home.jsp" file. Display "Hello World" in the chosen color using a Servlet, say in "helloWorld.java". (Hint: use tomcat server
<b>CO7: Implementation Client – server program</b>	: Write a Java program to establish client server communication using TCP/IP socket
<b>CO8: Demonstration of UGI program</b>	implement a dynamic HTML using Servlet. (username and password should be accepted using HTML and displayed using Servlet
<b>CO9: Application program on Networking</b>	Java Program to find the IP address of a given website specified by the user
<b>CO10: Implementation of Scripting</b>	JSP program to find factorial of a given number

**MAPPING OF COURSE OUTCOMES WITH POs AND PSOs**

COs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	-	3	3	-	-	-	-	-	-	2
<b>CO2</b>	3	-	3	3	-	-	-	-	-	-	2
<b>CO3</b>	3	1	3	3	1	-	-	-	-	-	3
<b>CO4</b>	3	-	3	3	2	-	-	-	-	-	2
<b>CO5</b>	3	2	3	3	2	-	-	-	-	-	3
<b>CO6</b>	3	-	3	3	-	1	-	-	-	-	3
<b>CO7</b>	3	-	3	3	-	-	-	-	-	-	2
<b>CO8</b>	3	-	3	3	-	1	-	-	-	-	3
<b>CO9</b>	3	2	3	3	2	-	-	-	-	-	2
<b>CO10</b>	3	1	3	3	-	1	-	-	-	-	3

Semester V  
 Subject: Software Engineering  
 Course outcomes

COURSE OUTCOMES	DESCREPTIONS
CO1: Introduction to Software Engineering	Evolving role of software, CMMI, Process Assessment, Process Models
CO2: Understanding Software Requirements	Functional, Non-Functional, User and System requirement, Feasibility study, System models
CO3: Knowing with examples of software Design Engineering	Design process and Design quality, Architectural design, Performing user interface design
CO4: Experimental method of software Testing Strategies	Black box testing, White box testing, Validation testing, Software Quality
CO5: Handling Risk Management methods in SE	Reactive v/s Proactive risk strategies, Risk projection, Risk refinement, RMMM plan, ISO 9000

MAPPING OF COURSE OUTCOMES WITH POs AND PSOs

COs/POs and PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	2	3	3	2	1	-	-	-	-	-
CO2	3	-	3	3	2	-	-	-	-	-	-
CO3	3	1	3	3	2	3	-	-	-	-	-
CO4	3	3	3	3	3	-	-	-	-	-	-
CO5	3	3	3	3	3	-	-	-	-	-	-

**SEMESTER: V**

**SUBJECT : Software Programming & Testing**

**COURSE OUTCOMES**

COURSE OUTCOMES	DESCRIPTIONS
<b>CO1: Introduction of Principles of Testing</b>	Phases and types of Software development life cycle Quality, assurance & control, Types of White box testing and challenges.
<b>CO2: Understanding Testing Techniques</b>	Black box testing and their methodologies, Integration Testing and their types, Functional/Non functional testing
<b>CO3: Studying various Types of Testing</b>	Factors Tools, Process and Methodologies of performance testing, Types of regression testing, Approach, factors & tools of usability testing.
<b>CO4: Knowing the Common people issues</b>	Perceptions & misconceptions about testing, What are the career paths for Testing professionals, What are the roles of ecosystem, types of organizational structures in single & multi product companies.
<b>CO5: Acquire the skills in Test planning</b>	Know about Test planning, scope and risk management, choice of standards, what is automation, what are the skill needed & scope of automation.

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

COs/Pos & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	1	1	3	1	1	3	1	1	3	1	1
<b>CO2</b>	1	2	3	1	2	3	1	2	3	1	2
<b>CO3</b>	1	2	3	1	2	3	1	2	3	1	2
<b>CO4</b>	-	1	2	-	1	2	-	1	2	-	1
<b>CO5</b>	2	2	3	2	2	3	2	2	3	2	2

**SEMESTER: V**

**SUBJECT : .NET Framework using 'C#'**

**COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Introduction, .NET Architecture &amp; framework</b>	CLR,MSIL,JIT,FCL,CLS,CTS, GC, difference between c# and java and vb
<b>CO2: Learning C# Basics, Object &amp; classes</b>	Data types, different types of operators, concept of class ,object, constructor, method overloading ,delegates and events.
<b>CO3: Understanding Inheritance, working with collections</b>	Types of inheritance, overriding, boxing & un boxing, collections-list, dictionary, array list, hash table etc.
<b>CO4: Developments of skills in Exception handling, Assemblies, Winforms</b>	How to handle the exceptions, how to create user defined & custom exceptions, types of assemblies, how to create the assemblies , learning all window form controls
<b>CO5: Real-Time implementations of Window services, Packaging &amp; deployment</b>	Learn the purpose and adv. of developing & deploying, debugging, tracking services, types of deployment modules.

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

COs/Pos & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	1	3	3	-	1	-	-	-	-	2
CO2	3	3	3	3	2	1	2	1	-	-	3
CO3	3	3	3	3	1	2	2	-	-	-	2
CO4	3	3	3	3	3	3	3	1	-	-	3
CO5	3	3	3	3	2	3	2	2	-	-	3

**Semester V**  
**Subject: Cyber Crime and Security**  
**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Introduction to Cybercrime</b>	Classifications of cybercrime, Cybercrime and the Indian ITA 2000, A global Perspective on cybercrimes.
<b>CO2: Understanding Cyber offenses &amp; Cybercrime</b>	Cloud computing, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices
<b>CO3: Knowing about Tools and Methods Used in Cyber line</b>	Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Steganography, DoS DDoS Attacks, SQL Injection, Buffer Over Flow
<b>CO4: Understanding Computer Forensics</b>	Cyberforensics and Digital Evidence, Forensic Analysis of Email, Digital Forensics Lifecycle, Chain of Custody Concept, Network Forensics, Approaching a Computer Forensics Investigation
<b>CO5: Organizational Implications of cyber security</b>	Web Treats for Organizations: The Evils and Perils, Security and Privacy Implications from Cloud Computing, Social Media Marketing:

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	2	2	2	1	3	-	1	1	-	-	-
<b>CO2</b>	3	2	3	1	2	2	2	2	-	-	1
<b>CO3</b>	3	3	3	2	3	2	2	2	-	-	3
<b>CO4</b>	3	3	2	2	3	-	2	2	-	-	2
<b>CO5</b>	3	3	3	2	3	2	2	3	-	-	2



**Semester V**  
**Subject: Programming with Python**  
**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1:Understanding of Basic Elements</b>	Learn the basic data types,input,output statements ,branching,control scoping
<b>CO2:Enahancing Skills</b>	Development of more skills on Structure data types , their operations, functions and objects
<b>CO3:Experimental Study</b>	Testing in python, types, methods and object oriented approach
<b>CO4:Ability to develop skills in GUI</b>	How to use various GUI controls with examples
<b>CO5:Learning method of two tier architecture</b>	Development of Database connectivity with python and executions of all SQL commands

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	2	2	3	1	1	-	-	-	-	-
<b>CO2</b>	3	3	3	3	2	2	3	-	-	-	-
<b>CO3</b>	3	3	3	3	-	2	3	3	-	-	-
<b>CO4</b>	3	3	3	3	2	3	3	3	-	-	3
<b>CO5</b>	3	3	3	3	2	3	3	3	-	-	3

Semester: V  
 Subject: C # (LAB)  
 Practical Course outcomes

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCO1: Implementation of Switch Case	Program to calculate root of Quadratic Equation.
PCO2: Enhancing skills through arrays & Looping Statements	Program in to count frequency of each element & count number of alphabets, digits & special characters
PCO3: Implementation of Function by Passing Parameters	Calculate the sum of the individual digits
PCO4: Implementation of different components	Programs Using Different Components like Textbox, Checkbox, Label, Dropdownlist, Imagebox, Button, Datepicker, Calendar etc
PCO5: Implementation of Database Programs	Create GUI application using Database and performing CRUD Operations

### MAPPING OF COURSE OUTCOMES WITH POs & PSOs

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	-	3	3	-	2	-	-	-	-	3
CO2	3	2	3	3	2	2	-	-	-	-	3
CO3	3	2	3	3	2	2	-	-	-	-	3
CO4	3	-	3	3	-	3	1	-	-	-	3
CO5	3	-	3	3	3	3	1	-	-	-	3

Semester: V  
 Subject: Android (LAB)  
 Practical Course outcomes

PRACTICAL COURSE OUTCOMES	DESCREPTIONS
PCO1: Understanding Of Basic Tools(Basic Knowledge)	Learning of Project File Structure and Compiling and Running program by creating AVD, Helloword program
PCO2: Demonstration of Creating Activities, Listview Menu	Developing of an application and navigating using Listview menu
PCO3: Implementation Of GUI Components	Developing an application for Login Page, Image , color
PCO4: Drawing Graphics primitives	Developing an application using Basic Graphical Primitives
PCO5: Implementation of Audio Functions	Illustrating audio factions using Buttons

MAPPING OF COURSE OUTCOMES WITH POs & PSOs

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	2	-	3	3	-	2	-	3	-	-	3
CO2	2	-	3	2	-	3	-	3	-	-	3
CO3	3	-	3	2	-	2	-	3	-	-	3
CO4	3	-	3	3	-	3	-	3	-	-	3
CO5	2	-	3	3	-	2	-	3	-	-	3

**Semester: VI**  
**Subject: WEB Programming**  
**Course outcomes**

COURSE OUTCOMES	DESCREPTIONS
<b>CO1: Understanding Fundamentals of Web, XHTML and CSS</b>	Programmers Toolbox, XHTML tags, CSS coding formats, WEB age designing
<b>CO2: Implementation of web designing through Javascript</b>	Screen output and keyboard input, Control statements, Object creation and modification, Arrays, Functions, Constructor, Pattern matching using regular expressions
<b>CO3: Introduction ASP.NET</b>	ASP.NET 3.5 Provider Model and Implementing Code Sharing,
<b>CO4: Experimental methods of Web designing</b>	Web server controls and web application, User Controls and Custom Controls, Validation Controls:
<b>CO5: Learning Application development Data Access With ADO.NET</b>	SQL Data base connectivity JDBC and ODBC and data grid view control

**MAPPING OF COURSE OUTCOMES WITH POs & PSOs**

COs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>CO1</b>	3	3	3	3	3	2	2	3	-	-	3
<b>CO2</b>	3	3	3	3	2	3	3	3	-	-	3
<b>CO3</b>	3	3	3	3	3	3	3	2	-	-	3
<b>CO4</b>	3	3	3	3	3	3	2	3	-	-	3
<b>CO5</b>	3	3	3	3	3	3	2	3	-	-	3

**SEMESTER: VI**  
**SUBJECT : Business Intelligence**  
**COURSE OUTCOMES**

COURSE OUTCOMES	DESCREPTIONS
CO1: Understanding of Business View of Information Technology, The connected world	Business Enterprise Organization, its functions, core functions, Characteristics of ERP, CRM, Types of digital data
CO2: Introduction to OLTP & OLAP, Business Intelligence.	Different OLAP & OLTP architecture, data models, roles. Defn. of BI, DSS, EIS, MIS & digital dash board, BI for post, present & future.
CO3: Knowing BI definitions & concepts, data ware house	BI users, applications, roles, responsibilities , basics of integration, need for data warehouse, defn. data integration, techologies, quality & profiling.
CO4: Study f various Data Models	Types of data models, techniques, fact table & navigating Business Enterprise
CO5: Enhancing knowledge in Enterprise Reporting	Reporting perspectives, standardization & preparation, characteristics in OLAP world.

**MAPPING COURSE OUTCOMES WITH Pos AND PSOs**

COs/Pos & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	1	1	3	3	1	2	2	1	-	-	1
CO2	2	1	2	3	2	2	1	1	-	-	1
CO3	1	3	3	3	-	2	-	-	-	-	3
CO4	1	1	3	3	1	2	1	-	-	-	2
CO5	2	1	3	3	-	1	-	2	-	-	2

Semester: VI

Subject: WEB Programming Lab

Course outcomes

COURSE OUTCOMES	DESCREPTIONS
<b>PCO1:Implementation of basic tags of CSS and XHTML</b>	Develop and demonstrate a XHTML document that illustrates the use external style sheet, ordered list, table, borders, padding, color, and the tag.
<b>PCO2: Demonstration of input output statements and string operation using javascript</b>	Fibonacci numbers using javascript
<b>PCO3: Development of GUI Program</b>	XML document to store information about a student in an BCA college affiliated to RCU
<b>PCO4:Implementation of ASP.NET programming</b>	ASP.NET program to accept the User Name and display a greeting message randomly chosen from a list of 4 greeting messages.
<b>PCO5: Demonstration of ASP.NET cookies and accessing web page</b>	ASP.NET program to store current date-time in a COOKIE and display the 'Last visited on' date-time on the web page upon reopening of the same page.
<b>PCO6: Application development</b>	C XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields. On submitting, store the values in SQLSERVER table. Retrieve and display the data based on Name.

### MAPPING OF COURSE OUTCOMES WITH POs & PSOs

PCOs/POs & PSOs	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
<b>PCO1:</b>	3	4	2	3	3	2	3	2	-	-	2
<b>PCO2</b>	3	2	3	3	3	4	3	2	-	-	3
<b>PCO3</b>	3	3	3	3	4	2	3	1	-	-	3
<b>PCO4</b>	2	3	3	2	4	3	2	2	-	-	3
<b>PCO5</b>	3	3	3	3	3	3	3	2	-	-	3
<b>PCO6</b>	2	2	3	3	3	3	2	3	-	-	3

## EVALUATION MAPPING

Evaluation Pattern : 20 Marks Internal Assessment Test  
80 Marks University End Examinations

Question Paper Pattern: 2 Marks (Objective)  
5 Marks (Descriptive)  
10 Marks (Numerical/Analytical/Descriptive and Programs)

Parameters of Patterns:

1. Skill Based
2. Understanding
3. Logical Ability
4. Numerical/Analytical
5. Descriptive/Diagram
6. Programming Skills

## EVALUATION MAPPING

Sl. No	Parameter	Percentage
1	Skill Based	10%
2	Understanding	15%
3	Logical Ability	5%
4	Numerical/Analytical	15%
5	Descriptive/Diagram	20%
6	Programming Skills	35%
		100%

## PRACTICAL EVALUATION MAPPING:

Evaluation Pattern	:	20 Marks Internal Assessment Test
	:	80 Marks University End Examinations
Writing of Programs	:	30 Marks (15 Marks for each programs)
Execution of programs	:	30Marks (Each program 15 marks)
Viva-Voce	:	10Marks
Journal / Laboratory Report	:	10Marks
Total	:	80Marks

## EVALUATION MAPPING

Sl.No	Parameter	Percentage
1	Skill Based	30%
2	Understanding	10%
3	Logical Ability	10%
5	Descriptive/Diagram	20%
6	Programming Skills	30%
		100%



## Evaluation of Project-Application Development

### I. Internal Assessment evaluation: Total Marks: 60

#### A. First Internal Assessment Max. Marks: 30

Time: 20 min

B. Students shall present the details of the project work carried out that includes the following

- Synopsis contents
- Problem identification and proposed solution
- SAD, SRS
- Database Design
- Functions

PowerPoint slides shall be used by the students to present the work carried out.

#### C. Second Internal Assessment Max. Marks: 30

Time: 30min

Students shall present the details of the project work carried out that includes the following

- Coding details
- Forms and reports
- Demo of the application developed

**Note:**

IA marks shall be assigned by the concerned guide monitoring the project work of the students.

### II. External Exam Evaluation Process : Total marks=240

Max. Marks: 240

Time: 3 Hours


1. Dissertation/Project Report evaluation	:	100
2. Presentation/Demo of the application developed	:	100
3. Viva-voce	:	40
Total Marks	:	240

**Final Marks for Project:**

IA marks	:	60
External Exam Marks	:	240
Total Marks	:	300

### EVALUATION MAPPING FOR PROJECT

Sl.NO	Parameter	Percentage
1	Skill Based	30%
2	Understanding	10%
3	Logical Ability	10%
5	Descriptive/Diagram	20%
6	Programming Skills	30%
100%		

  
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**Principal**  
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